Report on stakeholder analysis and strategies for stakeholder engagement

T. van Ingen, C. Baker, L.F. van Der Struijk, I. Maiga, B. Kone, S. Namaalwa, L. Iyango, B. Pataki, I. Zsuffa, T. Hein, et al.

Report on Stakeholder Analysis and Strategies for Stakeholder Engagement

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Lead Author:
Trudi van Ingen (Wetlands International)

Contributors:
Chris Baker (Wetlands International);
Luiz Felipe van der Struijk;
Idrissa Maiga and Bakary Kone (Wetlands International Mali);
Susan Namaalwa, Lucy Iyango (Uganda);
Beata Pataki, Istvan Zsuffa (Hungary);
Thomas Hein, Peter Winkler and Gabi Weigelhofer (Austria);
Stefan Liersch (Germany);
Mutsa Masiyandima, Sylvie Moradet and Edward Chuma (South Africa);
David Matamoros, Gina Garzia (Ecuador)
Tom d'Haeyer (Soresma)

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www.wetwin.net

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Lead author	Trudi van Ingen (Wetland International)
Contributors	Chris Baker; Luiz Felipe van der Struijk; Beata Pataki; Istvan Zsuffa; Stefan Liersch; Idrissa Maiga; Bakary Kone; Thomas Hein; Peter Winkler; Gabi Weigelhofer; Susan Namaalwa; Lucy Iyango; Mutsa Masiyandima; Sylvie Moradet; David Matamoros; Gina Garzia; Tom d'Haeyer
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Win the wetland and you win the river basin! WETwin

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Summary

Introduction to WETwin

To enhance the recognition of the role of wetlands in basin scale water resources management the WETwin project was initiated, aiming to improve drinking water and sanitation services of wetlands; to improve wetland community services while conserving or improving good ecological health; to adapt wetland management to changing environmental conditions; and most importantly, to integrate wetlands into river basin management. For this purpose case study wetlands and their river basins in Africa, South Africa and Europe are 'twinned'. Thus knowledge and expertise on wetland and river basin management are exchanged. Management solutions are worked out for the case study wetlands with the aim of supporting the achievement of the above objectives. Knowledge and experience gained from these case studies will be summarised in generic guidelines aiming to support achieving project objectives on a global scale.

Importance of stakeholder participation

WETwin puts a lot of emphasis on stakeholder participation as part of the research process, to ensure the constructive engagement with the entire spectrum of societal actors throughout the project life cycle. It considers stakeholder participation as a cross-cutting continuous process throughout the project. Stakeholder analysis and the development of an engagement strategy have been conducted in each developing country case study wetland selected. In the European study wetlands only the stakeholder analysis took place.

Report purpose

This document is the report of the stakeholder analysis and engagement strategy development process that took place during the first year of the WETwin project. It sets out the methodology and gives an account of the stakeholder analysis results and established engagement strategies, and site specific recommendations for further stakeholder engagement of three European and four Southern "twinned" case study sites.

An effort has been made to summarise the information of these seven sites in a comparable format so that in addition a preliminary comparative analysis could be made that can form the basis for further analysis, monitoring and evaluation, and for learning lessons during WETwin that can feed the process of developing generic guidelines for stakeholder engagement. Also recommendations on how the stakeholder process can be monitored and evaluated are given.

Hence, this document should be considered as a baseline and "working" document, whose content should be adapted over time.

Methodology

Guidelines and a standard framework or principles were developed to guide the process of stakeholder analysis and the strategic engagement of key stakeholders in all phases of the project and beyond. The actual stakeholder analysis and the development of a stakeholder engagement strategy were undertaken in the different sites by the case study / Wetland Leaders[1] and their subcontractors.

A standard framework and principles for analysis and engagement strategies were provided to create consistency in the methodology so that as much as possible a large degree of comparability between the project sites was achieved. This provides a firmer basis for developing generic guidelines. At the

[1] "Wetland Leaders" are " responsible and overseeing the work done, the timely delivery of reports, the budget and expenses, etc. at the case study sites"

same time the framework provided sufficient opportunity to develop site specific strategies for stakeholder engagement. The general principles facilitated comparison and analysis.

Stakeholder analysis

The stakeholder analysis guidelines provided partners with a standard strategy, steps and tools to identify and analyse stakeholders, their interests, characteristics and their interrelationships. This provided the basis to make informed decisions on which stakeholders to engage in what way in each stage of the WETwin process and beyond.

Because WETwin is dealing with stakeholders at wetland and river basin levels, it is important to consider the following types of stakeholders:

1. Those who are important to engage during WETwin because they are important and/or influential in relation to the identified WETwin issues, e.g. local wetland users, managers and authorities, research institutes;
2. Those who are influential during and after WETwin, e.g. river basin agencies (whether only advisory or with decision taking power) and other institutes influencing the water management or water regime at local and/or downstream level ("decision makers")
3. Those who should apply or could be instrumental in spreading the outcomes of WETwin (decision support toolbox, site specific management solutions, generic guidelines), e.g. river basin agencies, national authorities dealing with water resources, existing local platforms/fora, NGOs, traditional authorities, women (organisations), etc. ("end users")

The first type of stakeholders has been identified in all study sites, but needs reviewing in relation to the specific WETwin issues. However, more attention still needs to be given to identifying and engaging the other two types of stakeholders, especially at river basin level.

Most case study sites are part of, or using information of, already existing projects, programmes or studies that might have had another focus. This made it in some cases complex to identify and engage key stakeholders related to the site specific key WETwin issues. As a result at some sites too many key stakeholders have been identified, and therefore the risk exists that efforts are spread too broadly and thinly. With the limited funds available for stakeholder participation it is crucial to prioritise and plan this carefully in the most functional and cost-effective way, so that sufficient funds will be left for the stakeholder participation at the final stages of the project, when for implementation of follow-up activities and sustainability need to be agreed and planned.
In other cases people do not want to interfere with existing stakeholder engagement or decision making processes and are therefore too hesitant to approach or engage certain key stakeholders. In these cases important stakeholders might be overlooked or not sufficiently engaged.

Stakeholder engagement

The stakeholder engagement guidelines were developed to ensure the systematic and constructive engagement of stakeholders throughout WETwin and beyond, by guiding WETwin partners on how and when to engage stakeholders in problem analysis, research design, implementation, the development of decision-support related deliverables and the best approach to share the results and their implications.

WETwin is primarily a research and not an implementation project, although at the same time for the Southern sites a WETwin intention is to find local management solutions. In addition to having to engage different types of stakeholders at wetland and river basis level, this makes it difficult to narrow down to stakeholders that really need to be engaged in relation to the issues or wetland services investigated, and to make choices about the level of engagement. Because perceptions, understanding and/or external circumstances might change it is recommended to review the choice of stakeholders and level of engagement in relation to the issues or wetland services investigated and make this subject to continuous monitoring and adaptation during the life-time of WETwin. This

would ensure most cost-effective use of resources for stakeholder engagement during WETwin and generate suggestions for stakeholder engagement after WETwin at the case study sites.

Another area of concern is the focus on the wetlands level, which is logical from the perspective of the Wetland Leaders. However, as a result river basin level and political stakeholders are too casually engaged. They participate sometimes at workshops, but no commitment or active engagement is asked. Perhaps it is assumed that it is not appropriate for WETwin to ask for commitment before there are any results. However, WETwin is about integrating wetlands and wetland ecosystem cervices into river basin management. In the end it are especially the river basin managers and politicians that should implement the generic guidelines developed for this purpose by WETwin. The chances of this happening are much higher when they are more actively engaged during the development of the generic guidelines. Therefore it is highly recommended to ask for a more active engagement of river basin and political level actors as soon as possible. Although it would be good to obtain their commitment for implementation of the generic guidelines, they might be reluctant to give that commitment at this stage. Nevertheless, it is important to engage them in the development of the generic guidelines, and take their issues, concerns and suggestions into account. It is also necessary to get into discussion with them about the effects of decisions taken about developments upstream (e.g. as in the case of Ecuador building a dam that is going to divert water to another river basin) and how negative effects can be mitigated or avoided. The development of generic guidelines could highly benefit from the practical inputs of this level of stakeholders and will make the generic guidelines more useful to them with a higher chance of being implemented. At the same time this would serve the sustainability of WETwin results.

In more than one site there is mistrust between local users and management authorities and a negative attitude of local communities or certain government institutes. These can have a negative effect on WETwin results and need to be addressed and confidence restored before (compromise) solutions can be found. Likewise good communication to and with stakeholders is important. These issues need to be addressed in the stakeholder engagement plans as well.

Especially at the “Southern” case study sites the process would benefit from engaging women (associations) more than is the case now, especially when dealing with domestic water use and sanitation issues. In some cases little or no attempt seems to be made to engage women or women groups, or only for part of the process even if identified as an important engagement platform.

Monitoring, learning, adapting and the generic guidelines

It is important to explore and learn from the process on how to engage stakeholders for integrating wetland management into river basin management. The purpose of monitoring and evaluating the stakeholder engagement process is on the one hand to ensure continuous constructive engagement of stakeholders throughout WETwin, and on the other hand to develop generic guidelines on how stakeholders at different levels can be engaged to integrate wetland management into river basin management.

The whole process shows that a good stakeholder identification and analysis is not an easy process and that it is even more complicated to put it in a standard format to enable a comparative analysis, because of the differences in context and focus of the different study sites. However, now that this has been established it is worthwhile to invest in monitoring, evaluating and drawing conclusions for the generic guidelines about the three types of key stakeholders mentioned above in relation to integrating wetlands in river basin management.

In relation to stakeholder participation the study sites could learn from each other, by identifying common factors for success as well as common factors for failure (generally the best source for learning). In addition, during WETwin the case study sites could be compared on these factors for success and failure in relation to stakeholder engagement. Conflict management and handling

conflicting interests is such an issue. Some wetlands sites are more advanced than others in resolving conflicting interests and finding management solutions (remaining conflicts are mainly externally induced). For the generic guidelines it would be interesting to learn from this stakeholder engagement process: how have they managed to come to compromise solutions? What were the key factors for success, why? Who were the key stakeholders, why?

In all study sites to a greater of lesser extent there are stakeholders who are not directly interested in the effects their decisions or actions have on (downstream) wetlands or wetland ecosystem services, but whose actions or decisions do have influence (e.g. dams or irrigation schemes). In those cases, for the generic guidelines, WETwin could be a test case on how to engage these stakeholders and get them committed to take the effects of their actions and decisions into account and to avoid or to mitigate negative effects. During WETwin actions go engage those stakeholders more actively could be monitored and the successfulness of these actions evaluated.

It could also be that decisions that have negative effects on wetlands are taken because important and influential stakeholders are not aware or have only little knowledge of wetlands and the ecosystem services they provide, and their importance for the livelihoods of people. WETwin could be a test case to investigate if lack of awareness is a factor in taking negative decisions and if awareness raising about the services and associated values wetlands provide is necessary (especially for “decision takers”).

Where traditional management systems exist or existed it might be interesting to assess what can be learned from this that might be useful for WETwin, e.g. what the institutional arrangements and key stakeholders are or were; what worked and why, and what can be learned from it. For this purpose local “headmen”, “masters” or other traditional leaders are important stakeholders to consult.

What needs to be monitored is if the choices made regarding the selection of key stakeholders and the stakeholder engagement strategy are getting WETwin closer to its end goal. External circumstances might change or assumptions might be wrong: a lot can interfere with what was planned. If things are not going as planned, or not giving the expected (intermediate) outcomes, the question needs to be posed “why not” and what needs to be adapted or improved. Certain activities or even the strategy might need to be adapted. Then a new cycle of “trial, error and learning” starts. For this reason this report, and the study site stakeholder reports, should be considered as a baseline that will need adaptation, and not as an end report. Likewise it is important to identify, learn from and document when something goes very well and what the factors of success are.

The following issues are important to monitor/reflect on e.g. every 6 months at each case study site, to be able to adapt the process of stakeholder engagement during WETwin. Subsequently the same issues can be compared between sites and evaluated to draw conclusions on stakeholder engagement for the generic guidelines:

1. Choice of key stakeholders: the essential stakeholders to engage out of:
   - different categories,
   - the three types of stakeholders (direct wetland users and managers; “decision makers” and “end users of WETwin results”) and
   - different levels (wetlands, river basin and political).

2. Level and way of engagement: most functional (i.e. cost-effective) level and way of engagement for different key stakeholders.

3. Addressing problems and obstacles: most important obstacles for successful stakeholder engagement that need to be addressed; and best strategies to address these problems, obstacles and conflicts of interest between stakeholders (within and between levels).

4. Communication, information supply, transparency: most effective communication strategies to ensure stakeholders' contentment and collaboration.

5. Assumptions: which assumptions about stakeholder engagement have proven to be valuable and true and which ones not?

6. External circumstances: what are (changing) external circumstances with a big impact and what is a good way to react in relation to stakeholder engagement?

7. Sustainability: best strategies to ensure sustainability, i.e. for the use of decision support tools, management solutions, generic guidelines.

8. Factors of failure and success: what can be concluded about factors of failure and success in relation to stakeholder engagement?

This stakeholder engagement monitoring process shouldn't be seen as an extra burden for reporting purposes, but as a help to stay alert on the stakeholder engagement process and assess if the chosen strategy is effective and to adapt the engagement strategy or plan if necessary. Also, it shouldn't be complicated, but simple and focused: a matter of staying alert and having open eyes and ears at formal and informal interactions with stakeholders for the above issues, and reflect and report on these.

It is important to agree with key stakeholders on a set of simple indicators of successful stakeholder engagement, related to the above mentioned issues. At the final stages of WETwin these could be evaluated with stakeholders to draw lessons for the local sustainability plan and for the generic guidelines.

Sustainability

It is imperative to consider sustainability throughout WETwin in relation to its different types of stakeholders. The discussion about long term sustainability should be a continuous area of dialogue with key stakeholders to reach an agreed position by the project end. Only then embedding in stakeholder institutions and planning processes can be reached.

Furthermore outputs (publications, tools) need to be adapted and made accessible at the different user levels, i.e. strategic/decision making level and local user and management level. Capacity building (for all levels) to use the tools or guidelines need to be ensured and considered from the onset. This also stresses the need for engaging the stakeholders that need to implement the management solutions and generic guidelines ("end users") and the ones who should provide the right conditions ("decision takers").

Stakeholders can't be separated from the institutions they function in, their composition, legal status, etc. E.g., to what extent local management committees have any real management power depends on to what extent they have a formal/legal status. Therefore, to ensure institutional sustainability, there should be a close collaboration and synergy between WETwin Work Package 2 (dealing with stakeholder participation) and Work Package 4 (dealing with the institutional setting: existing policies and legislation, institutional set-up, key wetland services dealt with, etc.).

1 Aim of this report

1.1 Introduction to WETwin

Wetlands provide important services for local communities (food, drinking water, wild products, etc.). Also wetlands play an important role in water regulation, purification and, depending on its management, the prevention or spreading of water-borne diseases.

Wetlands play a key role in providing drinking water and adequate sanitation. Yet, at the current pace, the Millennium Development Goals for adequate sanitation and drinking water are missed with half a billion people worldwide. It is expected that the increased incidence of droughts, increased water consumption and waste water production only further increase the distance-to-target.

Evidence exists that wetlands are very sensitive towards changes in water allocation, nutrient loading, land-use and economic developments within the entire river basin. Moreover, many wetlands are vulnerable to climate change. As a result, healthy wetlands are the best indicator for a successful integrated water management.

Despite international protection such as through the Ramsar Convention (Global) and Natura 2000 (European Union), many wetlands are not managed wisely and are as a consequence threatened. Several guidelines exist on sustainable wetland management. Yet, these are insufficiently implemented.

As a conclusion, the wise management of wetlands is crucial to maintain its ecosystem services. As wetlands are key elements of a river basin, wetland management affects river basin services, and river basin management influences wetland services. Hence, a need exists to integrate wetlands into river basin management.[2]

Although the services and functions provided by wetlands are more and more recognised, as well as the influence of upstream activities on downstream areas, wetlands are often overlooked in river basin scale integrated water resource management. To enhance the recognition of the role of wetlands in basin scale water resources management, the WETwin project was initiated.

WETwin aims to:

- Improve drinking water and sanitation services of wetlands;
- Improve the community services while conserving or improving good ecological health;
- Adapt wetland management to changing environmental conditions;
- Integrate wetlands into river basin management.

For this purpose case study wetlands in Africa, South Africa and Europe are 'twinned' (see figure 1-1). This means that knowledge and expertise on wetland and river basin management is exchanged. Knowledge interchange is implemented through staff exchange between partners and through actively involving the actual operational case studies' decision-makers in twinning workshops. Locally, stakeholders are also actively involved. Finally, networking with international wetland and river basin platforms also contribute to the global exchange of expertise on wetland management.

Management solutions are worked out for the case study wetlands with the aim of supporting the achievement of the above objectives. Knowledge and experience gained from these case studies will be summarised in generic guidelines aiming to support achieving project objectives on a global scale.[3]

[2] Source: WETwin leaflet
[3] WETwin project proposal Annex 1: Description of Work

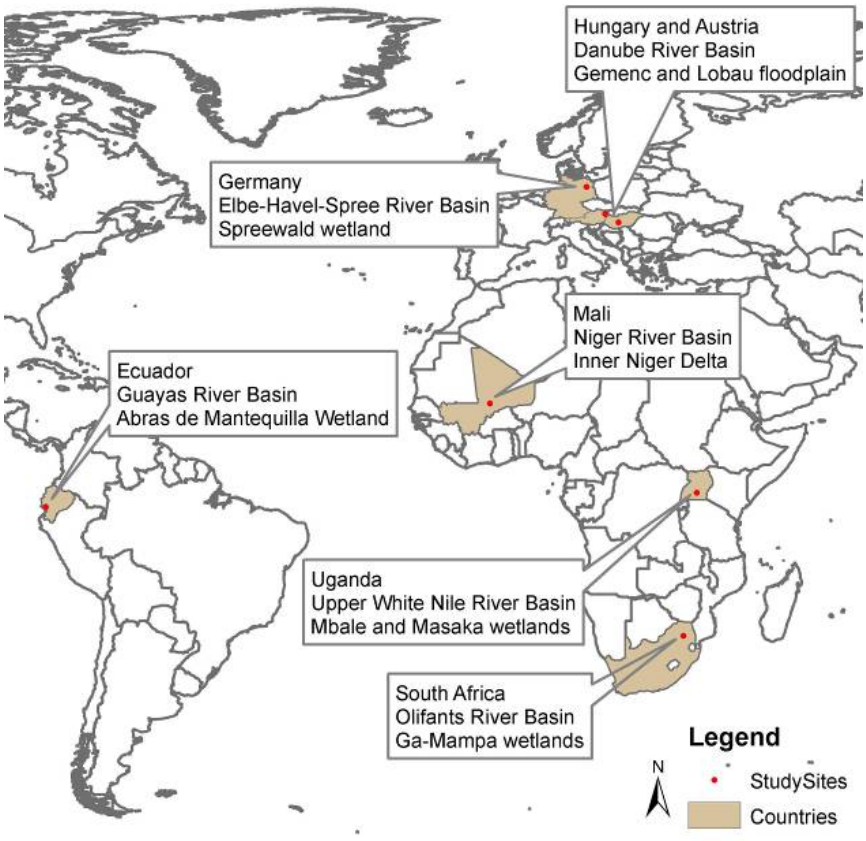

Figure 1-1: WETwin case study sites

Activities are grouped under thematic Work Packages (WP, see figure 1-2). The work plan departed from the initial characterisation of the selected case studies. Hence, the natural and socio-economic status was assessed in WP3, as well as management practices & institutional settings in WP4, and existing stakeholder structures in WP2. Based on a comparative analysis, data gaps are filled. The developed database is made available afterwards to wetland and/or river basin management authorities (WP6). For each WP a "Work Package Leader" and for each case study site a "Wetland Leader" is responsible and overseeing the work done, the timely delivery of reports, the budget and expenses, etc.

In WP7, a modular and flexible decision-support toolbox is developed, based on locally available tools, which allows to quantify wetland functions and services (WP7); to assess the wetlands' vulnerability towards climate change, demographic growth, agricultural production and changes in water demand (WP5); and to quantify the impact of management options on the targeted wetland functions and services (WP8).

Given the wide diversity of case studies, the toolbox consists of instruments at different levels of complexity. In order to support decision-makers on wetland and river basin management, the toolbox outputs are translated into 'policy-tailored' performance indicators and thresholds values. Case-specific best-compromise solutions are worked out for the case study wetlands with emphasis on the trade-off between drinking water and sanitation services, ecological health and livelihood services. To cope with the vulnerability to future changes, sustainable adaptation strategies are designed as well, with active engagement of stakeholders.

Conclusions will be summarized in a generic guideline, which is aimed to be compatible with RAMSAR, the EU Water Framework Directive, the Millennium Development Goals and the Millennium Ecosystem Assessment.

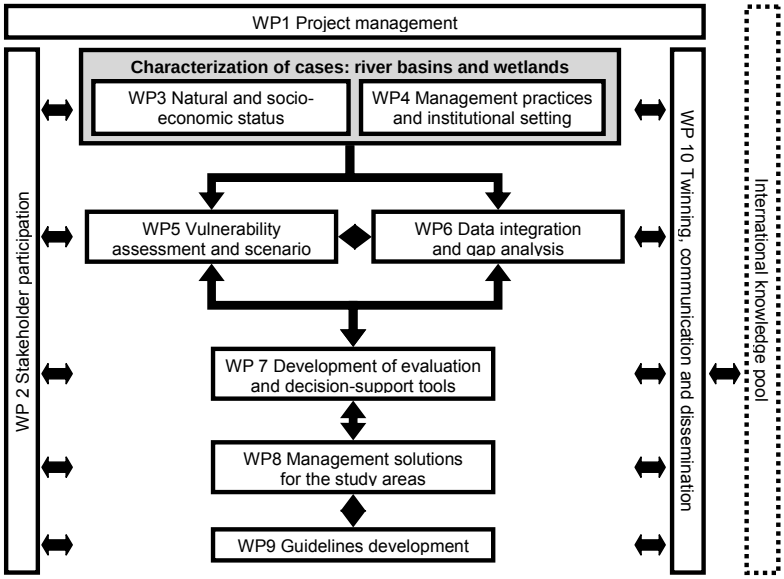

Figure 1-2: Work Package flow scheme

1.2 Importance of stakeholder participation

The EU Water Framework Directive (2000) states that "*In getting our waters clean, the role of citizens and citizens' groups will be crucial*": According to this Directive there are two important reasons for public participation. The first is that the decisions on the most appropriate measures to achieve the objectives of a river basin management or wetland management plan will involve balancing the interests of various groups. It is therefore essential that the process is open to the scrutiny of those who will be affected. The second reason concerns the implementation. The greater the transparency in the establishment of objectives, of measures, and of standards, the greater the care stakeholders will take to implement the plan in good faith, and the greater the power of citizens to influence the direction of environmental protection, whether through consultation or, if disagreement persists, through complaints procedures and courts.

Box 1-1 Definitions

Stakeholders are any individuals, groups of people, institutions (government or non-government) organisations or companies that may have a relationship with the project/programme or other intervention at stake. They may – directly or indirectly, positively or negatively – affect or be affected by the process and/or the outcomes. Usually, different sub-groups have to be considered because within a certain group interests may be different (adapted from EU Project Cycle Management Manual, 2001).

Public participation is an approach allowing the public to influence the outcome of plans and working processes, used as a container concept covering all forms of participation in decision-making (WFD Guidance Document No.8 – Public Participation in Relation to the WFD).

The Water Framework Directive's Common Implementation Strategy document on Public Participation (2003) identifies several advantages of stakeholder or public participation:

- Increased public awareness
- Better use of knowledge, experience and resources from different stakeholders
- Increased public acceptance through a more transparent decision-making process
- Reduced litigation, delays, and inefficiencies in implementation
- A more effective learning process between the public, government and experts.

1.3 Stakeholder analysis and engagement strategies development process in WETwin

WETwin puts a lot of emphasis on stakeholder participation as part of the research process. With Work Package 2 (WP2), on Stakeholder Participation, WETwin aims to ensure the constructive engagement with the entire spectrum of societal actors throughout the project life cycle. It considers stakeholder participation as a cross-cutting continuous process with linkages to all work packages throughout the project.

To mobilize and strengthen the capacities of the local actors in the WETwin project process the following generic issues are explored through stakeholder engagement:

- Relations between (competing) water demands, sanitation, hydrology, ecology, socio-economic activities, sustainability of resources and biodiversity
- Roles and responsibilities of the different actors involved (elected officials and communities, technical services, government services, providers and support structures) and relations between them
- Cultural, organisational and institutional barriers that prevent public participation (link with WETwin WP4).
- Integrated water resources management, role and importance of wetlands, relations with water supply and sanitation wetland functions and valuation, linkages between wetland and river basin.
- Attention regarding gender issues, such as the role of women in water management, wetland wise use and domestic water use.

The approach is to stimulate discussion by stakeholders on the issues, so that awareness is developed/ raised by the stakeholders' discussions and agreement on approaches and issues achieved in a participatory way.

Stakeholder analysis and the development of an engagement strategy have been conducted in each developing country study area selected in the WETwin project (see table 1-1). In the European study areas only the stakeholder analysis took place.

Table 1-1: River Basins and wetlands selected in the WETwin project

River Basin	***Wetland(s)***	***Country***
Niger river basin, Inner Niger Delta (sous basin):	*Macina,* *Mopti, and* *Youwarou wetlands*	*Mali*
Upper White Nile river basin: *Katonga river basin* *Lake Kyoga river basin*	*Nabajuzzi wetland* *Namatala wetland*	*Uganda*
Olifants river basin	*Ga-Mampa wetland*	*South Africa*
Guayas river basin	*Abras de Mantequilla wetland*	*Ecuador*
Elbe-Havel-Spree river basin	*Spreewald wetland*	*Germany*
Danube River Basin	*Gemenc floodplain*	*Hungary*
	Lobau floodplain	*Austria*

Stakeholder participation is a complex and delicate process: it usually involves balancing between, and finding compromise solutions, for the often conflicting interests, needs and aspirations of different stakeholders with different levels of decision taking power. This generally requires investing human and financial resources, facilitation skills, and time. In the context of WETwin, stakeholder participation is even more complicated. Not only is the project dealing with 7 "twinned" project sites, at each project site, one also needs to analyse and engage stakeholders at two different levels: at wetland and river basin level. Furthermore two southern countries have more than one site: Mali with three sites in the Inner Niger Delta and Uganda with two wetlands. As a consequence stakeholder analysis needed to take place at ten wetland sites, and the related river basins, and engagement strategies developed for the seven southern wetlands.

To guide the process, guidelines and a standard framework or principles for stakeholder analysis and for the strategic engagement of key stakeholders in all phases of the project and beyond were developed for the WETwin project[4]. The actual stakeholder analysis and the development of a stakeholder engagement strategy were undertaken in the different sites by the case study / Wetland Leaders and their subcontractors.

The stakeholder analysis guidelines provided partners with a standard strategy, steps and tools to identify and analyse stakeholders, their interests, characteristics and their interrelationships. This provided the basis to make informed decisions on which stakeholders to engage in what way in each stage of the WETwin process and beyond.

The stakeholder engagement guidelines were developed to ensure the systematic and constructive engagement of stakeholders throughout WETwin and beyond, by guiding WETwin partners on how and when to engage stakeholders in problem analysis, research design, implementation, the development of decision-support related deliverables and the best approach to share the results and their implications.

A standard framework and principles for analysis and engagement strategies were provided to create consistency in the methodology so that as much as possible a large degree of comparability between the project sites was achieved. This provides a firmer basis for developing generic guidelines. At the same time the frameworks provided sufficient opportunity to develop site specific strategies for stakeholder engagement. The general principles facilitate comparison and analysis.

[4] Ingen, van & D'Haeyer: WETwin guidelines for stakeholder analysis (2009) and WETwin guidelines for stakeholder engagement (2009)

The Ga-Mampa wetland (photo: M. Masiyandima)

Most case studies sites are connected or embedded in existing projects, where community based management or planning may already be practised. Also, stakeholder participation might be practised in government planning cycles. In those cases these existing practices needed to be taken into account into the WETwin stakeholder analysis and planning for engagement strategies. Stakeholder participation is also dependent on existing policies, institutional set-up, and the key wetland services dealt with. Therefore the resulting level and way of stakeholder engagement differs from one case study site to another.

1.4 Purpose of this document

This document is the report of the stakeholder analysis and engagement strategy development process that took place during the first year of the WETwin project. It is based on the stakeholder analysis and engagement reports received from the seven case study sites (four Southern and three European sites).

An effort has been made to summarise the information of these seven reports in a comparable format so that instead of only giving an account of the case study stakeholder analysis results and engagement strategies, some preliminary comparison and analysis could take place about the engagement of stakeholders at wetlands and river basin level in endeavours to integrate the two. The study site specific stakeholder reports are given in annex 1-7. Site specific discussions about the stakeholder analysis and engagement strategies are given in boxes and each section will end with more general discussions and comments on the subject.

In addition recommendations on how the stakeholder process can be monitored and evaluated are given, on the one hand to ensure continuous constructive engagement of stakeholders throughout WETwin and beyond (the main objective under WP2 of WETwin), and on the other hand to develop generic guidelines for stakeholder engagement at the wetland, river basin and political level to relate river basin and wetland management in a more integrated way (so to feed into Deliverables under WP9).

Therefore, although this document is mostly an account of the results of the stakeholder analysis and engagement process in the different project sites in the first year, it should not be considered an end-product but as a “working” document and a baseline for analysis, learning, comparison and adaptation. Guidelines and manuals for stakeholder participation in general and for wetlands management (Ramsar, 2003) exist, but WETwin offers the unique opportunity to develop guidelines on how stakeholders at different levels could be engaged to integrate wetland management into river basin management.

A preliminary comparative analysis has been undertaken for this report. This can form the basis for further analysis, monitoring and evaluation, and for learning lessons during WETwin that can feed the process of developing generic guidelines for stakeholder engagement.

The preliminary conclusions and the recommendations in this report are based on the information provided in the study site stakeholder reports and the interpretation of the author based on her experience with multi-stakeholder processes in other southern areas. Because the author is not familiar with all study sites it might be that some information is not correct or that some of the recommended actions already take place but that the author was not aware of this.
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2 Stakeholder analysis

Nowadays it is widely accepted that active commitment and collaboration of stakeholders are essential for wise use and management of wetlands.[5] Local people have a rich knowledge base and experience of making a living in a complex environment, and are likely to come up with appropriate solutions to problems.[6] They also have the strongest vested interest in good management as they are the main beneficiaries of services and main losers when management at wetland to basin level goes wrong. Furthermore, other stakeholders like managers, politicians, government and public sector agencies, private sector, CSOs, etc., also have an important or influential role in wetland or river management. Therefore, to be effective, a good stakeholder analysis is essential to underpin engagement.

A stakeholder analysis entails identifying all stakeholders likely to affect or to be affected by the project or intervention and the subsequent analysis of their interests, problems, potentials, interrelationships, etc,[7] It also entails a system for collecting information about groups or individuals who are affected by decisions, categorizing that information, and explaining the possible conflicts that may exist between important groups and areas where trade-offs may be possible.[8]

The conclusions of a stakeholder analysis are important to identify the key actors/stakeholders, and to design a strategy for meaningful and (cost) effective stakeholder engagement. It can also help in the design of an intervention or project itself, i.e., a good stakeholder analysis does not only give the foundation for a stakeholder's engagement strategy but also for targeting interventions and approaches to take.

The stakeholder analysis guidelines developed for the case of WETwin provided the framework for the basic information needed on stakeholders at all study sites and the steps and tools to obtain this information.

This chapter will describe, compare and discuss the results of the stakeholder analysis done in the project sites in the different countries. It is based on the stakeholder analysis and stakeholder engagement reports from the study sites. These reports are compiled per country in annexes 1-7.

2.1 Steps and tools for stakeholder analysis

The Wetland Leaders were requested to go through the following steps and provide for each step the required output:

1. Give a brief description of the local context: geographic scope; WETwin and site specific issues that will be addressed, etc. This information was important to be able to scope and focus on the essential issues and the related key stakeholders. Also other contextual information was important, like to what extent the study site areas are part of another existing programme or study and if some form of stakeholder engagement already exists.

2. Identify and list all stakeholders (primary & secondary) and their interests based on the predetermined focus, with the help of a list of potential types of stakeholder groups provided in the guidelines (see section 2.3). Each stakeholder (sub) group should also be identified as primary or secondary stakeholder, i.e. those directly affected or those who are intermediaries in the delivery process (see box 2.1). The Wetlands Leaders were also requested to pay

[5] Ramsar Convention Secretariat (2003)
[6] Dodman & Koopmanschap (2005)
[7] EU (2001)
[8] De Groot *et al.* (2006)

special attention to the role and interests of women with their specific roles in domestic water use, use of specific wetland services and (often lack of) involvement and role in water management.

3. Identify key stakeholders with the help of the Influence/Importance matrix of all stakeholders (see annex 8). Key stakeholders are those who can significantly influence, or are important (whose priorities are addressed) to the success of the project or project related outcomes.

4. Identify the main characteristics of key stakeholders with the help of the GOPP[9] Participation Analysis Matrix (see annex 9). With this tool the main characteristics of the key stakeholders, their interests in WETwin, possible contributions they can make to WETwin, challenges that need to be addressed and actions required for engaging key stakeholders could be tabled. Ideally, this should have been defined and agreed upon with the key stakeholders themselves, as well as their influence and importance, for instance at a special workshop (see also section 3.3).

***Box 2-1 Definitions**:*

Primary stakeholders are those ultimately affected, either positively (beneficiaries) or negatively (for example, those involuntarily resettled). Primary stakeholders should often be divided by gender, social or income classes, occupation or service user groups. In many projects, categories of primary stakeholders may overlap (e.g. women and low-income groups; or minor wetland users and ethnic minorities).

Secondary stakeholders are the intermediaries in the aid delivery process. They can be divided into funding, implementing, monitoring and advocacy organisations, or governmental, NGO and private sector organisations. In many projects it will also be necessary to consider key individuals as specific stakeholders (e.g. heads of departments or other agencies, who have personal interests at stake as well as formal institutional objectives). Also note that there may be some informal groups of people who will act as intermediaries. For example, politicians, local leaders, respected persons with social or religious influence. Within some organisations there may be sub-groups which should be considered as stakeholders. For example, public service unions, women employees, specific categories of staff. This definition of stakeholders includes both winners and losers, and those involved or excluded from decision-making processes.

Key stakeholders are those who can significantly influence, or are important to the success of the project. Influence refers to how powerful a stakeholder is; 'importance' refers to those stakeholders whose problems, needs and interests are the priority of the intervention - if those important stakeholders are not engaged effectively then the project cannot be deemed a 'success'.

Adapted from Macarenhas-Keyes, 2008

5. Identify and give an overview of interrelationships between actors/stakeholders, especially:
   - existing formal and informal platforms and networks that can be used for WETwin purposes,
   - power relations and
   - existing and potential conflicts (especially related to resource use, and access to and ownership of resources and ecosystem services)

   This could be done with the help of tools like Venn diagram's and network mapping.[10]

6. The Wetland Leaders were also asked to provide a preliminary agreement/plan for stakeholder engagement throughout the different phases (and after) the WETwin process, indicating which key stakeholders should be involved in each WETwin phase and thereafter. With the help of the stakeholder engagement guidelines this was developed further into a

[9] Goal Oriented Project Planning
[10] Ingen, van & D'Haeyer: WETwin guidelines for stakeholder analysis (2009)

more elaborate stakeholder engagement strategy including in what way each of the key stakeholders should be engaged, and to what level each key stakeholder should participate, e.g. being informed, being consulted or more actively involved (see chapter 3).

In case parts of this information already existed through previous surveys and reports, the Wetland Leaders had to check on and collect lacking information, and put everything together in the requested format.

This chapter summarises and discusses the most important information selected from the stakeholder analysis reports from the study sites (for details of each study site see annex 1-7). Because in some cases (countries) only one wetland site is considered and in others more (up to three sites in the Inner Niger Delta in Mali) and because the amount of previous documentation differs in each case, the elaborateness of the information also differs. Nevertheless as far as possible some comparison has taken place and some preliminary conclusions drawn.

Most stakeholder analysis reports were based on previous stakeholder studies done in the context of other projects or programmes. Therefore the WETwin stakeholder analysis reports were often provided in different formats (see annexes). As a result in many of the tables in this chapter the placing of the stakeholder in a certain category is an interpretation of the author of this report.

2.2 Local context and issues of study site wetlands and river basins

In this section (2.2) the scope, main issues and other contextual information of each study site is summarized.

Box 2.2: required contextual information

Scope:
Where the wetland is located (geographic location), population size and other facts that might be of interest/important to know.

Focus:
WETwin does not deal with all issues of the wetland management, but with specific issues. Therefore, to be able to select the most relevant stakeholders, it is important to mention which issues.

Other important contextual information:
In most cases the case studies did not start from scratch but are embedded, an extension or an addition to already longer existing projects or studies. In that case this should be shortly described.

The main issues, ecosystem services and trade-offs identified in the study areas identified at the start of WETwin are indicated in annex 10. Table 2-1 shows the major issues identified at the different study sites at the beginning of WETwin.

Table 2-1: major issues in study areas

WETLAND-COUNTRY	climate change and variability	water quantity regulation	nutrient retention / waste water discharge	nature conservation / restoration	drinking water supply	sanitation / health	agricultural water supply	provision of material for community well-being
SPREEWALD – GERMANY	X	X	X					
LOBAU – AUSTRIA	X	X		X	X			
GEMENC - HUNGARY	X	X	X	X				
ABRAS DE MANTEQUILLA-ECUADOR	X	X			X	X	X	
NABAJUZZI & NAMATALA-UGANDA	X	X	X	X			X	
INNER NIGER DELTA-MALI	X	X	X	X	X	X		
GA-MAMPA- SOUTH AFRICA	X	X					X	X

2.2.1 South Africa case study site:

River Basin: Olifants rivier
Wetland(s): GaMampa
(For details see annex 1)

Figure 2-1: Location of the Ga-Mampa wetland in the Limpopo river basin

Scope: The wetland study site on which the main focus falls within the Olifants River Basin is the **Ga-Mampa wetland** of the Mohlapetsi River catchment. It is located between 24° 05' - 24° 20' S and 30° 00' - 30° 25' E in the Limpopo province of South Africa. The Mohlapetsi River originates in the Wolkberg Mountains and is one of the tributaries of the Olifants River. The wetland covers approximately 1 km2 in a total area of 490 km2 at the confluence with the Olifants River.

Although only a small tributary, the Mohlapetsi is perceived as important for the hydrology and hence water resources of the Olifants River. The general perception is that this tributary makes a significant contribution to the flow of the lower Olifants, particularly in the dry season. The area falls within the Lepele Nkumpi Municipality, Capricorn District of the Limpopo Province, part of the former Homeland of Lebowa. The majority of people living there are of the Pedi tribe.

The catchment surrounding the wetland comprises relatively natural grassland vegetation, contained within a National Reserve. It is predominantly rural, with a low population density. The total population in the immediate area surrounding the wetland is estimated at about 1700 people. All villages are located and agricultural activities occur in close proximity to the valley bottom and in the wetland. The main sources of livelihoods in the valley come from smallholder agriculture, both in irrigation schemes and in the wetland, and social transfers from the government. In addition to agriculture, the wetland is used for livestock grazing, collection of raw material for craft and building and collection of edible plants. Water is abstracted from the wetland for domestic and irrigation use.

Issues:

- The main pressures on the wetland arise from its **increasing use for agriculture** (in the past 10 years half of the original natural wetland area has been encroached by agricultural plots). This is related to increasing population in combination with limited land availability, which is even worsened by the degradation of neighbouring small-scale irrigation schemes.
- This situation has led to potential tensions between the local community and external stakeholders (sector government departments, local government and environmental lobbyists).

Drainage canal in Ga-Mampa leading to the desiccation of the wetland (photo: M. Masiyandima)

Key impacts on the ecosystem include:

- Depletion of organic matter with potential impacts on morphometry of the wetland and pattern of flow
- Increased erosion of the river bank
- Decreased biodiversity
- Reduced capacity for flood attenuation and flow generation
- Diminished nutrient assimilative capacity

The study under which stakeholder analyses activities were implemented sought to:

- Analyse trade-offs between the provision of livelihood services (cropping, natural resources collection) versus water regulating services (river flow regulation, flood prevention) as well as
- Assess the cumulative effects of the impact of wetland use for livelihoods at river basin level

Other contextual information

Data was collected as part of three MSc research projects. These three MSc research were complemented by additional search and analysis of documents available from the worldwide web. The initial stakeholder analysis (2005) was undertaken as the first step of a broader research project seeking to support decisions on wetland management. It was motivated by the need to understand the factors underlying what can be seen as an unsustainable use of the wetland. It was a component of the IWMI[11] project of Wetlands, Livelihoods, and Environmental Security.

The second analysis (2006) looked at the interface between wetland policies, laws, and institutions, and local community-based natural resource tenure of wetlands. It was a component of the IWMI project on sustainable Management of Inland Wetlands in Southern Africa.

The main objective of the last study (2009) was to characterise the wetland management policies in South Africa and their implementation on the ground in relation with the Ramsar convention recommendations on wise use of wetlands.

2.2.2 Uganda case study sites:

River Basin: Upper White Nile
Wetland(s): Nabajjuzi and Namatala wetlands
(For details see annex 2)

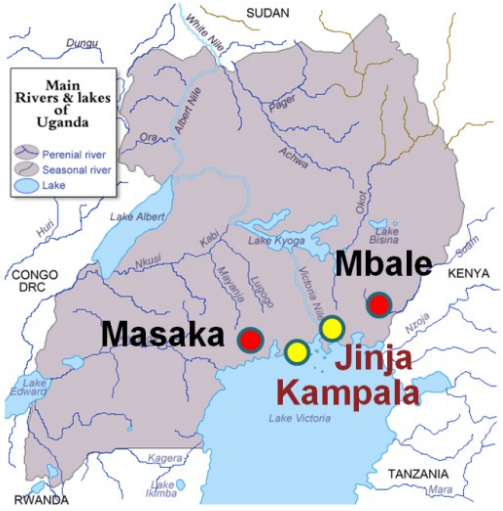


Figure 2-2: Location of the Masaka (Nabajjuzi) and Mbale (Namatala) wetlands in Uganda

[11] International Water Management Institute

Specific research activities under WETwin for the **Upper White Nile River Basin** are conducted on two sites: the **Namatala** and **Nakayiba-Nabajjuzi** wetland systems in Eastern and Central Uganda. Both are near major towns (Mbale and Masaka, respectively) and play an important role in processing wastewater and providing drinking water for the human population. Each one of the towns (both around 70.000 inhabitants) has small laboratories being run at the water treatment plants of the National Water and Sewerage Corporation (NWSC).

Nabajjuzi wetland

Scope: The Nabajjuzi wetland system lies South west of Central Uganda in Masaka district. The system covers 12 sub-counties with a population of 380,000 people living in these sub counties. The Nabajjuzi system is made up of both permanent and seasonal wetland types dominated by papyrus. Crested cranes, white egrets and ibises are some of the birds that frequent it. It has important social and cultural values as it is a source of raw material for crafts and mulching, domestic and livestock water. Its hydrological and physical values are: effluent/sewerage purification, storm water storage, water table discharge/recharge for the surrounding wells and sediment trapping.

Issues:
The population has had a lot of negative impact in the catchment area and on the wetland itself. Before 2005, the wetland was threatened by changes in land-use and major development projects (cultivation in the core wetland area, settlements, soil erosion from deforestation in the river basin). After recognising its critical vital functions, WD together with other stakeholders embarked on a restoration initiative for the Nabajjuzi wetland. All destructive activities were ceased in order to protect the wetland, mainly as a source of water and for sewerage/wastewater purification and storm water storage. Wetlands Division and Masaka District Local Government (MDLG) are preparing to develop a Community Based Wetland Management Plan (CBWMP), for which important input can be provided trough WETwin.

WETwin focus:
- Drinking water supply
- Negative impact of population on catchment and wetland

Tannery treated effluent discharges into the Nabajuzzi wetland (photo: P. Isagara)

Namatala wetland

Scope: The Namatala system is located south of Mbale Municipality and composed of tributary wetlands of Nashibiso and Masanda, and joining a flood plain with a tributary wetland north of Mbale. Namatala wetland is a very big system that is shared among six districts of Mbale, Pallisa, Tororo, Budaka, Butaleja and Manafwa. It drains into the Mpologoma wetland system. The population in the sub-counties adjacent to the wetland is about 656,299 people. Mbale can be taken as a reference for this wetland system. A management plan was developed but has not been fully implemented yet.

Issues:
Important threats exist from changes in land use and major development projects: soil erosion, sewage from Mbale and industrial wastewaters. An additional important contribution of the project can consist of the evaluation of sustainability of proposed management options under changing environmental conditions (climate change).

WETwin focus:
- Nutrient retention
- Wastewater discharge

Rice paddies in the Namatala wetland (photo: R. Kaggwa)

Other contextual information for both wetlands:
Both wetland systems play an important role in providing drinking water and processing wastewater. Foreseen interventions include:
- Series of field studies to investigate the hydrological, drinking water supply potential and wastewater purification capacities of the wetlands.
- Stakeholder involvement to improve wetland management.
- Development of decision support tools to facilitate generation of new management solutions.
- Analysis of technical, organizational and institutional factors.

In both study sites these activities are integrated with/into already existing efforts by the respective districts and other agencies work, e.g.:
- in **Nabajjuzi** Nature Uganda has an Environment and Education Programme with Wetlands as one of the aspects,

- in **Namatala** which is an import bird area it has a Biodiversity Monitoring project.
- For the Districts it is mainly, awareness, sensitization, compliance monitoring and wetland restoration exercises.

2.2.3 Mali case study site:

River Basin: Inner Niger Delta
Wetland(s): Macina, Mopti and Youwarou wetlands
(For details see annex 3)

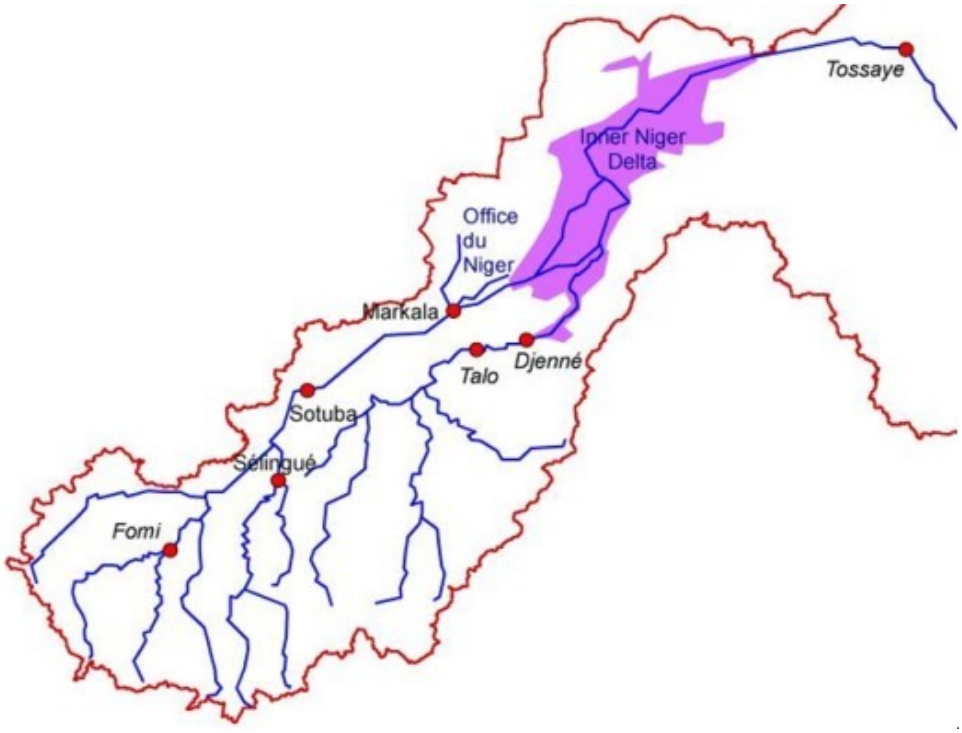


Figure 2-3: Location of the Inner Niger Delta in the Upper Niger basin

The Inner Niger Delta (IND), a large inland flood plain of 30,000 km2 is one of the four major hydrologically distinct components of the Niger Basin. It has international importance for biodiversity and forms a vital part of a regional ecological network, with 3 to 4 million resident or migratory water birds from almost all parts of the African-Eurasian Flyway.

The IND is also critically important for the livelihood support of one million people that depend on the Delta resources and ecosystem. However three-quarters of them live below the poverty level and the region has the lowest social indicators in Mali. Regionally the low level of development and advanced state of degradation of natural resources, as a result of climatic disturbances, human pressure and upstream development, exposes the Delta's population to acute food insecurity. This jeopardizes the balance of the ecosystem in the area as people over-exploit its resource base. Furthermore the IND's location downstream of the Upper Niger means that it is subject to development decisions further upstream; therefore the status of the IND is integrally linked to the effects of water resource management, agriculture and industry.

The Inner Niger Delta (photo: L. Zwarts)

Water supply in the IND is largely directly from the river and waste disposal is often discharged directly into the river. Although pollutant concentrations in the Niger are low, point source gives rise to some highly localized effects; measured data suggest a strong link between these sources and human health. Among diseases encountered in the basin, 80% are linked to drinking water supply and sanitation conditions. The main pollution sources that contribute to these problems are as follows:

a) Human waste disposal: Many medium to large size settlements in and on the edge of the IND have basic sanitary systems that result in solid and liquid domestic wastes and sewerage water being discharged directly into the Delta. Mopti town is one such settlement where it is estimated that 15,000 m2/day domestic wastes are discharged;

b) Industrial waste disposal. These wastes are generally dumped in the Niger River and especially in the Inner Niger Delta, resulting in degraded water quality in some localities which negatively impacts ecosystem health. This creates the conditions where human health can suffer due to contamination of water supply, promotion of conditions for water-borne disease and effects on the population and quality of fish that used for human consumption.

c) Irrigation wastewater disposal. The discharge of irrigation water into the IND can create significant water quality problems in localized areas. These waters carry the fertilizers and pesticides applied to crops which become more concentrated as the water passes through the agricultural system losing water through evaporation. For instance in Office du Niger (Macina) it is recorded that in 1994 6,000 and 4,000 t of urea and phosphates were used to fertilize 47,000 ha of rice fields. As result eutrophication phenomena have been observed with proliferation of invasive weeds (Pistia stratiotes, Eichornia crassipes and Salivinia molesta).

d) Irrigation water management. The irrigation channels of the Office du Niger are inefficient resulting in widespread leakage and ponding of water. For instance nowadays 25,000 m2 water is needed to irrigate 1 ha of rice instead of 15,000 m2 in the past. Associated with this are outbreaks of diseases such as bilharzias, malaria etc.

Rice cultivation in the Inner Niger Delta (photo: B. Kone)

WETwin interventions will take place in **Macina (A)**, **Mopti (B)** and **Youwarou (C)** sites in the IND.

(A) Macina wetland

Scope: The area covered by the project on the Macina site is: Macina, Kolongo and Kokry rural districts. The landscape of the rural districts is flat and is made of plains favorable to rice farming and livestock keeping. Macina is an irrigated rice farming area, corresponding to the onset of the IND. In the area the farming system is linked to the management of the Markala dam which takes 3% and 16% of the Niger River discharge during high and weak flood respectively. The year is divided into three climatic periods: dry and cold season, October-February, dry and hot season, March to June and a rainy season, July to September.

Macina rural district is located between the Niger River and the IND. The rural district has 29,585 inhabitants (DRPSIAP, 2007) of Bambara and Marka ethnics, farmers, Bozo and Somono fishermen and Fulani and Diawando cattle breeders. The landscape of the rural districts is flat and made of plains favorable to rice farming and livestock keeping. The district is mostly located in the Niger River valley and stretches along its East part. The landscape is marked by strong human and agriculture pressure. Wild fauna is scarce due to easy access by hunters to the forests during the dry season. Fish fauna is also decreasing and only intensification of fishing effort allow Bozo and Somono to be in business. Nowadays, most of them have become farmers, cattle breeders or are in business.

***Kokry rural district*:** the area covers 80 km² with a total population of 12,058 inhabitants. The population is made of Bambara, Bozo, Minianka, Peul, Songhoi, Mossi and Dogon. The district is widely irrigated by the Niger River and irrigation channels of the "Office du Niger". It is located in savanna-Sahelian zone with a flat landscape. The vegetation is a typical savanna-Sahelian one. The economy of the district is based on farming, fishing and cattle breeding. The agricultural production is based on rice, garden vegetables and dry crops.

***Kolongo rural district*:** according to statistics (DRPS, 2007) the district has 28,984 inhabitants. "Office du Niger" through its Macina department strongly supports development of the district. The landscape is flat and made of floodable plains. The vegetation is made of trees and thorny bushes.

Issues:

- It is classified as a high pollution agricultural area. For example, the "Office du Niger", that is managing the area has used in 1994 5,939 t of urea and 4,055 t of phosphate on 47,000 ha of irrigated area. Also, Zinc sulfate has been used the same year for solving soils deficiency.
- Eutrophication phenomena are perceptible, e.g. invasion of aquatic weeds such as Water Jacinth and Salvinia.
- Water borne diseases in this area are cholera and diarrhea and vector borne diseases are malaria and schistomiasis.

Other contextual information

Beforehand, the Macina zone was not part of Wetland International (WI) projects in the IND, but now it is a site of interest for the WI Wetlands and Livelihood Programme (WLP) through which WETwin is cofounded. Information was gathered from literature reviews for socio economic, hydrologic, water quality, water borne and vector borne diseases data and from previous studies carried out by WI – Mali for ecological data.

(B) Mopti wetland

Scope:

The Mopti wetland is stretching from Mopti Urban to Konna district.

Mopti urban: Since 1995, Mopti urban has grown and expanded to Sevare and Banguetaba and other neighbouring villages. Mopti is both headquarters of Mopti Region and "Mopti Circle"[12]. The district is located at the confluence of the Bani and Niger Rivers. It covers 125 km². Mopti is a township inhabited by Bozo, Peul, Bambara, Dogon, Mossi, Sarakolle, Songhoi, Tamasheq , Bobo, Samog and Minianka. Fulani dialect is the most spoken language followed by Bozo. The total population is estimated to be about 100,000 inhabitants. The economy of the district is based on: agriculture, fishing and livestock breeding.

Konna site: Konna rural district is bordered East by Dangol Bore district, North by Ouroube-Doude district, West by Dialloube district and South by Borondougou district. It is located 55 km from Mopti and made of 28 villages. The population is estimated to be 29,857 inhabitants. Ethnics are Peul, Bozo, Rhimabes, Marka, Somono, Dogon, Sonrhai, and Bambara. The most spoken languages are Peul and Bozo. The climate is Savanna-Sahelian; the difference between temperatures (day and night) is huge (20-45˚). The total rainfall varies between 250 to 450 mm and is unequally distributed in time and space. Three seasons are encountered: a rainy season June-October favorable to dry crops, a dry and cold season, November to February, favorable to vegetable farming and a dry and hot season, March to June. There are two types of soils: sand-silt laden soils favorable to rainy

[12] Mali administrative entity

season dry crops, animal feed crops and vegetables and silt-laden-clay soils favorable to rainy season dry crops, vegetables and Echinochloa stagnina (bourgou) fields. The vegetation is composed of trees and bushes. Wild animals found in the area are hyena, warthog and jackal. The flood area of the district is wintering area for many migratory water birds. The district is divided in flooded and dried zones. The flooded area is located in the West part and is made of islands with clay soils. The district is crossed by the Niger River on which one can sail all year long.

Issues:

- Mopti is an urban district with more than 100,000 people but without any wastewater treatment plant and no modern landfill. In Mopti all the domestic solid waste and wastewater end in the river, this is the reason of many water borne disease (diarrhea, cholera) outbreaks in the area in the last years.
- Konna is a rural district 55 km downstream of Mopti, so the people are suffering from the pollution from Mopti since they are depending on river water for drinking, farming and all their daily activities.

Other contextual information

Konna rural district has been part of the former WI Wetlands and Poverty Reduction Project (WPRP, 2004-2008). Mopti urban district was not part of WPRP. Both will now be of interest for WLP as cofounder of WETwin.

(C) Youwarou wetland

Scope:

The project site of Youwarou consists of Youwarou and Deboye rural districts:

Youwarou rural district: covers 1,266 km² and is bordered North by Soumpi district, South by Lake Debo and Bimbere-Tama district, and East by Deboye and Dirma districts and West by Farimake district. According to the national census of 1998 the population of Youwarou district is about 17,229 inhabitants[13]. This population consists of Peul, Bozo, Somonos, Markas, Bambara, Sonrhai, Bellas, Tamasheq, Bobos, and Dogons. Most of these populations are Muslim. The soils of the area are classified as tropical ferrous soils. However, clay soils can be found in floodplains which are favorable to rice farming and off season sorghum cropping. The landscape is fairly broken with some sand dunes. The climate is Sahelian and is characterized by rain falling between June and December. The dominant winds are “harmattan”. The rainfall is weak and varies between 350 to 400 mm/year. The district is crossed by the Niger River and its tributary the Diaka. In the rainy season, floodplains, ponds and tributaries form Lake Debo. The vegetation is made of trees and herbs and its composition is related to the landscape. The fauna is composed of hyena, jackal, monkeys, and rabbits, and also some reptiles.

Deboye rural district**:** covers 1,012 km² and counts 24 villages and one tribe. The total population is about 11 603 inhabitants. The main ethnics are Bozo, Somonos, Peul, and Sonrhai with 6 344 men against 5 259 women. The district is characterized by seasonal migration of cattle breeders and fishermen. The main means of transport is by boat from July to February. The territory of the district consists of floodable plains. Inside this landscape Gourao and Soroba mountains can be seen. Different types of soils can be encountered: silt-laded clay soils of flooded plains, sand dune soils and soils of dried plains. The vegetation consists of trees and herbaceous species depending of the landscape. The main economic activities are livestock breeding, fishing, and farming. Also the population practices vegetable farming, handcraft, chicken raising and small businesses.

[13] This census is more than 10 years ago. Surely the population will have grown, but how much?

Issues:
This area is the exit of central lakes of the IND. It carries all water resources of irrigated rice fields, waste water and pollutants coming from upstream. Determination of water quality in this area should give enough information on the filtering capabilities of the Niger River 2500 km downstream its catchment. The water quality of Youwarou will be compared with the water quality of Mopti and Macina areas to get an idea on the filtering capabilities of the central bid lakes (Debo, Walado).

Other contextual information
Only Deboye rural district has been part of the former WI Wetlands and Poverty Reduction Project (WPRP, 2004-2008), but both will now be of interest for WLP.

2.2.4 Ecuador case study site

River Basin: Guayas River Basin
Wetland(s): Abras de Mantequilla
(For details see annex 4)

Scope:
The Abras de Mantequilla wetlands are formed by the natural damming of the San Francisco de Chojampe and Mapancillo swamps. It is located at the central-western part of the province of Los Ríos. Its location is enclosed in the geographic coordinates 9815342 N – 638776 E and 9842621 N – 666610 E. This large wetland is formed by a natural and permanent system of swamps and lakes, influenced by the existence of small streams and seasonal winter lakes. This system discharges into a large lake with a dendritic pattern. It receives surface and underground flows in the highest flood season.

Abras de Mantequilla wetland during the dry season (photo: P. Cornejo)

Water depth, on average 4.5m, increases during the rainy season when floods cause it to overflow to the Rio Nuevo through the Camito swamp. The main lake of the wetlands (Abra Central - El Aromo) is formed in a slight depression and has created branches among the low elevation without a specific outlet. Lake surfaces area drops considerably during the dry season. The wetland is 7.3km east of the City of Vinces (population of 40,000).

The wetland is an important water source for residents of the surrounding areas, as well as a key driver of natural flooding. In the vicinity of the wetland there are remnants of lowland dry forest, including some forests that are flooded at the time of greatest rainfall. From a biotic point of view, characteristic species such as Ludwigia hidrofíticas Eichornia bow and crassipens might be found; and remaining trees as Prosopis juliflora, and Mutingia Capparis angulata calabura. There are also paddy fields and agricultural areas.

There are around 80 small villages surrounding the wetland. The population living in these small villages represents around 7,816 inhabitants, from which the male group is 60 % and the female group is 40 % (National Census, 2001).

Human uses of wetlands and surrounding areas are fishing, agriculture and grazing. Water is used for growing rice, maize and for commercial and subsistence fishing. Large landowners obtain food and income from livestock. More water from the wetland is used during the winter than during the summer, when wells are used for domestic water supply. During the rainy season, local inhabitants take water for human consumption directly from the lake. All waste water of the 80 communities in the wetland however is discharged directly into the wetland, without any form of treatment.

The Abras de Mantequilla drains into the Rio Chojampe (Rio Nuevo), a tributary of the Rio Vinces which empties into the Río Babahoyo. These form all part of the **Guayas River Basin.** The Guayas River flows southward to the Gulf of Guayaquil and constitutes the most important of the drainage systems in the Costa Internal. Abras de Mantequilla is the only RAMSAR wetland site in this 40.000 km2 big Ecuadorian river basin.

Abras de Mantequilla wetland during the wet season (photo: M. Arias)

Issues:

Over-exploitation of aquatic resources and small-mesh fishing have led to a decreased availability of native species with high commercial and nutritional value for the local inhabitants. The introduction of the exotic Tilapia has an additional, drastic impact on the populations of native species. The drainage basin surrounding the lake has been severely degraded. Currently only some remnants of the initially extensive native forest cover remain. Water pollution due to pesticides in runoff is a potential threat to the area; however, currently no studies have been made to evaluate this situation.

The wetland issues presented below are based on recent stakeholder workshops.[14] The majority of the issues are still in the process of being confirmed by monitoring and more information gathering. The increase in agriculture use for food production is the primary issue that puts a lot of pressure in the wetland management. Based on stakeholder perception, the main concerns at the Ecuadorian wetland are:

- **Water quality:** It is perceived that more agrochemicals are used in the surrounding agriculture areas such rice fields and banana plantations in the upper basins. The use of more agrochemicals is related to the lack of ecological training to farmers in the wetland. Another perceived problem is the discharge of urban wastewater and solid wastes because of population increase in the area. According to the official Census Office (INEC, 2001), around 27% of population throws waste in open areas and 67% of the population does not have a sewage system to dispose wastewater; and population grows around 2% annually. However, a study performed by the National Institute of Fishery (INP) showed that the water at Abras de Mantequilla was of good quality in 2004. So far, this is the only study performed in the area before WETwin.

- **Water quantity:** People in the wetland are concerned about potential dam construction upstream[15] in the wetland which may put less water in the system. CEDEGE is the authority that manages the water in the area. Based on its strategic plan, there are some waterworks planned to be built in the next 10 years, which will be located in the surrounding area (upstream and downstream). Additionally, some people in the wetland perceive more sedimentation in the hydrological system. They do not know exactly why, but it is a concern for their activities (fishing, transportation, and so). Finally, they also perceive that in the last years less rain is falling in the area.

- **Ecosystem health:** Based on workshops, it is clear that people living in the wetland do know what an ecosystem is. Although their definition is not a technical one, they could identify the interactions between biota and human presence in the wetland. They could identify that some species are actually missing in the wetland based on what they could find some years ago, such as native fishes, plants, trees and birds. Apparently, the majority of this biodiversity decreasing is related directly to activities performed by people living in the wetland.

- **Sustainability of the wetland ecological services:** Finally, people living in the wetland recognize that there is a lack of wetland management at all levels: governmental, local and communal. At this moment, they see the need to be organized themselves to perform certain activities to cope with environmental sustainability in the wetland, such as cleaning rivers, repopulation of native species, environmental training, waste management, entrance regulation of invasive species. However, there is a lack of decision-making procedures to accomplish these activities. Based on workshop results, economical needs prevail upon ecological needs.

Other contextual information

The wetland Abras de Mantequilla is a natural environment that so far has not gotten the interest of many research institutions. There is little information about the ecosystem, although the area was included in the national inventory of wetlands performed by ECOCIENCIA for the Ministry of the Environment and the Ramsar Convention.

There are official institutions responsible, but there are only small and isolated activities. There is not a general plan that includes activities that the people perceive as necessary for the wetland sustainability.

[14] Workshop document, 2009
[15] Actually at present (December 2009) it has been decided that this dam will be built.

The Ministry of Environment (stakeholder with in-kind contribution) and the Commission for the Development of the Guayas River Basin CEDEGE (subcontractor) have been trying to improve water quality and to preserve the wetland from pollution. The population is using the services of the wetland. Support on wetland management however is required for better performance. CEDEGE, furthermore, has been facing public unrest over the planned implementation of a dam elsewhere in the Basin. As a consequence, they now want to pursue ways to improve public participation. By means of WETwin, opportunities may be created to put the attention on the special role that the Abras de Mantequilla wetlands fulfil.

2.2.5 Germany case study site:

River Basin: Elbe-Havel-Spree river basin
Wetland(s): Spreewald
(For details see annex 5)

Scope:

Characteristics of the Spreewald: The Spreewald is situated 100 km south-east of Berlin, in the Lausitz Region of Germany, with an area of 3,173 km². It is known for its traditional irrigation system which consists of more than 200 small channels (called "Fließe"; total length: 1,300 km) within an area of 48,400 ha which are still in use. Approximately 50,000 people live within this biosphere reserve. Many of them are descendants of the first settlers in the Spreewald region, the Slavic tribes of the Sorb/Wends. Until today, they have preserved their traditional language, customs and clothing. People living in the area mostly depend on tourism. However, also agriculture, forestry and fishery are important sources of income.

The Spreewald wetland (photo: F. Hattermann)

The landscape was shaped during the ice-age, and the major ecosystem type corresponds to temperate broadleaf forests and woodlands. Alder forests on wetlands and pine forests on sandy dry areas are characteristic for the region. However, also grasslands and fields can be found where drainage systems have been implemented.

The precipitation in the Spree catchment is rather low (~550 mm/a). The Spreewald was designated as biosphere reserve by UNESCO in 1991. Nutrients of the Danube and its tributaries are trapped and removed on the floodplain thus contributing to the reduction of nutrient loads of the river. The fertile conditions are utilized by forestry and agriculture in a more extensive way. Commercial fisheries take place in the water bodies. The Spreewald is a main tourist resort for Berlin.

Characteristics of the Elbe basin:

- The Elbe Basin is one of Germany's largest river basins with a total area of ~149 km².
- The climate is moderate with average annual temperatures of ~9 °C and 715 mm annual total precipitation.
- Elbe basin has the second lowest per capita water supply in Europe (~680 – 900 m³), the Spree basin even lower (~250 m³).
- The length of the river is 1,094 km, and its max. width is 1 km
- The basin is inhabited by 24.5 million people.
- The river channel is highly regulated with river training structures and barrages.
- A decrease in precipitation and water supply could be observed over the last decades, and scenario projections show that the water conflicts will increase.

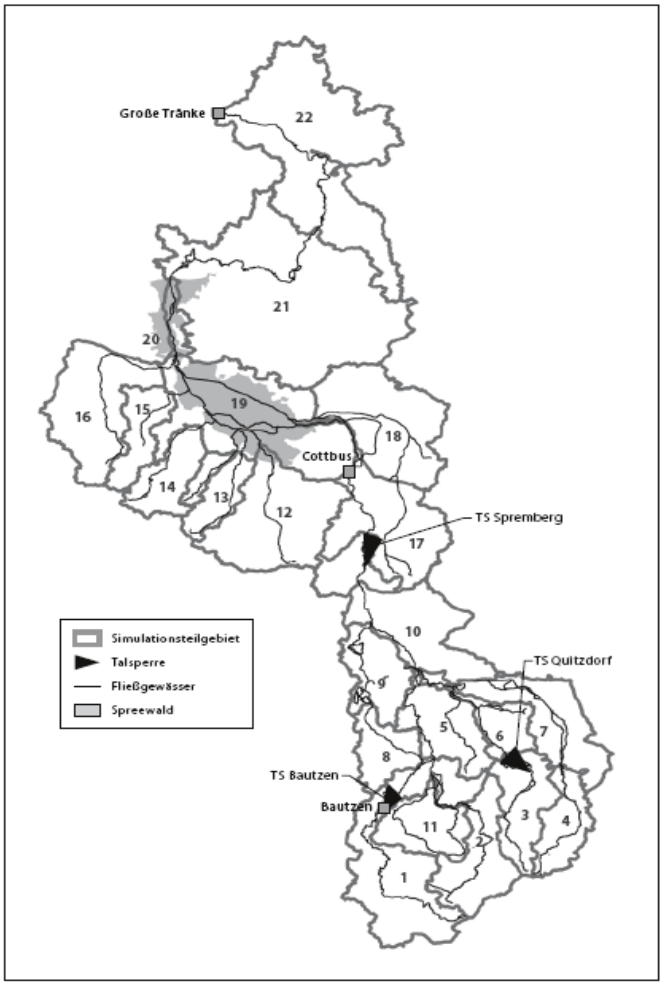


Figure 2-4: Location of the Spreewald wetland within the Spree river basin

The Spreewald wetland is part of the Spree river basin. The Spree connects the river network of Berlin to the Elbe-Havel river basin. The critical inflow to Berlin, needed to guarantee healthy water conditions, is 8 m3/sec. However, in the summers of 2003 and 2006, the inflow was significantly lower and the river flew backwards due to the inflow of treated wastewater in Berlin, causing problematic water quality conditions in the river. The projections into the future show that this situation may happen much more often over the next decades. Climate change and mining activities in the Lausitz lignite field, located next to the Biosphere Reserve (one of the largest open mining area in Europe), constitute major threats for both water quality and ecological status. Over the last decades, a trend towards lower precipitation -especially in summer- could be observed, leading to dryer conditions. This effect could be compensated in the past by water influx from the open mining pits. However, the mining activities have slowed down and therefore the amount of water withdrawal from the pits decreases. This, in combination with climate change, may cause that an acceptable wetland status cannot be guaranteed, unless a more adaptive approach to integrated water resources management - which takes into account the relation between the wetland and its hosting river basin - is applied.

Water management in the Spreewald wetland: The water table of the Spreewald wetland is regulated by the use of approx. 1,600 km streams and ditches and approx. 600 weirs. The aim is to save the wetland conditions in the area while ensuring the minimum water flow to Berlin.

Ecosystem services provided by the wetland:

- Nutrient retention
- Water retention
- Nature conservation
- Agriculture, mainly eco-farming
- Fishery
- Forestry
- Tourism resort / recreation area
- Home of the Sorbs

Issues:

- Opencast mining
- Pumping rates of mine discharges decreased from 30 m³/s (1990) to 10 m³/s (2000) and will be reduced to 0 m³/s in 2040
- Refilling of residual mining pits
- Climate change with decreasing summer precipitation
- Consequences: increasing water demand of different water users and decreasing water availability in basin and wetland

Pressures and conflicts

1. Pollution
2. Land use and "melioration"[16]
3. Mining
4. Climate variability and change

Summary
Two main pressures:
1) Water management / mining
2) Climate change
Adapted and integrated management to cope with the inherent uncertainty of future developments important

Other contextual information
The Spreewald wetland has been selected in this project because it combines different features which can stimulate the discussion and exchange of knowledge about the combined impacts of human water regulation and climate change. The question is which adaptation measures can be applied to save the wetland ecosystem and guarantee the provision of sufficient water of appropriate quality to the local population. At present, the Biosphere Reserve Agency is trying to apply a new management concept, which integrates the relevant stake(holder)s, ecology being one of them. The project activities on the wetland will contribute to integrated water management solutions, which shall be identified in WP7 and quantified in WP8, but also to allocate "lessons learned" from the past about the problematic results of wetland degradation, as a consequence of the lack of integration in IWRM.

With the designation of the Spreewald region as UNESCO Biosphere reserve (1990/91) and the introduction of natural preservation targets and corresponding directives, many conflicting interests became obvious. With the political changes in Germany in the year 1989 a big political and socio-economic restructuring process started. In the following years public platforms, such as FÖNAS e.v.

[16] From the Spreewald stakeholder report it is not clear what is meant here

association and intensive public participation processes facilitated the communication and discussions about problems mainly related to trade-offs between cultivation practices and natural preservation objectives. Nowadays, the conflict potential within the Spreewald region is rather low, because natural preservation objectives have been widely accepted; cultivation practices adapted, and European and national financial support programs were implemented. Furthermore, the objectives of various interest groups are similar, i.e. “enough water in the wetland”. This holds for the tourism sector, the cucumber farmers as well as for the fishery sector. Not all problems have been solved within the Spreewald region; the most dominant problems are externally caused: upstream – downstream conflicts related to water quantity. I.e. the groundwater regime in the upstream catchment area is heavily modified due to the mining in Lusatia, flood protection measures influencing the flow regime, and climate change is an additional external pressure on the water input to the wetland, and the city of Berlin with three to four million inhabitants located downstream of the wetland, is expecting enough water flowing in the Spree river.
In other words, the wetland area is facing the following problems:

(1) reduced inflow due to climate change and changed upstream groundwater regime
(2) the wetland is expected to provide several ecosystem functions for
    1. people in the wetland area
    2. people in the downstream area
(3) it must deliver a minimal flow rate at the outlet in order to ensure the water supply of Berlin.

The Spreewald wetland was also a sub-project in the GLOWA-Elbe BMBF project: Integrated Analysis of the Impacts of Global Change on Environment and Society in the Elbe Basin (http://www.glowa-elbe.de/german/index-en.htm). The aim of the Spreewald sub-project was to determine the effects of global change (reflected in changes in basic hydrological conditions such as altered climatic conditions and reduced inflows) on the Spreewald wetland. For this purpose, the water balance model WBalMo Spreewald was developed and applied for scenario calculations. It is based on the long-term management model WBalMo and the areal water balance model for drained/ sub-irrigated wetlands WABI. Scenario results for global change indicate simultaneously increasing water demand and decreasing water availability for the wetland in the future. Results of this will be that groundwater levels will more frequently fall significantly during the summer months, having considerable effects on the ecology and economic use of the region, but affecting different areas with differing severity. Water management measures in the river basin and in the wetland itself can help to reduce undesired impacts.

2.2.6 Hungary case study site:

River Basin: Danube River Basin
Wetland(s): Gemenc floodplain
(For details see annex 6)

Scope:
The Gemenc and Béda-Karapancsa floodplain systems can be found along the lower reach of the Hungarian Danube (*Figure 2-5*). It is a sub-region of the Danube-Dráva National Park. The Gemenc is a 4-5 km wide and 30 km long floodplain on the right bank of the Danube bordered by a flood control dike from the West. This area is covered mainly by alluvial forests, which are fragmented by different water bodies.

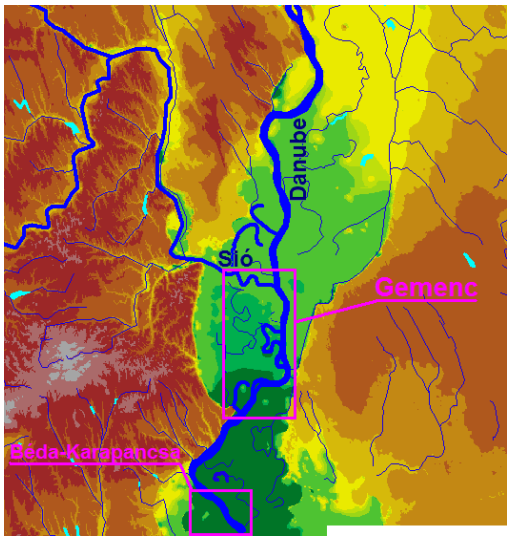


Figure 2-5: Location of the Gemenc and Béda-Karapancsa floodplain systems

The river is alluvial on this reach, which means that it has cut its bed into the alluvial sediment deposited by the river throughout geo-historical times. Due to former meandering processes, the surface of the floodplain is varying and uneven. The entire floodplain surface is subjected to continuous clay sedimentation that takes place during floods. As a consequence a thick clay layer has been built up on the surface of the floodplain, that isolates the surface water system of the floodplain from the groundwater to a great extend. Oxbow lakes are often connected to river channels or to other oxbows by means of small channels (traditionally named 'fok'). During floods the oxbow lakes are filled and drained through these fok-channels.

The natural topography of the Gemenc and Béda-Karapancsa floodplain systems has been modified by anthropogenic impacts as well. These impacts are related to the different floodplain management, flood control and river training activities implemented since the Middle-Age. At the beginning, local people introduced an essentially passive floodplain management practice, where human activities were fully adapted to the flood regime of the river. The key of this management was the system of fok-channels, which enabled productive fisheries as well as extensive agricultural activities. The fok-channels were therefore continuously maintained. Due to increasing population, the pressure to replace passive floodplain management with intensive agriculture increased. Intensive agriculture required flood control dikes that eliminated inundations. Construction of the river-wide comprehensive dike system was implemented at the turn of the 19th and 20th centuries simultaneously with river regulation works. In general, dikes were built close to the straightened river channel in order to gain as much area as possible. There was however a landlord having huge domains on the floodplain, who did not join the Water Management Association (the board financing and managing the works), so his lands were not defended by the dikes. This is the reason why an about 5-6 km wide and 40 km long floodplain remained between the new dike and the left bank of the Danube which is now the Gemenc floodplain.

River training and dike construction marked the end of floodplain management, and people moved out of the remaining floodplains. The abandoned floodplain soon became habitat for typical, rich alluvial ecosystems and today the Gemenc is one of the few valuable nature reserve areas along the Danube.

The ecological importance of the Gemenc is very high as it hosts habitats for several endangered species such as the Black Stork, the White-tailed Eagle as well as several other aquatic and terrestrial species. The Gemenc is a true core area within the Danubian ecological network: species

find refuge here, as well as excellent conditions for growth and reproduction thanks to the area's high biological productivity. The floodplain is an especially important nesting, feeding and resting habitat for migratory birds such as the Black Stork. Important ecological links between the Gemenc and wetlands in Africa exist, as a significant percentage of the Gemenc Black Storks choose African wetlands as wintering habitat (e.g. the Inner Niger Delta and the wetlands of the Upper White Nile Basin).

The Gemenc floodplain (photo: K. Horváth)

Issues:

During the past decades several ecological problems have been encountered on the floodplain. The most important one is desiccation, which is the combined consequence of sedimentation and river bed incision processes. In addition, the flood regime of the river has also changed: nowadays the intensity of the rise and fall of flood pulses are much higher, and the duration of floods are much shorter than in the pre-regulation times. This has contributed a lot to the destruction of habitats for aquatic fauna.

As a result, the once rich and diverse alluvial ecosystems of the Gemenc are now gradually changing to poor, dry systems. In addition, intensive land use activities - first of all forestry but also recreation - bring additional pressures on nature by means of destruction and disturbances. During the past years, forestry methods have been changed for the benefit of nature, nevertheless clear-cutting is still applied at many locations on the floodplain, which is a significant contradiction in respect of the national park status of the area.

Summarising:

- Major problem is the desiccation caused by the degradation of the Danube River bed, resulting in serious loss of alluvial biodiversity and of wet alluvial habitats, leading to the deterioration of life conditions for fish, amphibians and waders (like the famous black storks);
- The reproduction conditions for fish (and thus indirectly the feeding conditions of the waders) have been degraded by the intensified water level fluctuation of the Danube.
- The decreased depth as well as the increased nutrient contents of the inflowing waters has resulted in serious eutrophication problems in the floodplain water bodies.
- The continuous aggradation of the entire floodplain enhances further the desiccation problem caused by the degrading river bed. The perspective is that all the side arms and oxbow lakes will

be isolated and fully aggraded, and the floodplain will become a flat and dry land with poor biodiversity.
- Apart from changes in the hydrological and water quality regimes, the disturbance from direct anthropogenic impacts should also be taken into consideration.

Other contextual information

Several plans have already been devised for the ecological rehabilitation of the Gemenc floodplain. One of these plans proposes flow control interventions with the aim of improving the water regime, which is the key driver for floodplain functions. Because of the conflicting multi-objective nature of the problem (ecology vs. land uses), a decision support system has been set up in order to support decision makers to arrive at best compromise solutions for the revitalization of the floodplain. Restoration plans are being developed by the Reduction of Nutrient Discharges Project (GEF project) too. Besides ecological restoration, this project also emphasizes to make use of the floodplain's nutrient reduction potential in order to reduce nutrient loads to the Danube and to the Black Sea.

There is a strong interrelationship between WETwin Project and Reduction of Nutrient Discharges Project founded by the World Bank. The Gemenc stakeholder analysis report is based on the results of the "Reduction of Nutrient Discharges Project Danube-Drava National Park". The main objective of the GEF Project is to decrease nutrients discharges into the Danube River and loads to the Black Sea, by improving the nutrient reduction in effluent from wastewater treatment plants at Budapest and Dunaújváros and increasing the nutrient retention capacity at the Danube-Dráva National Park's Gemenc and Béda-Karapancsa Region. The Project complements the Government of Hungary in its efforts to reduce transboundary pollution in the Danube, and leads also to necessary policy, institutional and legal reforms related to regional nutrient reduction and improved water quality management.

In the *first stage* of the Reduction of Nutrient Discharges Project a **feasibility study** was elaborated in 2005. The report consisted of two main parts:
- Environmental Status Report (Environmental Assessment), and
- Social Impact Assessment (Public Consultation)

The *second stage* carried out in 2005 included land surveys and studies concluding in a proposal on the type and location of the set of technical constructions necessary for achieving the aims of the program.

In the present, *third stage of the program*, in 2008-2009, three different projects are working parallelly:

1. Planning component: Preparation of the conceptual and final technical design of the interventions, bidding specifications, additional surveys (land-survey, soil and soil mechanical surveys), and in the next stage, supervision of the construction works.
2. Monitoring component: Design and development of a monitoring system an development of an impact evaluation methodology including analyses and capacity building, and proposed adaptations for the nature protection management plan of the Danube-Drava National Park Directorate (DDNPD).
3. Baseline Study and Licensing Support component: Carrying out of the preliminary and detailed impact assessment of the planned technical interventions according to directives of the Government Decree.

The proposed interventions may include:
- Construction of water engineering works (locks, culverts, bottom sills, sediment traps) and bridges
- Reconstruction or maintenance of existing works

- Channel control (channel bed correction, short cutting)
- Dredging, disposal of dredged sediment

Technical and management solutions are being developed to improve the nutrient reduction potential of the floodplain. It can thus be concluded that the experiences of past and ongoing projects related to the Gemenc do have the potential to contribute to achieving the objectives of the WETwin project.

Gemenc wetland system is a 100% state owned nature conservation area, furthermore it is in 100% Natura 2000 SCI and SPA area and a large part of it is Ramsar site. The initial principal is that nature conservation has the highest priority in the Gemenc wetland among wetland uses.

2.2.7 Austria case study site:

River Basin: Danube River Basin
Wetland(s): Lobau floodplain
(For details see annex 7)

Scope:
Draining over 96% of Austria's territory, the Austrian Danube River Basin is home to 7.7 million people. Along its flow through Austria, the Danube has formed extensive fluvial landscapes. Remains of these are contained in the 36km National Park stretch, starting downstream of Vienna. Although the total extension of these areas has been drastically reduced due to conversion to arable land and flood protection, a unique and extremely species-rich floodplain area still exists. The river waters flood this area and determine the natural rhythm and high dynamics of the riparian wetlands. The highs and lows of water levels (which can vary by as much as 7 meters) show the extreme range of conditions to which the riparian wetlands are subjected. These varying conditions lead to a diversity of habitats and species.
The Lobau is a large floodplain right at the eastern border of the city of Vienna, located within the National Park. The importance of the Danube stretch downstream of Vienna has been described in numerous papers. The Lobau was designated as a UNESCO Men and Biosphere Reserve in 1977, a RAMSAR site in 1982, is an integral part of the "Alluvial Zone National Park" since 1996, and was designated a Natura 2000 area by the EU. It is dominated by a former river channel that was severed upstream from the main channel after the main regulation of the Danube in the 19th century. Lateral embankments along the main river channel severely altered the geomorphic and hydrologic dynamics and impeded the natural sequence of erosion and sedimentation. During the last decades vertical erosion in the main river bed (incision), in concert with ongoing aggradation in the floodplain, have further decoupled the wetland from the river, both hydrologically and ecologically.
Today, the Lobau represents a groundwater-fed and back-flooded floodplain lake system, where sedimentation and terrestrialisation processes prevail. Specific soil conditions and deficits in hydrologic dynamics favour the -atypical- establishment of rare elements of dry meadows in the former floodplain. Above mean water level (~1900m3s-1) the fragmented floodplain water bodies become connected to the main channel, still only at the downstream end.
The Lobau plays an important role in the catchment water balance. It retains floodwaters, recharges the groundwater, and provides further socio-economic values (e.g. drinking water supply, recreation). Because of its proximity to Vienna, the Lobau has always been of focal interest to flood protection plans for Vienna and Lower Austria. In addition, the Lobau serves as an important drinking water reservoir (riverbank-filtration) for the City of Vienna. In certain situations, like drought or maintenance activities, the floodplain can provide drinking water to about 25% of Vienna's inhabitants.

Location of the Lobau and Gemenc floodplains within the Danube river basin

Danube River Basin:

- Europe's second largest river basin - area of 801,463 km²
- 81 million people (more than 100 inhab./ km²)
- Danube River length 2,780 km, max. 1.5km wide
- World's most international river basin - 19 countries

Urban wetland Lobau

- Size: 1,039 ha (280 ha Lower Lobau area)
- Length: 10 km in total
- Connectivity: only at downstream end, above mean water

Issues:

Despite its protected status, it is still affected by multiple human impacts. Weirs, although partly lowered and broadened, divide the side-arm into several basins with different connection pattern to the Danube main channel. The effects of intensive forestry, fishing and agriculture in the area contributed to these changes and increased the effects of invasive species. Industry, agriculture and the runoff from the city of Vienna have increased the nutrient input into the floodplain. Still, the high self-purification capacities of riverbank filtration allow the city of Vienna to use the Lobau area for drinking water supply. Summarising:

- Decoupled former dynamic floodplain
- Decrease of aquatic and semi-aquatic habitats

- Still high biodiversity and internat. designation (UNESCO MaB, RAMSAR, Natura2000, NP)
- Improvement of flood protection
- Important drinking water supply for Vienna (max. 25% of total amount can be provided)
- Pressure by recreation – currently more than 600,000 visitors / y with increasing tendency

Other contextual information

The Lobau floodplain will be used in this project as a case study of a highly urbanized floodplain. As protected by different national, European and international regulations, the Lobau has been continuously investigated and, therefore, is a data-rich case study. Because of this linking with other international organizations and goals, the Lobau can become integrated in the future river basin management plan. The existing knowledge from the stakeholders of the Lobau and the ongoing research project (Optima Lobau under the Austrian research program "ProVision") will be used for information exchange and expertise within the framework of WETwin, in order to harmonize the projects' developments towards balancing the partly competing ecologic and socio-economic requirements for sustainable wetlands and water resources management.

At the moment, management plans for the Lobau are under development. These plans focus on the freezing of the status quo in the “Obere Lobau”, in order to maintain the use as a recreation area, and the partly re-connection and, thus, dynamisation of the “Untere Lobau”, to increase a more natural and floodplain specific development and sustain the high biodiversity of the floodplain.

Optional management measures are a controlled re-connection of the floodplain via openings in the dam and the restoration of tributaries. At the moment, the effects of different degrees of connectivity on the hydrology, biogeochemistry and the biota of the floodplain are being modelled, based on the results of the ongoing monitoring.[17]

Past and ongoing projects:
- Optima Lobau (2005-2008) (research project)
- Dotation Lobau (water enhancement scheme)
- Anbindung der Altarme (reconnection of backwater system)
- Flussbauliches Gesamtprojekt (Integrated river engineering project)
- MAB 2020 Lobau (research project)

The above mentioned projects provided the data for the Lobau stakeholder analysis for WETWin.

2.2.8 Discussion on scope, issues and context

From the above it becomes clear that to a greater or lesser extent all study sites deal with issues that cannot be solved at the study site/ wetland level alone. In all cases there is an element of upstream activities influencing downstream areas, e.g. in water quality (nutrient level, pollution level) or water quantity. This stresses the need to always consider upstream-downstream relationships and, as pursued by WETwin, to explore this connectivity, compare between sites by means of a common methodology, and to develop generic guidelines, including for stakeholder participation, to integrate wetlands into river basin management.

With the exception of Uganda the distinction between site specific issues and the specific issues for scrutiny by WETwin is not very clear. A review of the selection of key stakeholders would benefit from a more clear distinction.

[17] It seems that the degree of connectivity (and the related advantages/disadvantages) is the key issue. Has all been decided yet in this respect (degree of connectivity) and is WKL monitoring the consequences of implementation or is WKL playing a role in researching/ modelling different options for the degree of connectivity? The role of WKL in this process needs to be clarified.

No case study stands on its own: either they are part of projects that are already quite advanced (European sites, SA), embedded in government plans (Uganda), in areas where the implementing office has already a long-term experience although with another focus (Mali) or newly developing (Ecuador), with subsequently different levels and ways of existing stakeholder participation. In relation to stakeholder participation projects could learn from each other, by identifying common factors for success as well as common factors for failures (generally the best source for learning). In addition, during WETwin the case study sites could be compared on these factors for success and failure in relation to stakeholder engagement.

2.3 Identified stakeholders

2.3.1 Importance of identifying all stakeholders

It is essential to have a good overview of all stakeholders who have an interest or stake in WETwin or its outcomes. The stakeholder analysis should have considered all those directly involved in the key issues identified for WETwin in each site, at wetlands as well as at river basin level.

It is critical to be as specific and detailed as possible in the identification of all stakeholders. To be able to select the key stakeholders it is important to differentiate within each category, and specify each local resource user, government department, NGO, private company etc. and their interest in WETwin (issues) or its outcomes. This is because even within each category interests might be very different, even conflicting. One local NGO might be important to WETwin, another not. If the distinction is not made it is not well possible to select the key stakeholders.

To ensure that no important stakeholder is overlooked it was important to consider the different categories mentioned below, i.e. those directly involved in the issues at stake in each site, those involved in water, environment and sanitation sectors and those who affect or are affected by water management.

The analysis was expected to include the following categories:
1a. Water managers at wetland level[18]
1b. Water managers at river basin (RB) level
2. Direct users
3. Landowners
4a. Govt/ public sector local (wetland)
4b. Govt/ public sector RB level
4c. Govt/ public sector national level
5a. Private sector (watsan[19])
5b. Private sector (other)
6. NGOs/ CSOs at RB & national level
7. CSOs/ CBOs at local level
8. Research institutes
9. International RB Agency
10. Donors
11. Other[20]

Some stakeholders could appear in more than one category, e.g. “water managers”(1a) might also appear in other categories like government/public sector (4) or international river basin authority (9).

[18] Official authorities and traditional water managers, e.g. “water masters” in Mali
[19] Water and sanitation sector
[20] E.g. religious leaders, teachers, churches

2.3.2 The importance of identifying stakeholders at different management levels

It is important to distinguish between the authorities and key stakeholders at different levels, i.e. local/wetland, river basin, national or even international level if relevant, because the principal aim of WETwin is to integrate wetlands into river basin management. The "higher level authorities" are the ones who should take wetlands into account to mitigate or avoid negative effects of higher level management measures. The application of the management measures and generic guidelines developed and proposed by WETwin will depend to a large extent on the willingness and the ability of the key stakeholders ("authorities/managers" and users) at both levels to implement these. Therefore it is crucial to know the stakeholders at both levels and their interests and needs, and to engage them both from the beginning so that the proposed management measures and generic guidelines can be adapted to their interests and needs.

2.3.3 The importance of identifying the specific roles and interests of women

Special attention needed to be paid to the role of women with their specific roles in domestic water use, use of specific wetland services and (often lack of) involvement and role in water management. Especially in the Southern study sites[21] the importance of engaging women - as the primary users of water in cooking, washing and tending livestock – should be recognised. Women's involvement in the planning, design, management and implementation of "WASH" (Water, Sanitation and Hygiene) and wetland management projects and programmes has proved to be fruitful and cost-effective. However the substantial benefits of involving women are often not fully recognised. As a result women are all too often not as centrally engaged in water and water management efforts as they should be.

Box 2-3: Water is the big issue for women[22]

In many societies, water is at the core of women's traditional responsibilities, which include: collecting and storing water, caring for children, cooking, cleaning and maintaining sanitation. Thus they have a keen interest in WASH issues, since they form a large part of their daily routine.

In addition many women experience the sorrow and worry of seeing their children fall sick due to contaminated water or lack of hygiene. Poor communities often rely on contaminated water supplies, such as rivers, unprotected springs, and shallow wells, which put families at risk of deadly diseases such as cholera, typhoid, amoebic dysentery, and diarrhoeal diseases. Each year, nearly two million children in the world die from diarrhoeal diseases. This is a larger cause of child mortality than AIDS, malaria, and tuberculosis combined.

Improved service provision and better knowledge about hygiene have beneficial effects for a whole community, most obviously through improved health and quality of life. There are more subtle effects of these measures on the lives of women, such as greater confidence, increased capacity to earn money, and a general sense of well being and confidence that allows them to dedicate more time to making the home a better place to live. Ultimately, what is good for women is good for the family and the whole community, who share the benefits from all these improvements. Such measures can have knock on effects on the health and prosperity of nations.

This pivotal role of women extends beyond WASH issues. The health and sanitation issues facing wetland communities are closely related to the management of water resources, both locally and upstream. And local water resource management – or the lack of it – will have effects downstream.

[21] In the European sites gender differences in use, access to and control over water resources is much less distinct.
[22] Sources: http://us.oneworld.net/article/362103-undo-water-burden-placed-women and http://www.wateryear2003.org/en/ev.phpURL_ID=2543&URL_DO=DO_TOPIC&URL_SECTION=201.html

Often women will be among the groups most affected by any such changes (see Box 2-3), because of the different ways that women make use of wetland resources and the limited access and control that they have over these resources. Women often grow different crops – more vegetables and staples for the family table - care for different types of livestock, have different rights and access to economic resources, e.g. irrigation schemes, and have different patterns of economic activity, e.g. related to fisheries: processing and selling fish at the local market.[23]

From the above it is obvious that there will be differences in the needs and interests of men and women and the role they can play in water resource management. Yet, the specific needs of women and the role they can play are frequently overlooked. Unequal power relations often place women in a disadvantaged position. While the women labour to provide water for household needs and their subsistence and economic activities depend on the management of water resources, it is usually the men who make decisions about water resource management and development at both local and national levels. Community based approaches are not always inclusive of women's interests and do not always take gender perspectives into account. The inadequate involvement of women has hindered programmes and projects aimed at improving the sustainability of water resource management. [24]

The above shows the need to explicitly include gender specific analyses over access to, and use made, of water resources. This needs to be context-specific and address questions such as the productive and domestic uses of water as well as women's and men's access to, and control over, water, land, credit and extension services. E.g. do men and women have the same access and ownership rights to water related resources or wetland services? To what level and how are men and women organised, separately or mixed?

Gender disaggregation is needed to identify the specific needs and interests of women, to ensure that their priorities are not overlooked and to be able to take specific actions to engage them. Addressing gender inequalities will contribute to better water resource management and offer more human development opportunities for both men and women. Women will probably have different perceptions than men about health, sanitation and water management issues. When listened to, women often come up with surprisingly practical suggestions and solutions. There are many examples of programmes and projects that have benefited from a proper gender analysis and specific measures to involve women in analysis, planning, implementation and monitoring. These measures have played important roles in improving health, reducing poverty eradication and improving sustainable resource use. Thus, a deliberate strategy of gender mainstreaming is needed.[25]

2.3.4 Stakeholders identified at the different study sites

Table 2-2 gives an overview of the stakeholders identified in the different categories at the different study sites.[26]

Table 2-2: Categories of stakeholders identified in the different study sites

Country	Mali	Uganda	South Africa	Ecuador	Ger-many	Hungary	Austria

[23] Wetlands International, 2009
[24] http://www.genderandwater.org/page/107
[25] GWA, 2006
[26] In some cases, when the stakeholder information was not presented in the required format, it was not always clear where to place the stakeholders or whether stakeholder category is represented or not. These cases are indicated with a question mark.

River Basin	IND			Upper White Nile		Olifants River	Guayas	Elbe-Havel-Spree	Danube	
Wetlands Stakeholders/	**Ma-cina**	**Mopti**	**You-warou**	**Naba-jjuzi**	**Nama-tala**	**Ga - Mampa**	**Abras de Manteq.**	**Spree-wald**	**Gemenc**	**Lobau**
1a. Water managers at wetland level	X	X	X	X	X	?	X	X	X	X
1b. Water managers at RB level	X	X	X	X	X	X	X	X	X	X
2.Direct users	X	X	X	X	X	X	X	X	X	X
3.Landowners	X	X	X	X	X	?	X	?	(x)	?
4a. Govt/ public sector local (W) level	X	X	X	X	X	X	X	X	X	X
4b. Govt/ public sector RB level	X	X	X	X	X	X	X	X	-	X
4c.Govt/ public sector national level	X	X	X	X	X	X	X	X	X	X
5a. Private sector (watsan)	?	X	?	-	-	-	-	?	-	?
5b. Private sector (other)	X	X	X	X	X	-	-	X	X	X
6. NGOs/ CSOs RB & national level	X	X	X	X	X	X	X	X	X	X
7. CSOs/ CBOs local level	X	X	X	X	X	X	X	X	X	X
8. Research institutes	X	X	X	X	X	X	X	X	X	X
9. International RB Agency	X	X	X	X	X	(X)	-	?	X	X
10. Donors	X	X	X	X	X	X	X	X	X	X
11. Other	?	?	?	X	X	X	X	?	?	?

2.3.5 Discussion on stakeholder identification

Most case study stakeholder analysis reports are very focused on the stakeholders at wetland level. Initially not much emphasis was put on the distinction between stakeholders at different levels, i.e. local/wetland, river basin, national or international level, only for government agencies. However, from the analysis the importance of this distinction became more apparent. Hence, as also argued in section 2.3.2, it is imperative to continuously focus on both (wetlands and river basin) levels and especially on what needs to be done to get river basin level managers committed to integrate wetland management or take the effects of upstream activities on wetland interests downstream into consideration.

Table 2-2 shows that all study sites have stakeholders in almost all categories, except in the category of water and sanitation ("watsan") private sector. Apparently this is a sector mostly managed by government institutes.

For some Southern case studies women groups have been identified, but only very little or no gender disaggregated information have been given about differences in use, access or ownership of water resources, or differences in needs and roles in management of water resources. It would be very useful to still do this. Especially when dealing with water related health and sanitation issues, women are the key to finding solutions. Women are likely the ones that need to apply the identified solutions, and can spread them in the community. Also in wetland management they could play an important role for the benefit of the community.

2.4 Identification of key stakeholders

In order to identify and focus on key stakeholders the Wetland Leaders were asked to categorise the identified stakeholders according to their influence and importance with the help of the DFID[27] Influence and importance matrix (see table 2-3).

2.4.1 Identification of key stakeholders by assessing influence and importance

Table 2-3: DFID Influence and importance matrix (source: De Groot, et al. 2006).

	High influence	***Low influence***
High importance	**A -** Stakeholders who stand to lose or gain considerably from the project AND whose actions can affect the project's ability to meet its objectives (process and outcomes) significantly. *The project needs to ensure that their interests are fully represented in the coalition. Overall impact of the project will require good relationships to be developed with these stakeholders.*	**B -** Stakeholders who stand to lose or gain significantly from the project BUT whose actions cannot affect the project's ability to meet its objectives. *Special initiatives are required to ensure that their interests and values are represented and protected*
Low importance	**C -** Stakeholders whose actions can affect the project's ability to meet its objectives BUT who do not stand to lose or gain much from the project (whose interests are not the target). *They may be a source of risk; and you will need to explore means of monitoring and managing that risk.*	**D -** Stakeholders who do not stand to lose or gain much from the project AND whose actions cannot affect the project's ability to meet its objectives. *They may require limited monitoring or informing of progress but are of low priority. They are unlikely to be the subject of or involved in project activities.*

Key stakeholders would be the ones identified as important (B), of high influence (C) or both (A), with the subsequent suggestions of how they should be dealt with.

In the following tables the key stakeholders identified in the different categories at the different case study sites were:

[27] UK Department for International Development

Table 2-4: Key stakeholders identified for the South Africa (Olifants River) and Ecuador (Guayas) wetlands

Stakeholders	Ga-Mampa[28]	C[29]	Abras de Mantequila[30]	P/S[31]	C
1a. Water managers at wetland level	• *Local headmen?*		• Baba, Pueblo Viejo and Vinces Commonwealth • *Municipal Environmental Management Bureau of Baba, Pueblo Viejo and Vinces?*	P	A
1b. Water managers at RB level	• Department of Water and Environment Affairs (DWEA)[32] • Olifant River Forum • *Olifants River Catchment Management Agency?*[33]	A A	• CEDEGE • Sub secretary of fishing of Los Ríos province. • Provincial Council	P S S	A B B
2.Direct users	• Wetland croppers • Wetland livestock owners/breeders • Croppers and breeders • Natural products collectors (reeds and sedges)	B B B B	• Inhabitants of banks at wetland	P	A
3.Landowners			• Farmers • Inhabitants	P P	A A
4a. Govt/ public sector local (W) level	• Ward councillor • Community Development Forum (CDF) • Village committees • Wetland Committee (Kudemela) • Agricultural Extension Officer' (AEO) • Municipal Government • Legalametse Natura Reserve • Volkseberg Conservancy	C B B B A C A A?	• Municipal Environmental Management Bureau of Baba, Pueblo Viejo and Vinces.	S?	A?
4b. Govt/ public sector RB level	• Olifant River Forum • Limpopo Department of Economic Development Environment and Tourism (LEDET) • Department of Agriculture • Provincial Government – RESIS (revitalization of small irrigation schemes) Programme • *Olifants River Catchment Management Agency (planned)?*	A B C C	• Consejo Provincial (Provincial Council)	S	B
4c.Govt/ public	• Department of Water and	A	• Environmental Ministry	P	A

[28] The Ga-Mampa stakeholder analysis report is based on three other stakeholder analysis studies done previously and was provided in a different format (see annex). For that reason the positioning of the stakeholder in a certain category is mostly an interpretation of the author of this report.
[29] Categories in the Importance/Influence matrix (A – high influence/high importance, B – high importance/low influence, C – low importance/high influence, (D) – low importance/low influence, i.e. not classified as key stakeholder), because sometimes importance or influence is rated as moderate in stead of "high" or "low" it is not always clear in which category the stakeholder should be placed (indicated with question mark).
[30] As provided by Ecuador Wetland Leader
[31] Primary (directly affecting or affected) or secondary (intermediates in the process), for Ga-Mampa information not available
[32] At the time of the three studies that comprise the basis of the Ga-Mampa report, the ministry structure at national level had a Department of Water Affairs and Forestry and a separate Department of Environmental Affairs and Tourism. From the beginning of 2009, parts of the two ministries have merged in the Department of Water and Environmental Affairs (DWEA).
[33] Planned since long time but not operational yet

Stakeholders	Ga-Mampa[28]	C[29]	Abras de Mantequila[30]	P/S[31]	C
sector national level	Environmental Affairs (DWEA) • South African National Biodiversity Institute • Department of Agriculture	A A	• National Ramsar Committee	S	A
5a. Private sector (watsan[34])	?		None		
5b. Private sector (other)	None		*Fisheries?*		
6. NGOs/ CSOs RB & national level	• Working for Wetlands[35] • Mondi Wetland Project (NGO) • Limpopo Wetlands Forum (CSO)	A B D	• Acción Ecológica	S	B
7. CSOs/ CBOs local level	• Irrigation Committee – becoming Water Users Association • Local Communities in Mafele ward downstream of GaMampa wetlands	B B?	• La Amalia • FEDETACV • COORDENAGUA • Nueva Semilla Foundation • FUNDAR • Forest Park of Vinces	S	C
8. Research institutes	• International Water Management Institute (IWMI) • G-EAU/ Cemagref, Cirad, IRD, Engref • South African National Biodiversity Institute • *Water Research Commission?*	D D? A? ?	• ESPOL (University) • ITAV (Technical Institute) • Quevedo University • INP (Government) • *ECOCENCIA?*	S	CD
9. International RB Agency	• *Limpopo River Basin Committee (LIMCOM)?*[36]		None		
10. Donors	• EU • CGIAR Challenge Program on Water and Food • GEF	C	• European Union • PPD/United Nations	S	B
11. Other[37]	• Traditional Authorities – Headman of Manthalane • Traditional Authorities – Headman of GaMampa • Traditional Authority – the Kgoshi • Churches • Kruger National Park • University of Limpopo	B B C C B D	• Media Sector (Press)	S	AB
Gender specific stakeholder information	*Information not available*		La Amalia is a women's organisation dealing with environmental health		

Box 2-3: Discussion on South Africa study site

- 1a: Who are the "wetland managers" at wetland level, formal (government agencies?) and informal (e.g. local headmen?)? Which stakeholders can directly influence the wetland management?
- 6: The "Limpopo Wetland Forum" seems to have little importance or influence because it has no decision

[34] Water and sanitation sector
[35] Actually semi-governmental, Implements wetland rehabilitation projects nationally.
[36] Officially non-existent yet because not all the riparian countries signed yet
[37] Religious leaders, teachers, churches

making power. However, could it be a discussion forum for bringing different stakeholders together?
- 8: The Water Research Commission (see annex 1) is not identified as (key) stakeholder, but what role do they play and is there a role they can play in WETwin context?
- Is there any gender disaggregated stakeholder information available from the previous three stakeholder analyses? It would be worthwhile to retrieve this information.

Box 2-4: Discussion on Ecuador study site

- 1b: It is clear that CEDEGE is a key stakeholder (even when not well regarded) that should be involved in all stages of the process (analysis, planning, implementation, monitoring) and that from the side of the WETwin team all possible actions should be undertaken to get this institute committed.
- 1b: "Provincial Council" is added because from the stakeholder analysis report is seems that they have a management role at river basin level.
- 3: Are there private landowners of large pieces of land in the area, who can have influence? The "landowners" category is meant to identify these. "Inhabitants" and "farmers" without specification is too general.
- 5: What private sector is present in the area? Any related to the water and sanitation sector (watsan) or other commercial activities related to wetland use? At wetland level and river basin level. The "media press" was mentioned here but I would rather place that under 11 ("other") stakeholders.
- 6: How influential is Acción Ecológica? What support do they have locally?
- 7: How influential are all the local NGOs and CBOs and how much support do they have locally? These could be important allies in engaging stakeholders.
- 7: How big and influential is La Amalia and how much support do they have locally?
- 8: Should ECOCENCIA be added as a stakeholder in the framework of WETwin, having carried out the national inventory of wetlands?
- The only gender disaggregated information available is that of the Amalia group. In the interest of more effective WETwin results it would be worthwhile to identify more gender disaggregated information

Table 2-5: Key stakeholders identified for the Uganda (Upper White Nile) wetlands[38]

Stakeholders	Nabajjuzi	C[39]	Namatala	C
1a. Water managers at wetland level	• District Environment Department • District Water Department • National Water and Sewerage Corporation (NWSC) • *Masaka District Local Government (MDLG)?* • *Wetlands Division?*	A A A	• District Environment Department • District Water Department (govt/public) • NWSC	A A A?
1b. Water managers at RB level	• Directorates of Water Resources management, Water Development and Environment Affairs • At District level – the Natural Resources Directorate	A A	• Directorates of Water Resources management, Water Development and Environment Affairs • At District level – the Natural Resources Directorate	A A?
2. Direct users	• NWSC-Masaka Water works • Crop Farmers (maize, cassava, bananas and potatoes) • Livestock keepers • Fishers • Beekeepers (ass.) • Nabajjuzi water users group	A B D D D A C	• Rice farmers, • Sand & clay miners • Other crop farmers (yams, maize, cassava, sugarcane) • Papyrus harvesters • Fish farmers • Fishers	A D A A D D A

[38] As provided by Uganda Wetland Leader, no distinction was made between primary and secondary stakeholders
[39] Category in the Importance/Influence matrix (A – high influence/high importance, B – high importance/low influence, C – low importance/high influence, (D) – low importance/low influence, i.e. not classified as key stakeholder)

Stakeholders	Nabajjuzi	C[39]	Namatala	C
	• Bakasimbi development group (Papyrus harvesters) • Bisanye farmers group • Women farmers' org. • Resource users/ harvesters of clay & sand • Hunters *of sitatunga* • Herbalists (=traditional healers)	 B B A D D	• Alcohol distillers • NWSC-Mbale Area	A
3. Landowners	• New Kumbu Housing Estate • NWSC	A A	• NWSC	A
4a. Govt/public sector local (W) level	• District Departments of : o Community Services o Environment o Wetlands o Agriculture o Water • Environment Committees & Focal persons of Katwe/Butego, Kimanya-Kyabakuza & Mukungwe Divisions • Local councils I,III & V	 B A A A A A A	• District Departments of : o Community Services o Environment o Wetlands o Agriculture o Water • Subcounty Environment Committees & Focal persons of Bungokho, Nakaloke & Wanale Subcounties • Local councils I,III & V	 B A A A A A A
4b. Govt/ public sector RB level	• Wetlands Management Department • National Environment Management Authority • Directorates of Water Resources Management, Water Development and Environment Affairs	A A A	• Wetlands Management Department • National Environment Management Authority • Directorates of Water Resources Management, Water Development and Environment Affairs	A A A
4c. Govt/public sector national	• Ministry of Water and Environment • National Environment Management Authority	A A	• Ministry of Water and Environment • National Environment Management Authority	A A
5a. Private sector (WATSAN[40])	None		None	
5b. Private sector (other)	• New Kumbu housing estate • Ssenya Fish farm	B B	• ADRA housing project	A
6. NGOs/ CSOs RB & national level	• Nature Uganda • Uganda Water & Sanitation Network	A A	• Habitat for humanity	B
7. CSOs/ CBOs local level	• Nature Uganda	A	• Nature Uganda	A
8. Research institutes	• National Agricultural Research Organisation	C	• National Agricultural Research Organisation	C
9. Regional RB Authority	• Nile Basin Initiative • Lake Victoria Environment Management Project • Lake Victoria Basin Commission	A A A	• Nile Basin Initiative • Lake Victoria Basin Commission	A A
10. Donors	• EU • World Bank	? ?	• EU • World Bank	? ?
11. Others	• Opinion leaders (elders, prominent people) • Religious leaders • Schools/teachers	D D D	• Opinion leaders (elders, prominent people) • Religious leaders • Schools/teachers	D D D

[40] Water and sanitation sector

Stakeholders	Nabajjuzi	C[39]	Namatala	C
Gender specific information	A women farmers' organisation exists		*No information available*	

Box 2-5: Discussion on Uganda study sites

- 1a (Nabajjuzi): should the Masaka District Local Government (MDLG) and the "Wetland Division" not be added in this category since they are developing a Community Based Wetland Management Plan (CBWMP)?
- 1b: Is the NWSC a government/public or private sector institute? What is their mandate? How influential are they and what support (or opposition) do they have?
- 4a: How are the Environment Committees composed? Only government or also civil society and private sector representation? What is their mandate? How influential are they and what support do they have from the local communities?
- 4b: Uganda has a Wetland Management Department: what is their mandate? How influential are they and what support (or opposition) do they have? How influential are they compared to the other government stakeholders classified as "A" (important and influential)?
- 7: What is "Nature Uganda" doing and how influential are they? This could be an important ally in engaging stakeholders!!!
- 8: What is the National Agriculture Research Organisation exactly doing? How big and influential are they?
- 9: what is the mandate of the regional river basin authorities? How influential are they and what support (or opposition) do they have? How influential are they compared to each other?
- 11: The "other" stakeholders here are classified as not important and not influential (D). However, they could be important allies for awareness raising and influencing stakeholders.
- Gender: What is the farmers women's group in Namajjuzi exactly doing? How big and influential are they? The only gender disaggregated information available is that of this group in Namajjuzi. Does Namatale not have female farmer's groups or women organised otherwise? In the interest of more effective WETwin results it would be worth while to identify more gender disaggregated information in Namajjuzi and Namatala

Table 2-6: Key stakeholders identified for the Mali (Inner Niger Delta) wetlands[41]

Stakeholders	Macina	P/S[42]	C[43]	Mopti	P/S	C	Youwarou	P/S	C
1a. Water managers at wetland level	• Office du Niger[44] • Local office of hydrology	S S	A B	• Rice farmers • Herders • Fishers • Local office of hydrology	P P P S	A A A B	• Rice farmers • Herders • Fishers • Local office of hydrology	P P P S	A A A B
1b. Water managers at RB level	• None[45]			• Niger River Basin Agency	P	B	• Niger River Basin Agency	P	B
2.Direct users	• Rice farmers • Fishers • Herders • Vegetable growers	P P P P	C C C C	• Farmers • Herders • Fishers • Domestic users	P P P P	A A A D	• Farmers • Herders • Fishers • Fish, nymphea and (bourgou) seed collectors • Domestic	P P P P	A A A A

[41] As provided by Wetland Leader, a reflection of the how it has been discussed with the local stakeholders in stakeholder workshops
[42] Primary (directly affecting or affected) or secondary (intermediates in the process)
[43] Category in the Importance/Influence matrix (A – high influence/high importance, B – high importance/low influence, C – low importance/high influence, (D) – low importance/low influence, i.e. not classified as key stakeholder)
[44] Office du Niger: National Government Authority, of the three study sites (wetland level) only operating in the Macina zone
[45] I.e. no representatives of Niger Basin Authority (ABN) or Niger River Basin Agency (AFBN) in Macina

Stakeholders	Macina	P/S[42]	C[43]	Mopti	P/S	C	Youwarou	P/S	C
							users	P	D
3.Landowners	• Office du Niger	S	A	• Herders • Fishers	P P	A A	• Herders • Fishers	P P	A A
4a. Govt/ public sector local (W) level	• Local office of: - Hydrology - Fishery - Forestry - Sanitation - Husbandry - Veterinary - Health • Province Councils: • Rural districts of Macina, Kolongo and Kokry	 S S S S S S S S	 B B B B B B A? A A A	• Regional Directions of: - Hydrology - Fishery - Sanitation and Control of Pollution - Agriculture - Livestock - Forestry - Health • Urban district of Mopti • Rural district of Konna • Mopti Rice Office (ORM) • Regional office of ABFN in Mopti	S ? ? ? ?	 B B B B B B C C B B	• Local office of: - Hydrology - Fishery - Forestry - Sanitation, control of waste - Livestock - Health - Agriculture • Rural districts of Youwarou and Deboye • Local office of "Agriculture Chamber"[46]	S ? ?	 A A A A A A A A ?
4b. Govt/ public sector RB level	• None[47]			• None			• None		
4c.Govt/ public sector national level	• None			• ABFN: Niger River Basin Agency		B	• ABFN: Niger River Basin Agency		A
5a. Private sector (watsan[48])	• None			• Sewage collectors • Electricity Company (EDM-sa)	P P	D B[49]	• None		
5b. Private sector (other)	• Tree growers • Boat Transport • Aquaculture • Exploitation of aggregate (sand, gravel)	P P P P	C D D D	• Potters • Dyers • River food processors/ wholesalers • Cars and motor cycle cleaners • Boat owners • Exploitation of aggregate (sand, gravel)	P P P P P P	D D D D A D	• Brick makers • Aquaculture • Sand exploitation	P P P	D D D
6. NGOs/ CSOs RB & national level	• Wetlands International		B	• PROTOS • IUCN	S ?	B B	• PROTOS • IUCN	S ?	B B
7. CSOs/ CBOs local level	• Foundation Inter vida • Socio-	S ?	B C	• CAFO • PROTOS • UICN	? S ?	C B B	• PROTOS • IUCN • AFAR	S S S	B B B

[46] "Agriculture Chamber": formal organisation which is formed by the representatives of farmers, herders, fishers and tree growers
[47] I.e. no representatives of ABN or AFBN
[48] Water and sanitation sector
[49] The Electricity Company is important (B) because they play an important role in the drinking water supply

Stakeholders	Macina	P/S[42]	C[43]	Mopti	P/S	C	Youwarou	P/S	C
	professional groups of women (CAFO)			• AFAR • FODESA	? ?	B B	• Projects: - FODESA - PASAM - PACY • CAFO	S ?	B C
8. Research institutes	• None			• Institute of Rural Economy (IER) • Meteorology Office		B B	• None		
9. International RB Agency	• No representation of ABN in Macina zone			• None			• None		
10. Donors	• EU • SIDA • *Other (DGIS?)?*	? ? ?	? ? ?	• EU • SIDA • *Other (DGIS?)?*	? ? ?	? ? ?	• EU • SIDA • *Other (DGIS?)?*	? ? ?	? ? ?
11. Other[50]	• None			• None			• None		
Gender specific stakeholder information	• CAFO groups	?	C	• CAFO groups	?	C	• CAFO groups	?	C

Box 2-6: Discussion on Mali study sites

- 1a: It is not clear why the "Office du Niger" is identified as a stakeholder in Macima and not in Mopti and Youwarou. Or are they only "represented" in Macima?
- 1a: In Mopti and Youwarou sites herders and fishers have strong rights on land and other resources in the area because of traditional law (through "managers" or "masters"). This is not reflected in the stakeholder identification: distinction should be made between herders and fishers as a (socio-economic) stakeholder group and the "managers" or "masters" because they differ in importance and especially influence. It is also important to know how the system functions to see whether it can be used for WETwin purposes or for finding solutions for the issues at stake.
- 1b: from the IND stakeholder analysis it appears as if only stakeholders who are physically present or represented are mentioned. However, stakeholders that are not physically present or represented (e.g. Office du Niger, ABN or AFBN) can be important or influential at wetland level because of their up-stream activities and should therefore be identified as stakeholders too.
- 2: Farmers, fishers, and herders are classified "A" (influential and important) in Mopti and Youwarou, probably because of the influence of "masters". In Macina they are classified as "C" (low importance, high influence – see definitions at page 42). It seems to me that it should be the other way round: of high importance and low influence ("B").
- 4a: the "Agriculture Chamber" (Youwarou) is not further described in the stakeholder analysis although this seems to be an important stakeholder, for instance as a possible discussion forum because several important stakeholders are represented. How big, important and influential are they? Is it a government, civil society or private sector structure?
- 4b and 4c: see 1b. Are the Office du Niger, the AFBN, the "Regional Agriculture Chamber", Hydrology Department, certain government departments, investors, etc. not influential at RB and national level?
- 5a: Sewage collectors are classified "D" (not important, not influential) in Mopti, but should be esteemed more important because especially in the Inner Niger Delta (IND) sewage is one of the big issues WETwin is dealing with, so the sewage collectors are stakeholders that should be engaged in finding

[50] Religious leaders, teachers, churches

solutions.

- 8: For WETwin several research institutes have been engaged. Therefore they should be considered as stakeholders even if they are not physically represented in the study sites. Not only will they be involved in the research, some of them might also be the ones to apply the WETwin management solutions or guidelines later.
- 9: see 1b
- 11: There are no "other" stakeholders identified. However, are there no stakeholders (religious leaders? The "masters" in Mopti and Youwarou? Teachers?) that could be important allies for awareness raising, communication and influencing stakeholders?
- Gender: more explanation should be given about the CAFO groups that are present in all three study sites. How big and influential are they? What are they doing? Because women are the key to success especially in WASH (Water, Sanitation and Hygiene) issues they should be actively engaged, in finding solutions and in spreading solutions, even if WASH issues are not part of their direct activities. In the interest of more effective WETwin results it would be worth while to identify more gender disaggregated information.

Table 2-7: Key stakeholders identified for the European (Elbe-Havel-Spree and Danube) wetlands

Stakeholders	Spreewald[51]	C[52]	Gemenc[53]	P/S[54]	C	Lobau[55]	P/S	C
1a. Water managers at wetland level	• Biosphere Reserve Unit Spreewald	A	• Lower Tisza Valley Environment and Water Authority (Szeged) • South-Trans-Danubian Environment and Water Authority (Pécs) • Central-Trans-Danubian Environment and Water Authority (Székesfehérvár) • Lower Danube Valley Environment and Water Directorate (Baja) • South-Trans-Danubian Environment and Water Directorate (Pécs) • Central-Trans-Danubian Environment and Water Directorate (Székesfehérvár)	P P P P P P	C C C C C C	• Government of Vienna – Municipal Authority for Drinking Water • Vienna Municipal Authority for Hydrology and Flood Protection • *National Park Authority (NationalPark GmbH)?* • *4. "Flood Protection Commission"?*	P P *?* *?*	A A *A* *?*
1b. Water managers at RB level	• Brandenburg State Agency for Environment	A	• International Commission for the Protection of the	S	D	• Government of Lower Austria – Department for	P	A

[51] Initially information provided in different format. List based on interpretation of author but verified by Wetland leader. For Spreewald no distinction was made between primary and secondary stakeholders
[52] Category in the Importance/Influence matrix (A – high influence/high importance, B – high importance/low influence, C – low importance/high influence, (D) – low importance/low influence, i.e. not classified as key stakeholder)
[53] Initially information provided in different format. List based on interpretation of author but verified by Wetland leader.
[54] Primary (directly affecting or affected) or secondary (intermediates in the process)
[55] Initially information provided in different format. List based on interpretation of author, not confirmed by Wetland Leader

Stakeholders	Spreewald[51]	C[52]	Gemenc[53]	P/S[54]	C	Lobau[55]	P/S	C
	(LUA) • 2. Brandenburg State Ministry for Environment, Health, and Consumer Protection (MUGV)	C	Danube River (ICPDR[56])			Hydrology • 2. Government of Lower Austria – Department for Nature Conservation	P	A
2.Direct users	• Private farmers • Forestry companies • Fishery cooperatives • Local inhabitants • 5. Tourists (German and foreign)	B B B ? B	• Private sector: forestry, hunting, fishery, tourism, agriculture and cattle breeding (limited extent) • Recreational: hiking, water sports, angling	P P	A A	• Adjacent Municipalities (inhabitants)	P	B
3.Landowners	• 1. Sorb tribe?		• *State (most lands)* • *Agricultural cooperative (very small forest units)* • *Municipalities (small lands on the floodplain),* • *Very few private houses and lands*	? ? ? ?	? ? ? ?	• Government	P?	A
4a. Govt/ public sector local (W) level	• Biosphere Reserve Unit Spreewald • Berlin water works	A B	• Same as 1a • Danube-Drava National Park Directorate (Pécs) • Region-Developing Counties of Baranya, Bács-Kiskun and Tolna • Local governments of Baja, Báta, Bogyiszló, Decs, Érsekcsanád, Homorúd, Kölked, Mohács, Őcsény, Pörböly, Szekszárd, Szeremle • Gemenc Forest and Game Co. Ltd.[57]	P P S P P	C A C A A	• Vienna Municipal Authority for Drinking Water • Vienna Municipal Authority for Hydrology and Flood Protection • Vienna Municipal Authority for Nature Conservation • Vienna Municipal Authority for Forestry • 5. National Park Authority (Nationalpark GmbH)	P P P P S	A A A A A
4b. Govt/ public sector	• Brandenburg State Agency for	A	None[58]			• Government of Lower Austria –	S	A

[56] International organisation for coordinating the River Basin Management Plan (RBMP) of the Danube basin being developed within the frame of WFD.
[57] State owned company
[58] Since the Danube basin is shared by several countries there is no governmental / public sector stakeholder responsible for the whole basin.

Stakeholders	Spreewald[51]	C[52]	Gemenc[53]	P/S[54]	C	Lobau[55]	P/S	C
RB level	Environment (LUA) • Brandenburg State Agency for Environment, Health and Consumer Protection (MUGV)	 C				Department for Hydrology • Government of Lower Austria – Department for Nature Conservation • 3. Advocacy for the Environment of Vienna and Lower Austria	 S S	 A C
4c.Govt/ public sector national level	• ???		• State Secretariat for Nature and Environment Protection[59] • National Inspectorate for Environment, Nature and Water[60] • National Water and Environment Directorate[61] • Central Agricultural Office[62]	S S S S	C C C C	• Federal Ministry for Environment • 2. Federal Ministry for Traffic	S ?	A C
5a. Private sector (watsan[63])	• 1. Berlin Water Works	B	None			• ???	?	?
5b. Private sector (other)	• Private farmers • Forestry companies • Fishery cooperatives • 4. The tourist industry	B B B B	• Commercial Fishing Companies • Báta Agricultural Co-operative • Tourist accomodations • Smal civil forest and game management companies	P S S S	A A B A	• Chamber of Commerce of Vienna and Lower Austria	P	D
6. NGOs/ CSOs RB & national level	• ???		• WWF (World Wildlife Fund) - Hungary	S	D	• Nature Conservation NGOs (WWF, Bird Life, ...)	S	B
7. CSOs/ CBOs local level	• Biosphere Reserve Unit Spreewald • Sorbian Cultural Information (SKI) Agency? • FÖNAS e.v.[64]	A ?	• Anglers Unions • Baja Youth Nature Protection Society • Tolna County Nature Conservation Foundation • Tolna County Group of Hungarian Ornithological and Nature Conservation	S S S S	A A B B	• Associations for Hunting and Fishing of Vienna and Lower Austria	P	B

[59] Administrates Danube-Drava National Park Directorate
[60] administrates the 12 *Environment and Water Authorities* ("Green Authority")
[61] administrates the 12 *Environment and Water Directorates*
[62] administrates its local organizations
[63] Water and sanitation sector
[64] Society/association for natural protection in the Spreewald region) acting as a platform for different stakeholders to discuss and solve conflicts

Stakeholders	Spreewald[51]	C[52]	Gemenc[53]	P/S[54]	C	Lobau[55]	P/S	C
			Society • Lower-Danubian Nature Conservation Foundation • Baranya County Group of Hungarian Ornithological and Nature Conservation Society • Hungarian Ornithological Society Local Group No.7, workgroup of Baja • Foundation for Natural Values of Baranya • Association for Báta	 S S S S ??	 B B B B ??			
8. Research institutes	• PIK (=??) • Leibniz-Centre for Agricultural Landscape Research (ZALF) • 3. Humboldt University Berlin	? ? ?	• Danube-Drava National Park • Danube Research Centre of the Hungarian Academy of Science • Hungarian Institute of Ornithology • VITUKI (Gemenc WB GEF Project) • Ministry for Environment and Water and ICPDR (Danube RBMP) • Eötvös József College, Baja (intervention planning) • Youth Nature Protection Society (BITE), Baja (individual research and active cooperation).	P S S S S S S	A D D C C A A	• Wasser Kluster Lunz (WKL)	S?	?
9. International RB Authority	• ???		• International Commission for the Protection of the Danube River (ICPDR)[65]	?	?	• International Commission for the Protection of the Danube River (ICPDR)	S	D
10. Donors	• EU • 2. National and local donors	?	• EU • World Bank • WWF[66]	S S ?	C C ?	• EU • 2. Lower Austria and Vienna governments	S S	? ?
11. Other	??		??			???	?	?

[65] NB: ICPDR is not an authority!
[66] Beaver re-introduction

Box 2-7: Discussion on Germany, Hungary and Austria study sites

To understand the stakeholders at the European sites better and to be able to compare with the Southern sites, it is essential to clarify the following issues:

Germany-Spreewald:

- 3: Spreewald is the home-country of the Sorbs. Do they have any special rights? Did/do they have a traditional (water) management system of the area? What (special) role do they play nowadays if any? They are not regarded as an important stakeholder, why not?
- 7: is the Sorbian Cultural Information (SKI) Agency represented in any stakeholder forum? Is it a NGO or a state agency? FÖNAS e.v. (a society/association for natural protection in the Spreewald region) acts as a platform for different stakeholders to discuss and solve conflicts. It is not regarded as an important stakeholder, probably because the relation in the framework of WETwin is not seen. However, this stakeholder could be a forum for discussing and explaining WETwin activities and outcomes and what it could mean for Spreewald.
- 11: Any "traditional" water use by the Sorbs or traditional "water managers"?

Hungary-Lobau

- 4b: Hungary did not identify river basin level government authorities, perhaps because they only considered official national river basin authorities (and there is none) in stead of the government institutes dealing with the national part of the river basin, like Germany and Austria have done.
- 9: In the Hungary stakeholder analysis report the ICPDR (intergovernmental organisation for coordinating the River Basin Management Plan (RBMP) of the Danube basin being developed within the frame of WFD) is not identified as an important stakeholder, probably because it has no formal authority. However, since the purpose of WETwin is to integrate wetlands in river basin management they should be considered important because they are developing a River Basin Management Plan, and they might also be one of the stakeholders to use the WETwin outcomes (generic guidelines). Therefore they should be stakeholders to be consulted: they should be informed about WETwin objectives and activities and their interests, needs and suggestions should be taken into consideration.

Austria-Lobau:

- 1a: Is the National Park Authority not a local "water manager"?
- 1a: In some documents a "Flood Protection Commission" is mentioned? Does this (still) exist? If yes, what is their mandate? How is it composed and how influential are they?
- 9: In the Austria stakeholder analysis report the ICPDR (intergovernmental organisation for coordinating the River Basin Management Plan (RBMP) of the Danube basin being developed within the frame of WFD) is not identified as an important stakeholder, probably because it has no formal authority. However, since the purpose of WETwin is to integrate wetlands in river basin management they should be considered important because they are developing a River Basin Management Plan, and they might also be one of the stakeholders to use the WETwin outcomes (generic guidelines). Therefore they should be stakeholders that should be consulted: they should be informed about WETwin objectives and activities and their interests, needs and suggestions should be taken into consideration.

2.4.2 Discussion on identification of key stakeholders

There are differences in how different case studies have identified key stakeholders. Some have only considered stakeholders physically present or represented in the wetland area, or only stakeholders they will actually interact with during WETwin, while others have taken a broader sense. This might be because the WETwin focus was not that clear yet for each site during the stakeholder analysis. Ultimately, it is important to identify the following stakeholders:

4. Those who are important to engage with during WETwin because they are important and/are influential in relation to the identified WETwin issues, e.g. local wetland users, managers and authorities, research institutes;

5. Those who are influential during and after WETwin, e.g. river basin agencies (whether only advisory or with decision taking power) and other institutes influencing the water management or water regime at local and/or downstream level ("decision makers")
6. Those who should apply or could be instrumental in spreading the outcomes of WETwin (decision support toolbox, site specific management solutions, generic guidelines), e.g. river basin agencies, national authorities dealing with water resources, existing local platforms/fora, NGOs, traditional authorities, women (organisations), etc. ("end users")

The first type of stakeholders has been identified in all study sites, but needs reviewing in relation to the WETwin issues. More attention needs to be given to identifying and engaging the other two types of stakeholders.

The whole process shows that a good stakeholder analysis and identification is not an easy process and that it is even more complicated to put it in a standard format to enable a comparative analysis, because of the differences in context and focus of the different study sites. However, now that this has been done it is worthwhile to invest in monitoring, evaluating and drawing conclusions for the generic guidelines about the three type of key stakeholders mentioned above in relation to the issues identified.

For the southern cases some extra analysis is still needed of the interests, needs and possible roles and contributions of women, and to monitor and evaluate these.

2.5 Characteristics, interests, challenges and possible contributions of key stakeholders

With the ***stakeholder participation analysis matrix*** (see annex 9) the main characteristics of stakeholders, their interests, what they can contribute to or how they can participate in the project or process, what challenges they face (in relation to WETwin issues) and what the required actions are to work with these stakeholders were tabled.

These will be summarised in this section, especially with regard to the main stakeholders at river basin and wetland level, and the stakeholders connecting these wetlands and river basin. In the end also some common issues are discussed. For details of the key stakeholders of each wetland see annex 1-7.

2.5.1 South Africa[67]

River Basin: Olifants rivier
Wetland(s): GaMampa
(For details see annex 1)

River Basin level:
Main stakeholders at River Basin level and their characteristics, interests, possible contributions and implied challenges and actions:

1. Department of Water and Environment Affairs (DWEA): Recently (2009) created by merging the Departments of Water Affairs and Forestry and Environmental Affairs and Tourism. Operates at national level. Of moderate importance, but high influence.
2. Kruger National Park: Receives water flow from the Olifants which can potentially have been affected by wetland use. Very well known, media can add more strength. Moderate importance and influence.

[67] Author's interpretation of the South Africa stakeholder report

3. Olifants River Forum: governance structure (CSO) for powerful stakeholders such as mining and tourism, interested in conservation of the wetlands for water supply purposes. Strong and highly vocal group. It is well organized and meets regularly. Of moderate to high importance and influence.
4. Limpopo Department of Economic Development Environment and Tourism (LEDET): a decision taking institute, but have very little manpower for wetland management – only one wetland specialist for the province. Of high importance and moderate influence.
5. Department of Agriculture: formulates and implements and enforces agricultural policies and wetland conservation. Moderate importance but high influence.
6. Provincial Government – RESIS Programme (revitalization of small irrigation schemes): policy maker/decision taker. Rehabilitation of irrigation schemes, but no direct interest in wetlands. State legitimacy, characterised by incoherent ideas because of the involvement of consultants. Of low importance but moderate influence.
7. Mondi Wetland Project: CSO; advocacy on wetland conservation. Has no influence at local level where people are suspicious of it but can have influence at national and international level. Of high importance but moderate influence.
8. South African National Biodiversity Institute: research and education; interest conservation of biodiversity; high importance and high influence.
9. Working for Wetland: "advocacy" kind of organisation (semi-governmental); interested in wetland restoration; high importance and high influence.
10. International research institutes (G-EAU/Cemagref, IMWI, Cirad, IRD, Engref): research on biophysical and socio-economic aspects of wetlands; have had sustained presence in the area. Some credibility with local stakeholders. Moderate importance but low influence.
11. Local Communities in Mafele, downstream of GaMampa Wetlands: Affected by changes in river flows due to wetland use.
12. *Limpopo River Basin Committee (LIMCOM)?: officially not existing because riparian countries have not all signed (yet?).*
13. *Olifants River Catchment Management Agency (planned)?: planned since long time but not operational yet.*

Wetlands level:

Main stakeholders at wetlands level and their characteristics, interests, possible contributions and implied challenges and actions:

1. Wetland croppers: includes 25% of households; interest is cultivating maize and cash crops; conflicts with livestock keepers; of high importance but low influence.
2. Wetland livestock breeders: strategic forage resources especially for old people with little labour; potential conflicts with croppers, although 27% are also croppers; of high importance but low influence.
3. Wetland collectors (reeds and sedges): interested for generating income; 23% of households; 30% are also croppers; very little power, not organised; of high importance but low influence.
4. Ward councillor: Active involvement in decision making, representative of local municipality, possible interested in re-election; influence depends on personal network; of average importance but high influence.
5. Municipal government: in charge of local government and water services in Lepelle-Nkumpi; elective legitimacy, limited capacity; of moderate importance and influence.
6. Community Development Forum: Expresses views and needs of local community to ward councillor, traditional headmen and municipalities. Aims to reach agreement on management arrangements. Enjoys elected legitimacy although the CDF term has long expired, recognised by headman, good relations with extension officer, wields little formal power, has no legal status, entire membership belongs to the ruling political party (the ANC), lacks human and financial resources and technical expertise; of high importance but low influence.
7. Wetland Committee (Kudumela): civil society but enjoys local legitimacy; lacks resources; of high importance but low influence.

8. Agricultural Extension Officer: Advises farmers on good farming methods, interested in agricultural development. State legitimacy, listened to by the community, but does not understand the concept of wetland functions; of moderate importance but high influence.
9. Traditional authorities (The Kgoshi; headmen of Manthalane, GaMampa,): allocate plots; authorise cutting of reeds, involved in conflict management. Enjoy traditional authority although this is decreasing; highly respected by community; tensions with other stakeholders over fees for agricultural use of wetland. The Headman of GaMampa presented conflicts with the CDF in the past. People turn to the Kgoshi when headmen fail to resolve conflicts. Of high importance and high influence.
10. Water Users Association (former irrigation committee): in charge of local management in the scheme, relays information from CDF; of high importance but low influence.
11. Legalametse Nature Reserve and Volkseberg Conservancy[68]: management and use of the reserve; of high importance and high influence.
12. Local (traditional) headmen?: some of the traditional leaders obtain their livelihoods by overseeing administration (e.g. plot allocation). There might be overlap with local government administration.

Both levels:

Stakeholders that are important at both levels and are the main link for integrating wetlands into river basin management:

1. DWEA: see above.
2. Provincial Government – RESIS Programme (revitalization of small irrigation schemes): see above.
3. University of Limpopo: research and outreach on wetland use, possible studies in the River basin itself. High credibility with local community; of high importance and high influence.
4. Working for Wetlands: see above.
5. Olifants River Forum: see above.
6. Limpopo Department of Economic Development Environment and Tourism (LEDET): see above.
7. Department of Agriculture: see above.
8. NGOs/CSOs and research institutes active at both levels: see above.
9. *Limpopo River Basin Committee (LIMCOM)?: see above*
10. *Olifants River Catchment Management Agency?: see above*

Box 2-8: Discussion on characteristics, interests, challenges and actions to undertake for key stakeholders at wetland, river basin and connecting levels in South Africa

- The Department of Water and Environment Affairs (DWEA), recently (2009) created by merging the Departments of Water Affairs and Forestry and Environmental Affairs and Tourism and therefore with interests in water as well as natural resources management, seems to be the key stakeholder for WETwin purposes and should be actively engaged in all phases of the project (at least at the moment because the Catchment Management Agency is not yet operational).
- The RESIS Programme (revitalization of small irrigation schemes) of the Provincial Government is identified as a stakeholder of low importance but moderate influence. This is probably because they have no direct interest in (the effects of the irrigation schemes on) wetlands, and because this classification has been done in previous studies without taking the WETwin objectives into account. However, in WETwin context they seem to be important (and influential), because the irrigation scheme is important fot the livelihood of people. Therefore, for the benefit of Ga-Mampa ecosystem services and the generic guidelines, they seem to be an ideal test case (to learn from) for actions to engage a stakeholder that at present is not engaged, but should be engaged, and to monitor and evaluate the successfulness of the actions undertaken to engage them.
- At wetland level the legal status, composition and mandate of the Wetland Committee (Kudumela) needs to be clarified. The mandate and legal status determines its influence, e.g. to formulate and enforce by-laws,

[68] Government structures?

to collect and use fines for the benefit of the wetland, etc. If it doesn't have this legal status the possibilities of giving it this legal status could be investigated. And how is it composed? Which community groups are represented? Are women represented? Is it composed by elections of by representation? Why is its influence low and how could this be improved?

- The Water Users Association (former irrigation committee): why is its influence low and how could this be improved? What is their relation with the Wetland Committee?
- The Agricultural Extension Officer seems to play a key role at local level and is very influential, but his knowledge of wetlands and the services it provides is low. It seems important to engage him fully in WETwin and to undertake action to improve his knowledge of wetlands (ecology) and the services it provides! This might also be the case for other important and influential stakeholders.
- What is the status of the Limpopo River Basin Committee (LIMCOM) and the Olifants River Catchment Management Agency? Why is the LIMCOM not signed by all countries yet and why is the Catchment Management Agency not operation yet? Are they likely to become operational in the near future? They seem to be important stakeholders when they will be operational (as "end users" of WETwin outcomes).

2.5.2 Uganda[69]

River Basin: Upper White Nile
Wetland(s): Nabajjuzi and Namatala wetlands
(For details see annex 2)

River Basin level (for both Wetlands):
At River Basin level government stakeholders include the Directorates of Water Resources management, Water Development and Environment Affairs, all mandated to develop standards, policies and strategies, provide technical backstopping, support supervision, conduct routine monitoring of activities, and offer compliance assistance in the conservation of the resource.

1. The Directorate of Water Development (DWD) is the lead government agency for the water and sanitation sector under the Ministry of Water and Environment (MWE) with the mandate to promote and ensure the rational and sustainable utilization and development and safeguard of water resources, for social, economic development as well as for regional and international peace.
2. The Directorate of Water Resources Management is responsible for the integrated and sustainable management of water resources in Uganda so as to secure and provide water of adequate quantity and quality for all social and economic needs for the present and future generations. It does this through monitoring and assessment of the quantity and quality of water resources; storing, processing and disseminating water resources data and information to users; providing advice on management of transboundary water resources; regulating water use and discharge of wastewater into water bodies through issuing of water permits and providing analytical services for water quality analysis.
3. The Directorate of Environmental Affairs is concerned with environmental policy, regulation, coordination, inspection, supervision and monitoring, action planning and implementation, enforcement and compliance, education and awareness raising, the restoration of degraded ecosystems, as well as mitigating and adapting to climate change. It does its activities through the Wetlands Management Department and the National Environment Management Authority (NEMA).
4. The National Environment Management Authority (NEMA) is mandated by the National Environment Act (NEA), Cap. 153 as the principal agency in Uganda charged with the responsibility of coordinating, monitoring, supervising and regulating all environmental management matters in the country.

[69] As provided by Uganda Wetland leader

Other stakeholders at river basin level include regional bodies which include Lake Victoria Basin Commission, Lake Victoria Environmental Management Programme and Nile Basin Initiative.

5. Lake Victoria Basin Commission was established by the East African Community formerly as a mechanism for coordinating the various interventions on the Lake and its Basin; and serving as a centre for promotion of investments and information sharing among the various stakeholders. The programme is the driving force for turning the Lake Victoria Basin into a real economic growth zone. The commission envisages a broad partnership of the local communities around the Lake, the East African Community and its Partner States as well as the development partners. The commission's activities are focusing on the harmonization of policies and laws on the management of the environment in the Lake and its catchment area. The major interest is strengthening policy implementation and the contribution is consultation in identification of best compromise solutions.
6. The Nile Basin Initiative (NBI) is a partnership initiated and led by the riparian states of the Nile River through the Council of Ministers of Water Affairs of the Nile Basin states. NBI seeks to develop the river in a cooperative manner, share substantial socio-economic benefits, and promote regional peace and security. The NBI operates through the Council of Ministers of Water Affairs of the Nile Basin Countries, which provides policy guidance and makes decisions; the Technical Advisory Committee, which renders technical advice and assistance to the Council; and the Nile Basin Secretariat, which renders administrative services to the council and the technical committee. The contribution is in modelling and quantification of wetland services.
7. Lake Victoria Environmental Management Project is a comprehensive regional development programme that covers the whole of Lake Victoria and its Catchment areas. It is being implemented jointly by the Republic of Kenya, the United Republic of Tanzania and the Republic of Uganda. The Project focuses on improving collaborative management of the transboundary natural resources of Lake Victoria basin (LVB) for the shared benefits of the East African Community (EAC) partner states; and to reduce environmental stress in targeted pollution hotspots and selected degraded sub catchments to improve the livelihoods of communities, who depend on the natural resources of LVB. Contribution is in information sharing and consultation on field data collection
8. *National Water and Sewerage Corporation (NWSC) (high importance and influence; and the National Agricultural Research Initiative Organisation (high influence)?*

Wetlands level (Nabajjuzi):
Main stakeholders at Nabajjuzi wetlands level and their characteristics, interests, possible contributions and implied challenges and actions:

1. Local resource users: Bisanje farmers group *(bananas, cassava, potatoes and maize)*, crop farmers *(Maize, Cassava, Bananas & potatoes)*, Nabajjuzi water users group, women farmers' organisation, papyrus harvesters, sand & clay miners. These are the main resource users with the major interest of wetland resources that include water, soil, and land for food production; sand and papyrus for income generation. They could be involved in data collection and sharing and will require to be sensitized and trained to be able to help as in data collection. However, a serious stakeholder challenge is the negative attitude and lack cooperation of communities: this is because communities or different resource users have different interests and in most cases their interests are around exploitation of resources for their needs. If any programme comes in with the interest of conservation or wise use, they believe they will be forced out/or limited to use. It is a perception among resource users that you will always need to work hard to convince them that the aim of any project is to their benefit
2. District Wetlands Department: day to day management of the natural resources, including capacity building, sensitization, enforcement, compliance assistance, restoration, development of byelaws and ordinances. They are mandated by the Local Government Act 1998 and the National Environment Act 1995). Their interest is wetland conservation; possible contributions

include provision of existing data/information, data collection together with the research team of the project. Foreseen challenges include limited political will and negative attitude of politicians towards the project activities as the interest of politicians is to please communities. Required action will be to involve local leaders as much as possible.

3. District Community Development Department: the core activities include mobilisation, consultation and dissemination of information, plus education and offering media for the execution of extensions services in the fields of agriculture and health. They are the forerunners of any activity in the community, and are mandated by the Local government Act 1998). Their major interest is food security and income generation among communities
4. District Department of Environment: day to day management of the natural resources, including capacity building, sensitization, enforcement, compliance assistance, restoration, development of byelaws and ordinances. They are mandated by the Local Government Act 1998 and the National Environment Act (1995). Their interest is wetland conservation; possible contributions include provision of existing data/information, data collection together with the research team of the project. Foreseen challenges include limited political will and negative attitude of politicians towards the project activities as the interest of politicians is to please communities. Required action will be to involve local leaders as much as possible.
5. District Water Department: is empowered by the Local Governments Act (2000) to provide water services, mobilize additional local resources for water and sanitation programmes in consultation with Ministry of Water and Environment.
6. District Agricultural Extension Office: delivers technical services in the field of agriculture, including capacity building, sensitization, enforcement, compliance assistance, development of byelaws and ordinances. They are mandated by the Local Government Act 1998.
7. Nature Uganda: national NGO working in the area of biodiversity conservation and community capacity building. They act as checks and balances through monitoring other activities, provide technical support through the different awareness and conservation projects. Can provide personnel, their network and data/information. Challenges may be lack of time and cooperation and that they would have to integrate WETwin activities into their work plan. To overcome these challenges sensitisation is needed; wetland training and formal communication.
8. Divisional environmental committees (3): Local Environment Committees *at District, Sub-county and Local Council.* Their interest is wetland conservation. They can provide monitoring of resource use; provide platforms/forums for debates and byelaw formulation. Challenges are lack of cooperation, attitude of communities towards the objective of the project – research, as opposed to contributing to their livelihood, and political interference – discouraging community to participate or failing to embrace the project
9. Nature Uganda: national NGO working in the area of biodiversity conservation and community capacity building. They act as checks and balances through monitoring other activities, provide technical support through the different awareness and conservation projects. They can provide personnel, their network and data/information. Challenges may be lack of time and cooperation and that they would have to integrate WETwin activities into their work plan. To overcome these challenges sensitisation is needed; wetland training and formal communication.
10. Local commercial users: Ssenya Fish farm, private enterprise that covers three acres within catchment. A challenge is the possible negative attitude of its member towards the Wetwin project activities
11. New Kumbu Housing estate: Privately owned urban estate of about 250 households. Their interests are clean water sources and waste water disposal. They can provide their network and facilities but could face community resistance because *the community is more concerned with the housing, not conservation and* political interference towards conservation related interventions *(to protect votes of the communities).* To be overcome by sensitisation and providing forum/platform for formulation of by-laws*.*
12. Directorate of Natural Resources: responsible for the management of the natural resources, including wetlands. Core activities include capacity building, sensitization, enforcement, compliance assistance, restoration, development o byelaws and ordinances. They are mandated

by the Local Government Act 1998 and the National Environment Act (1995). The interest is wetland conservation; possible contributions include provision of existing data/information, data collection and identification of best compromise solutions, challenges include lack of equipment and field facilities. Required action will be to provide the necessary logistics.

13. *Women's farmers' organisation?*

Wetlands level (Namatala):

Main stakeholders at wetlands level and their characteristics, interests, possible contributions and implied challenges and actions:

1. Local resource users: Rice farmers, other crop farmers (*yams, sugarcane, cassava, and maize)*, this is the biggest group of resource users in Namatala wetland with the major interest of food production; the possible contribution is in the area of information sharing and data collection. The challenge is about convincing the members of resource users to support the project; however this will be overcome by sensitization and awareness creation among the group.
2. District Wetlands Department: day to day management of the natural resources, including capacity building, sensitization, enforcement, compliance assistance, restoration, development of byelaws and ordinances. They are mandated by the Local Government Act 1998 and the National Environment Act (1995). Their interest is wetland conservation; possible contributions include provision of existing data/information, data collection together with the research team of the project. Foreseen challenges include limited political will and negative attitude of politicians towards the project activities as the interest of politicians is to please communities. Required action will be to involve local leaders as much as possible.
3. District Community Development Department: the core activities include mobilisation, consultation and dissemination of information, plus education and offering medium for execution of extensions services in the fields of agriculture, health. They are the forerunners in any activity in the community, and are mandated by the Local government Act (1998).Their major interest is food security and income generation among communities
4. District Department of Environment: day to day management of the natural resources, including capacity building, sensitization, enforcement, compliance assistance, restoration, development o byelaws and ordinances. They are mandated by the Local Government Act 1998 and the National Environment Act 1995). The interest is wetland conservation; possible contributions include provision of existing data/information, data collection together with the research team of the project. Foreseen challenges include limited political will and negative attitude of politicians towards the project activities as the interest of politicians is to please communities. Required action will be to involve local leaders as much as possible.
5. District Water Department: is empowered by the Local Governments Act (2000) to provide water services, mobilize additional local resources for water and sanitation programmes in consultation with Ministry of Water and Environment.
6. District Agricultural Extension Office: delivers technical services in the field of agriculture, including capacity building, sensitization, enforcement, compliance assistance, development of byelaws and ordinances. They are mandated by the Local Government Act (1998). The major interest is household food security and the possible contribution is in the area of data collection.
7. Nature Uganda: national NGO working in the area of biodiversity conservation and community capacity building. They act as checks and balances through monitoring other activities, provide technical support through the different awareness and conservation projects. Can provide personnel, their network and data/information. Challenges may be lack of time and cooperation and that they would have to integrate WETwin activities into their work plan. To overcome these challenges sensitisation is needed; wetland training and formal communication.
8. Local commercial users: Alcohol distillers use water from the wetland and also discharge wastes into the streams. Adra housing project is interested in land for establishing settlements. They will require capacity building to be able to contribute to data collection.

9. Divisional environmental committees (3): Local Environment Committees *at District, Sub-county and Local Council.* Their interest is wetland conservation. They can provide monitoring of resource use; provide platforms/forums for debates and by-law formulation. Challenges are lack of cooperation, attitude of communities towards the objective of the project – research, as opposed contributing to their livelihood, and political interference – discouraging community to participate or failing to embrace the project

Both levels:
Stakeholders that are important at both levels and are the main link for integrating wetlands into river basin management:

1. Wetlands Management Department:
2. National Environmental Management Authority (NEMA)
3. Directorate of Water Resources Management:
4. Nature Uganda
5. Directorate of Natural resources Management
6. Regional authorities
7. NBI
8. Lake Victoria Basin Commission
9. *National Water and Sewerage Corporation (NWSC) (high importance and influence; and the National Agricultural Research Initiative Organisation (high influence)?*

Wetland and river basin management are linked through the District and Government Agencies through whom they execute their activities and with the framework of the different national policies and laws e.g. Local Government Act, the National Constitution, the Water Act, the Wetlands Policy, and the National Environment Act. There is collaboration through the different working committees, Authorities, Advisory groups/bodies at Regional, National and Local Government levels. A number of these departments and organizations have representatives on the technical committees of the regional bodies.

Box 2-9: Discussion on characteristics, interests, challenges and actions to undertake for key stakeholders at wetland, river basin and connecting levels in Uganda:

- There are two stakeholders missing stakeholders in the lists above that seem to be important to add: National Water and Sewerage Corporation (NWSC), identified as a stakeholder of high importance and influence; and the National Agricultural Research Initiative Organisation, identified as a stakeholder with high influence.
- Who are represented in the Divisional Environment Committees? Only government staff or also others (private sector, local communities, etc.)? Are there community based environmental committees? If yes, then these could be an important entrance for identifying, formulating, implementing and monitoring management solutions.
- The apparent negative attitude of local communities needs to be addressed. They could be defensive because local communities frequently get the blame for degradation of natural resources while often their resource use is only part of the problem. Furthermore they don't see an alternative or the benefit for them to change their attitude or resource use. Community sensitization only will not change this. Experience in other project shows that they will only change this attitude if they are more actively involved in all stages of finding locally appropriate solutions (i.e. in analysing problems, finding, implementing and monitoring solutions) in stead of having to apply solutions coming from outside. In addition local communities should get responsibilities in wetland management and tangible benefits from wetland management (e.g. more equal share in wetland services, cleaner water, less diseases, community benefits from fines from local by-laws, etc), e.g. by giving local management committees a legal status.
- Because solutions will often be compromise solutions, local and/or river basin or national authorities must also commit themselves to contribute and share responsibilities and benefits. For that reason sensitization of government authorities is equally or perhaps more important than sensitization of local communities (who are usually more knowledgeable about their natural environment and the relation with their livelihood).

- For a joint analysis some wetland (ecology) training as suggested could be a good idea (especially for local authorities).
- At Namajjuzi the women's farmers' organisation is not mentioned as a stakeholder, but what are their specific interests and needs, how could they contribute and what action needs to be undertaken to involve them?

2.5.3 Mali[70]

River Basin: Inner Niger Delta
Wetland sites: Macina, Mopti and Youwarou
(For details see annex 3)

River Basin level:
Main stakeholders at River Basin level and their characteristics, interests, possible contributions and implied challenges and actions:

1. Niger Basin Authority (NBA): NBA is a basin scale organization of the nine riparian countries with the following objectives:
   - To harmonize and coordinate the national policies relating to the development of the water resources in the basin;
   - To participate in development planning through the development and the implementation of an integrated development plan for the basin;
   - To promote and participate in the design and exploitation of common works and projects;
   - To ensure the control and regulation of any form of navigation on the river, its tributaries and sub-tributaries, in conformity with the Niamey Act.;
   - To participate in the formulation of requests for assistance and in the mobilization of funds for the studies and works required for the development of the resources in the basin.
2. Niger River Basin Agency (AFBN): this is the national focal point of the NBA operating at national level.
3. Office du Niger: Office du Niger is a huge governmental institute with the mandate to saveguard and develop "La Delta Mort". It is managing the Markala dam and a very big scale irrigation area. It is also responsible for the hydro-agriculture planning, water resources management, and support/advice. Office du Niger is operating at wetland level, they use big amounts of fertilizers and pesticides that are polluting the river water. It should be very interesting to engage them because they can provide many data (hydrology, socio economy, water borne and vector borne diseases). Of the three IND study sites only operating in the Macima zone.
4. National Hydrology Direction: They are responsible of the follow-up and the management of all the hydraulic facilities. They have a strong background in hydrology data they can provide (velocity, availability, ground water, surface water, daily, weekly and yearly information about water levels in each zone of the river). They should be engaged in the three zones.
5. Electricity company (EDM-sa}: Strong economic dependence on and strong impact on water resources. They do manage dams (like Selingué) but in the case of WETwin, they are only (represented?) in Mopti. They provide clean drinking water. They have big influence in Mopti because the whole urban district depends on them for clean water to drink and for other uses.
6. Other national ministries/departments/institutes: All the other government institutions have something to do and all are important in the system, some more than the others. They should be engaged because all of them can provide information that will be useful for WETwin.
7. Any NGOs or projects working on the same or related issues (PROTOS, IUCN, WI, others?): *no information provided.*
8. National research institutes (see annex 3): *no information provided.*

[70] As provided by Mali Wetland leader

(A) Macina site

Wetlands level:

Main stakeholders at wetlands level and their characteristics, interests, possible contributions and implied challenges and actions:

1. Rice farmers: land clearing, ploughing, irrigation, pesticide treatments, organic and chemical fertilizer application, pumping water for irrigation. Interested in rice production and marketing. Strong degree of economic, social and cultural dependence on water resources. Strong impact of activities on water resources. Strong interest in but medium knowledge/expertise of management of water resources.
2. Fishers: sometimes apply destructive fishing techniques, like explosives, forbidden nets, channels to draw water from ponds so they catch fish and let the small fish and all the other biodiversity to die, etc.; they protect some fishing areas; fishing processing and packing. Strong degree of economic, social and cultural dependence on water resources. Strong impact of activities on water resources, in the way that they can impact the water biodiversity, and they used to be the water owners. Strong interest in but weak knowledge/expertise of management of water resources.
3. Herders: graze on bourgou fields, exploitation of tree leaves as animal food, watering livestock and seasonal migration. Strong degree of economic dependence on water resources. Strong impact of activities on water resources, because they are land owners and by overgrazing, they can have strong impact on bourgou fields and flood forests. There are no traditional "masters" in the area (like in Mopti and Youwarou) because in the Macina zone, the only master who distribute the land and water is the Office du Niger.
4. Vegetable growers: Medium degree of economic, social and cultural dependence on water resources. Strong impact of activities on water resources by using fertilizers and pesticides. Strong interest in but medium knowledge/expertise of management of water resources.
5. Tree growers: tree nurseries and tree planting. Medium degree of economic and strong degree of social and cultural dependence on water resources. Strong impact of activities on water resources. Medium interest in but weak knowledge/expertise of management of water resources.
6. Aquaculture: only few people, not enterprises. Strong degree of economic dependence on water resources. Medium impact of activities on water resources. Medium interest in and medium knowledge/expertise of management of water resources
7. Exploitation of aggregate: was rated "D" (not important or influential), but have strong economic dependence and impact of activities on water resources. They have a big income and they can cause water pollution but they are not organised, the other stakeholders are better organised in cooperatives).
8. Province and rural district councils of Macina, Kolongo and Kokry ("Cercles"?): Support, mobilization and elaboration of local socio-economic and cultural development plans. Every district council has a Mayor as chief, they are the representatives of people of their district and they have in charge the policy and the development of the district).
9. Local technical govt. departments: They represent they Ministries at local level. They assist and advice district councils).
10. Office du Niger*:* Repairing irrigation channels, management of the Markala dam and small scale irrigation. Strong degree of economic dependence on water resources. Strong impact of activities on water resources. Strong interest and knowledge/expertise of management of water resources.
11. Foundation Inter vida: Interested in restoration. Responsible for support decentralized institutions in sanitation fields, and awareness. They have strong background in sanitation and restoration fields so they can provide information, they can help in raising awareness, in dissemination of information, etc.)
12. Wetlands International: With an office in Mali focused on wetland issues in especially the IND WI is an important stakeholder with (sometimes) high influence. Through the Wetlands and Livelihoods Project (WLP) WI is cofounding WETwin.
13. The National Office of Hydrology: is responsible of drinking water.

14. National Office of Sanitation and Pollution Control is responsible of sanitation issues.
15. *CAFO groups?*

Both levels:
Stakeholders important at both levels at Macina and are the main link for integrating wetlands into river basin management:

1. Province Council: Support/advice, mobilization and elaboration of local socio-economic and cultural development plan (LSECDP). See above.
2. Foundation Inter vida: See above.
3. Office du Niger: See above.
4. Niger River Agency (AFBN): See above.
5. Government departments of: (in general responsible for support and awareness)
   - Hydrology: Monitoring of hydrology channels
   - Fishery: Management and exploitation of fishery products
   - Forestry: Management, protection and exploitation of forestry and fauna resources
   - Sanitation: Management of waste and control of pollution
   - Husbandry: Monitoring of husbandry industry and support to cattle breeders
   - Veterinary: Monitoring of livestock health
   - Health: Training, ensure basic health care for the communities

(B) Mopti site

Wetlands level:
Main stakeholders at wetlands level and their characteristics, interests, possible contributions and implied challenges and actions:

1. Rice farmers: land clearing, ploughing, irrigation, pesticide treatments, organic and chemical fertilizer application, pumping water for irrigation. Interested in rice production and marketing. Strong degree of economic, social and cultural dependence on water resources. Strong impact of activities on water resources. Strong interest in but medium knowledge/expertise of management of water resources.
2. Other farmers: vegetable gardening, tree growing/planting, land clearing, ploughing, irrigation, pesticide treatment, organic and chemical fertilizer, water pumping for irrigation.
3. Fishers: apply prohibited fishing techniques; protect some fishing areas; fish processing and packing. Strong degree of economic, social and cultural dependence on water resources. Strong impact of activities on water resources. Strong interest in but medium knowledge/expertise of management of water resources. Traditional "Water masters" allocate fishing areas
4. Herders: graze on bourgou fields, exploitation of tree leaves as animal food, watering livestock and seasonal migration. Strong degree of economic dependence on water resources. Strong impact of activities on water resources. Traditional "Masters" allocate grazing areas
5. Socio-professional groups of women (CAFO): Organization of women groups. *No further information provided.*
6. Domestic users: Domestic uses, dumping of all kind wastes in the river.
7. Sewage collectors: collect sewage and dump it in the water. *No further information provided.*
8. Dyers: women dying cloths. Strong impact of activities on water resources (chemical pollution). Were rated "D" (not important or influential).
9. Exploitation of aggregate (sand and gravel): *no information provided.*
10. River food processors/wholesalers: processing fish. Was rated "D" (not important or influential)
11. Cars and motorcycle cleaners: use a lot of water for cleaning cars. Were rated "D" (not important or influential)

12. Boat transporters: Persons and goods transport, was rated "A" stakeholder (important and influential). Strong degree of economic dependence on water resources. Medium impact of activities on water resources. Strong interest in, but medium knowledge/expertise of management of water resources.
13. Rice Office Mopti: Planning and managing rice growing zones, support and monitoring rice growers. *No further information provided.*
14. Decentralized Institutions: Identification, planning, implementation and monitoring of development activities. *No information provided about what institutions are meant.*
15. Province and district councils of Mopti and Konna: Support, mobilization and elaboration of Local socio-economic and cultural development plans.
16. Local technical govt. departments: *no information provided*

Both levels:
Stakeholders that are important at both levels and are the main link for integrating wetlands into river basin management in Mopti area:
1. Rural Economic Institute: Applied research.
2. Meteorology Office: Weather forecast and analysis of climatic data.
3. Electricity company (EDM-sa}: See above.
4. NGO (s) or projects (*WI?, PROTOS? IUCN? Others?)* Financial support and strengthen partner capacities.
5. Regional Directions of:
   - Hydrology: Monitoring of hydro-agriculture devices
   - Fishery: Planning, management and exploitation of fishery resources
   - Sanitation and Control of Pollution: Management of waste and control of pollution and nuisance
   - Agriculture: Support and monitor farmers
   - Livestock: Support and monitor herders
   - Forestry: Planning, Protection and exploitation of forestry and fauna resources
   - Rice Office Mopti: Planning and managing rice growing zones, support and monitoring rice growers.
6. Regional Chambre of Agriculture: formal organization of farmers, herders, fishers and three growers.

(C) Youwarou site

Wetlands level:
Main stakeholders at wetlands level and their characteristics, interests, possible contributions and implied challenges and actions:
1. Farmers: Rice farming, vegetable farming and tree planting. Strong degree of economic, social and cultural dependence on water resources. Strong impact of activities on water resources. Strong interest in but medium knowledge/expertise of management of water resources.
2. Herders: Cattle breeding and bourgou restoration. Strong degree of economic dependence on water resources. Strong impact of activities on water resources. Weak interest in and weak knowledge/expertise of management of water resources.
3. Fishers: Fishing. Strong degree of economic, social and cultural dependence on water resources. Strong impact of activities on water resources. Strong interest in but medium knowledge/expertise of management of water resources.
4. Aquaculture: rated "D" (not important or influential), but strong degree of economic dependence on water resources. Medium impact of activities on water resources. Medium interest in and medium knowledge/expertise of management of water resources.
5. Collectors of wetland resources: collect fish, nymphea, bourgou seeds. Strong degree of economic dependence on water resources. Medium impact of activities on water resources

6. Exploitation of aggregate: Sand and gravel marketing. Have strong economic dependence and impact of activities on water resources.
7. Boat transporters: transport of goods and persons. Strong degree of economic dependence on water resources. Medium impact of activities on water resources. Medium interest in but medium knowledge/expertise of management of water resources.
8. Province and rural district councils of Youwarou and Deboye: Support, mobilization and elaboration of Local socio-economic and cultural development plans (LSECDP).
9. Decentralised govt. institutions: Decentralised management of natural resources, awareness and support.
10. Local office of Agriculture Chamber: formal organization of farmers, herders, fishers and three growers.
11. NGOs (IUCN, PROTOS, AFAR) and projects (FODESA, PASAM, PACY):[71] no information provided
12. Niger River Agency (AFBN): see above
13. *CAFO groups?*

Both levels:

Stakeholders that are important at both levels and are the main link for integrating wetlands into river basin management in Youwarou:

1. Regional Chamber of Agriculture: formal organization of farmers, herders, fishers and three growers.
2. Niger River Agency (AFBN): see Macina
3. Province Councils: Support/advice, mobilization and elaboration of Local socio-economic and cultural development plan (LSECDP)
4. Local offices of:
   - Hydrology: Monitoring of hydro-agriculture devices
   - Fishery: Planning, management and exploitation of fishery resources
   - Sanitation and Control of Pollution: management of waste and control of pollution and nuisance
   - Agriculture: Support and monitor farmers
   - Livestock: Support and monitor herders
   - Forestry: Planning, Protection and exploitation of forestry and fauna resources
5. Regional Agriculture Chamber: see Mopti
6. NGOs (IUCN, PROTOS, AFAR) and projects (FODESA, PASAM, PACY): support the communities in managing the natural resources, and also strengthen their capacities.

Box 2-10: Discussion on characteristics, interests, challenges and actions to undertake for key stakeholders at wetland, river basin and connecting levels in Mali (IND sites):

- **Macina**, both levels: what about the National Departments of Hydrology and Sanitation and Pollution Control, and WI?
- **Mopti**, both levels: what about the National Departments of Hydrology and Sanitation and Pollution Control? Which NGOs (PROTOS? IUCN?) or projects could play a link between Mopti and river basin level needs to be specified further. Apart from financial contributions and capacity building they could also play a role in facilitating stakeholder interaction and the integration of wetland management into river basin management through their contacts with local as well as other level stakeholders.
- **Youwarou**: are “traditional masters” for herders and fishers equally important as in Mopti area? What about the National Departments of Hydrology and Sanitation and Pollution Control? For NGOs and projects: see Mopti
- **Macima** and **Youwarou**: CAFO groups are not mentioned as playing a role at local level, although they seem to be present (section 2.4). For Mopti they are mentioned but very little information is given. What are they doing? What are their specific interests and needs? How could they contribute and what action needs to be undertaken to involve them? Also, these CAFO groups seem to be something nationally (formal?)

[71] Which ones are also present at the other sites? Important to know!

organised. If this is the case it should be an important stakeholder to engage from the beginning (including the national organisation/representation).

- **All sites**: in the case of Mali, because it is dealing with three different sites in the Inner Niger Delta, it is important to identify the stakeholders that are important for all three sites, even when not physically represented (AFBN?, ABN?, Agriculture chamber? Office du Niger? CAFO groups? NGOs? Research Institutes? National Ministries/Departments? …..?).

2.5.4 Ecuador[72]

River Basin: Guayas River Basin
Wetland(s): Abras de Mantequilla
(For details see annex 4)

River Basin level:
Main stakeholders at River Basin level and their characteristics, interests, possible contributions and implied challenges and actions:

1. Comisión de Estudios para el Desarrollo de la Cuenca del Río Guayas (CEDEGE): Abras de Mantequilla Wetland is part of a bigger hydrological system: the Guayas River Basin. This is the one of the largest basins in Ecuador. Because of this, the Ecuadorian Government established an official institution in 1965 which would manage the basin. This institution is CEDEGE (Studies Commission for the Development of the Guayas River Basin). This institution has financial, technical and administrative autonomy. Its main objective was the development of infrastructure for managing the river basin based on policies established by the National Secretary of Development and Planning (SENPLADES). Currently, several water uses have been foreseen and conducted in the Guayas River Basin, such as hydropower, drinking water, sanitation, and mainly agriculture use. It is the only administrative water authority that implements integrated resources management of the basin. CEDEGE can provide data and information. The challenge will be to establish a system of compromise and understanding between institutions with CEDEGE. The community does not have a good perception of the management of this institution. The people only recognize this institution because of the training that CEDEGE has given to the community. More interest and engagement can be raised by inter-agency meetings to explain the objectives of the project and agreeing common objectives of understanding.
2. Agrotravase: in addition, CEDEGE has established within its organization some independent bodies for the management of different activities, such as “Agrotrasvase”, created in 2001 for managing and marketing agricultural products of different demonstration farms owned by CEDEGE. Most of these independent bodies are aimed to give technical assistance to farmers in the basin.
3. Provincial Councils (Consejos Provinciales): Since 2008, there is a new Constitution at Ecuador. In the context of this document, a new actor appears to manage river basins at Ecuador: Provincial Councils (Consejos Provinciales). The Provincial Council is going to have competence about basin management which includes project development, water quality control, and environmental regulation. However, there is a lack of a regulation for the implementation of what is written in the Constitution. Their contribution could be to support local initiatives. The challenge will be to understand their role in the wetland and river basin management. Capacity need to be built and information provided.

Wetlands level:
Main stakeholders at wetlands level and their characteristics, interests, possible contributions and implied challenges and actions:

[72] As provided by Ecuador Wetland Leader

1. Commonwealth (an association of municipalities): the principal stakeholder at this level is the commonwealth (an association of municipalities). However, this association is in its first step of implementation and it must elaborate its management plan. This plan would include actions that help them to reach the adequate use of resources and wetland service sustainability.
2. The landowners and direct users are the next important stakeholders. They are the principal actors that must be involved in planning and execute activities to preserve and improve the wetland ecological services. This involvement should be done through existing local organizations. Although local organizations have great importance and influence in implementing activities, they lack a strong motivation to group more landowners and direct users. Their contribution could be through the active participation in the search and adoption of appropriate forms of wise use of wetland resources and services. The challenge will be their lack of involvement in planning processes and no clear understanding of how the project can help to improve the wetland and its services. This could be improved by meetings with the people and local authorities and by providing information.
3. RAMSAR Committee: another stakeholder at this level is the National RAMSAR Committee, which must provide the guides and politics to promote an adequate use and management of wetland ecosystems. It was created in December 2003, as the highest political instance for advice on matters of planning and coordination of activities related to the application of the RAMSAR Convention in Ecuador with representation of several Ministries (see annex). However, this institution does not have the weight to influence wetland inhabitants yet. In fact, wetland inhabitants do not know that this committee exists. So although they can support the WETwin acitivities, the degree of confidence of the population in governmental actions needs to be changed, and the proper means to achieve proposed actions need to be obtained. Awareness needs to be raised about the Committee.

Both levels:

During the workshop and in the first year of the project, it was difficult to identify stakeholders that are important at both levels. The main difficulty to do the identification was the new regulations and laws that are or are to be approved at Ecuador (Constitution, Water Law, Mining Law, Media Law, Public Participation Law, and so).

For example, CEDEGE could make decisions to affect both at basin and wetland level. In the new and to-be-approved regulations, CEDEGE would be adsorbed by a new institution with no clear management objectives yet. On the other hand, individual stakeholders (landowners and direct users) could influence decisions at basin level through the new Public Participation Law. However, there is no evidence that this civil right was already used at the Abras de Mantequilla Wetland.

Box 2-11: Discussion on characteristics, interests, challenges and actions to undertake for key stakeholders at wetland, river basin and connecting levels in Ecuador:

- At wetlands level it is better to distinguish between landowners and direct users because their interests can be very different, even conflicting.
- Missing in the lists above are the relevant government departments, research institutes, NGOs/projects/ other local organisations that are important and influential for the wetland and could play a key role in linking the wetland with the river basin or a role in awareness raising or providing platforms for consultation. Especially local NGOs and CBOs seem to be very active and should be engaged actively
- What is the Amalia (women) group doing? What are their specific interests and needs? How could they contribute and what action needs to be undertaken to involve them?
- How to proceed in Ecuador with the stakeholders is complicated because of the (government) reforms and therefore changing roles, mandates and institutions. E.g. CEDEGE, that at the moment plays a key connecting role, will apparently be absorbed by another institution (not yet clear) in the near future (how near?). However, it is important to establish contacts and to engage them from the beginning and take their

interests, needs and suggestions into account. Hopefully the individuals dealt with will move into the new institution and continue cooperating. Furthermore it is important to establish firm contacts with and get the commitment of the National Secretary of Development and Planning (SENPLADES) in which CEDEGE is embedded.

- There is mistrust towards CEDEGE (see section 2.2.4), or government institutions in general, from the local community. This needs to be addressed. Probably to start with by making CEDEGE more aware of wetland ecosystem services for the community, the effects of upstream activities on these services and the need to commit themselves to take these effects into account, and to strive to avoid or mitigate negative effects.
- Another complicating factor is the decision taken to divert part of the water supply to another river basin by building a dam upstream. Because water quantity and maintaining ecosystem services are important issues for Abras de Mantequilla it is crucial to identify the stakeholders involved in this and get connected. Furthermore this would be a good test case for the generic guidelines for how to influence decision takers at river basin level to take down stream effects into account and how to avoid or mitigate negative downstream effects.

2.5.5 Germany[73]

River Basin: Elbe-Havel-Spree river basin
Wetland(s): Spreewald
(For details see annex 5)

For Spreewald the following stakeholders were identified:

- MUGV - Brandenburg State Ministry for Environment, Health, and Consumer Protection (Top level)
- LUA - Brandenburg State Agency for Environment (Secondary level): responsible for authorisation and permit procedures, as well as for implementing, enforcing and monitoring their official subject-related remit in matters of technology-related protection of the environment and of nature conservation.
- Biosphere Reserve Unit Spreewald: concerned with the compliance of natural protection objectives in the Biosphere Reserve area, acts as a branch of the State Agency
- Berlin Water works (not involved)

With the designation of the Spreewald region as UNESCO Biosphere reserve (1990/91) and the introduction of natural preservation targets and corresponding directives, many conflicting interests became obvious. With the political changes in Germany in the year 1989 a big political and socio-economic restructuring process started. In the following years public platforms, such as FÖNAS e.v. association and intensive public participation processes facilitated the communication and discussions about problems mainly related to trade-offs between cultivation practices and natural preservation objectives. Nowadays, the conflict potential within the Spreewald region is rather low, because natural preservation objectives have been widely accepted; cultivation practices adapted, and European and national financial support programs were implemented. Furthermore, the objectives of various interest groups are similar, i.e. “enough water in the wetland”. This holds for the tourism sector, the cucumber farmers as well as for the fishery sector. Not all problems have been solved within the Spreewald region; the most dominant problems are externally caused: upstream – downstream conflicts related to water quantity. I.e. the groundwater regime in the upstream catchment area is heavily modified due to the mining in Lusatia, flood protection measures influencing the flow regime, and climate change is an additional external pressure on the water input to the wetland, and the city of Berlin with three to four million inhabitants located downstream of the wetland, is expecting enough water flowing in the Spree river.

[73] Only very limited information provided

2.5.6 Hungary[74]

River Basin: Danube River Basin
Wetland(s): Gemenc floodplain
(For details see annex 6)

River Basin level:
Main stakeholders at River Basin level and their characteristics, interests, possible contributions and implied challenges and actions:

1. State Secretariat for Nature and Environment Protection (TvH) of KvVM, which administrates Danube-Drava National Park Directorate;
2. National Inspectorate for Environment, Nature and Water (OKTVF) of KvVM, which administrates the 12 Environment and Water Authorities ("Green Authority"); National Water and Environment Directorate (VKKI) of KvVM, which administrates the 12 Environment and Water Directorates;
3. Central Agricultural Office (KMgH) of FM, which is administrates its local organizations.
4. Danube Committee: responsible for maintaining the navigation route on the Danube. It is also an inter-governmental organisation. Nature restoration actions in the Gemenc may impact the navigation conditions in the main channel. This is the way how the Danube Committee might be influenced.
5. ICDPR: Intergovernmental Commission for the Protection of the Danube River - International organisation for coordinating the River Basin Management Plan (RBMP) of the Danube basin being developed within the frame of WFD. However, this is not an "authority".

NB: 1, 2 and 3 on this list are Hungarian governmental bodies with scope only on the Hungarian area of the Danube (which is the whole country in fact). RB level organisations are the ICPDR and the Danube Committee.

Wetlands level:
Main stakeholders at Wetlands level and their characteristics, interests, possible contributions and implied challenges and actions:

1. The Danube-Drava National Park Directorate, as the highest priority wetland manager, has the largest influence on all of the stakeholders, their activities and interventions on Gemenc wetland system. The DDNP Directorate is the most important stakeholder of the territory. The national park directorate (NPD) provides for the local operative and asset management tasks, within the circle of its base activity. NPD also acts as expert, as an official task in the public authority and professional public authority procedures of nature conservation, as well as in the professional public authority procedures of landscape conservation – on the request of the "Green Authority" - EWA. DDNP is also responsible for maintaining and enforcing the conditions and requirements of Natura 2000 in the Gemenc.
2. The three Environment and Water Authorities as the "Green Authorities" responsible for the permission and control of proposed interventions, their importance is very high in enforcing the laws in relation to water management, environmental protection and nature conservation. The Authorities also take into consideration the Natura 2000 requirements when they give the permissions.
3. The three Environment and Water Directorates: manage the waters (and mostly the riverbank-defence forests) and maintain the water management works and carry out environmental protection and (together with DDNP) nature conservation tasks.
4. Gemenc Forest and Game Co. Ltd.: 100% state owned, manages almost 90% of the Gemenc floodplain. It is the most important manager / user of the wetland services as forest and game.
5. Local governments: responsible for the planning, permission, maintenance and control of infrastructural investments and recreation.

[74] As provided by Wetland Leader

6. Important NGOs as Baja Youth Nature Protection Society (BITE): work together in close relationship with researchers, planners, the local green authority and the DDNP to improve the water supply of the wetlands, maintain or conserve the natural values, but not only in theoretical ways (e.g. BITE observes black stork and other protected species, the quality of water management works and tools). WWF also contributes to these tasks – mainly in theoretical ways.
7. Fishing companies, anglers unions and the small civil forest and game management companies: as direct users of the Gemenc wetland services. Responsible for the management of fishing activities in several water bodies. They have influence on the proposed interventions, but their interests have less importance than the nature conservation aspects.
8. Research institutes: in the ongoing wetland revitalization process going on in the Gemenc wetland system, in which the plans are prepared by *Eötvös József College, Baja* and the environmental impact assessment of the proposed plans is carried out by *VITUKI,* in close co-operation with DDNP Directorate, and the most active interested stakeholder (Gemenc Co. Ltd. and BITE).
9. World Bank: The World Bank is financing a particular project dealing with the restoration of the Gemenc floodplain. This is the "Nutrient Reduction Project – DDNP Component GEF # TF 051289". VITUKI is member of the consortium. This is a "twinning project" of WETwin.

NB: There are two types of water manager stakeholders: authorities and directorates. Authorities authorize plans and investments on the area while the directorates are doing the everyday water management of the area. The three environment and water directorates (managers) and the three environment and water authorities are the local water resources managers/authorities.

Both levels:

Stakeholders that are important at both levels and are the main link for integrating wetlands into river basin management:

1. Danube-Drava National Park Directorate (Pécs): Natura 2000 is also an important link between the Gemenc and the EU/Danube basin scales. Implementation of Natura 2000 requirements belongs to the responsibility of the National Park and of the environment and water authorities.
2. Lower Tisza Valley Environment and Water Authority (headquarters in Szeged)
3. Central-Trans-Danubian Environment and Water Authority (headquarters in Székefehérvár): Responsible for the dike system on the right bank as well as the lakes and oxbows close to this dike system are also controlled by the Central-Trans-Danubian EWD.
4. Planners and researchers: see above
5. WWF (World Wildlife Fund): *no information provided*
6. South Trans-Danubian Environment and Water Authority (headquarters in Pécs): see above
7. Lower Danube Valley Environment and Water Directorate (headquarters in Baja): see above
8. South Trans-Danubian Environment and Water Directorate (headquarters in Pécs): also involved in developing the River Basin Management Plan of the WFD.
9. Central-Trans-Danubian Environment and Water Directorate (headquarters in Székefehérvár):
10. ICPDR: One major link between the wetland and the river basin is the River Basin Management Plan of the WFD. On basin level the ICPDR is coordinating the plan. On national level the Ministry of Environmental Protection and Water Management is the responsible body. On local level (right bank of Hungarian Lower Danube Reach, which includes the Gemenc) the South Trans-Danubian Environment and Water Directorate is responsible for developing the RBMP
11. World Bank: the GEF project they are funding is an element of a larger project funded by the WB. This larger project targets the reduction of nutrient discharges into the Danube and into the Black Sea. Improvement of a WWTP in Budapest is financed from this project. The restoration of the Gemenc is also seen as a mean of reducing nutrient discharges (Even though it has turned out that this function of the Gemenc is very weak. So the emphasis has been shifted towards habitat restoration).
12. IUCN: Developing Ecological Networks (EN) is also a mean of strengthening the link between the wetland and basin. An EN consists of core areas, corridors and buffer zones. In Hungary the National Ecological Network has already been defined. The Gemenc is a core area and the

Danube channels upstream and downstream are corridors. A ministerial decree will soon be released about the protection of corridors. The implementation of this decree will be the task of the environment and water directorates and authorities. The core area of the Gemenc is protected by other means: as national park and as Natura 2000 territory. The Hungarian EN is being integrated into the international EN. This is coordinated by the IUCN. The Danube is a major corridor in this network.

2.5.7 Austria[75]

River Basin: Danube River Basin
Wetland(s): Lobau floodplain
(For details see annex 7)

River Basin level:
Main stakeholders at River Basin level and their characteristics, interests, possible contributions and implied challenges and actions:

1. Government of Lower Austria – Department for Hydrology: Interested in surface and ground water protection. It is the owner of downstream reaches and surrounding land which are affected by hydrological measures. Possible conflicts with approaches that would lower water levels: Governments of Vienna: Municipal authority for Drinking Water, Governments of Vienna: Municipal authority for Forestry and Governments of Vienna: Municipal authority for Nature Conservation.
2. Government of Lower Austria – Department fro Nature Conservation: Interested in the natural development of the Floodplains, conservation of species and natural habitat. It is the owner of downstream reaches and surrounding land which are affected by hydrological measures. Possible conflict with any stakeholders that would have approaches leading to lower water levels.
3. *"Flood Protection Commission"?: no information provided*

Wetlands level:
Main stakeholders at wetlands level and their characteristics, interests, possible contributions and implied challenges and actions:

1. National Park Authority: Interested in conservation. Organization that is responsible for monitoring, reporting, research and education with regard to the park area.
2. Government of Vienna – Municipal Authority for Drinking water: interested in water supply and ground water quality. Possible conflicts with the. National Park Authority and Government of Lower Austria – Department for Hydrology.
3. Government of Vienna – Municipal Authority for Hydrology and Flood Protection: Interested in secure surface and ground water quality and flood protection. Tasks include: monitoring of water levels and water exchange; surveillance and implementation of hydraulic measures; funding of research projects with regard to hydrology and nature conservation; funding of hydraulic measures and monitoring programmes. Possible conflict with any stakeholder presenting approaches with much lower or much higher water supply at the moment.
4. Government of Vienna – Municipal Authority for Forestry: Interested in the nature development of the forest. Tasks include: monitoring of forest development, planting of autochthonous tree species and cutting of autochthonous species (if necessary); forest management with regard to nature conservation. Possible conflicts with the National Park Authority and Government of Lower Austria – Department for Hydrology.
5. Government of Vienna – Municipal Authority for Nature Conservation: Interested in the natural development of the floodplain. Tasks include: monitoring of fauna and flora; implementation and surveillance of EU habitat directive and national nature conservation acts. Possible conflict with

[75] Interpretation of author based on Austria stakeholder report

any stakeholder presenting approaches with much lower or much higher water supply at the moment.

6. Government of Lower Austria – Department for Hydrology: Interested in surface and ground water protection. It is a representative of the owner of the downstream reaches and surrounding land which are affected by hydrological measures. Possible conflicts with approaches that would lower water levels:
7. Government of Lower Austria – Department for Nature Conservation: Interested in the natural development of the Floodplains, conservation of species and natural habitat. It is a representative of the owner of the downstream reaches and surrounding land which are affected by hydrological measures. Possible conflict with approaches leading to lower water levels.
8. *"Flood Protection Commission"????*

Both levels:

Stakeholders that are important at both levels and are the main link for integrating wetlands into river basin management:

1. Government of Lower Austria – Department for Hydrology: Interested in surface and ground water protection. It is the owner of downstream reaches and surrounding land which are affected by hydrological measures. Possible conflicts with approaches that would lower water levels: Governments of Vienna: Municipal authority for Drinking Water, Governments of Vienna: Municipal authority for Forestry and Governments of Vienna: Municipal authority for Nature Conservation.
2. Government of Lower Austria – Department fro Nature Conservation: Interested in the natural development of the Floodplains, conservation of species and natural habitat. It is the owner of downstream reaches and surrounding land which are affected by hydrological measures. Possible conflict with any stakeholders that would have approaches leading to lower water levels.
3. "Flood Protection Commission"????

Austria decided to involve key stakeholders only at the level of informing and consultation

2.5.8 Discussion on characteristics, interests, challenges and actions to undertake for key stakeholders at wetland, river basin and connecting levels

In all study sites to a greater of lesser extent there are stakeholders who are not directly interested in the effects their decisions or actions have on (downstream) wetlands or wetland ecosystem services, but whose actions or decisions do have influence (e.g. dams or irrigation schemes). In those cases, for the generic guidelines, WETwin could be a test case on how to engage these stakeholders and get them committed to take the effects of their actions and decisions into account and to avoid or to mitigate negative effects. During WETwin actions go engage those stakeholders more actively could be monitored and the successfulness of these actions evaluated.

Likewise there are important and influential stakeholders who have only little knowledge of wetlands and the ecosystem services they provide, and their importance for the livelihoods of many people, especially poor people. Therefore they might take decisions that have negative effects on wetlands because they are simply not aware of this. In the framework of WETwin actions should be undertaken to increase the awareness of these kind of stakeholders about wetlands (ecology) and the important services wetlands provide. For that reason sensitization of government authorities is often equally or perhaps more important than sensitization of local communities (who are usually more knowledgeable about their natural environment and the relation with their livelihood). Awareness raising about the services and associated values wetlands (potentially) provide could be necessary (especially for local authorities).

At the southern sites in more than one site there is mistrust between local users and management authorities and a negative attitude of local communities or certain government institutes. Community sensitization only will not change this. Experience in other project shows that they will only change this attitude if they are more actively involved in all stages of finding locally appropriate solutions (i.e. in analysing problems, finding, implementing and monitoring solutions) in stead of having to apply solutions coming from outside. In addition local communities should get responsibilities in wetland management and tangible benefits from wetland management (e.g. more equal share in wetland services, cleaner water, less diseases, community benefits from fines from local by-laws, etc), e.g. by giving local management committees a legal status. In all cases, the situation of mistrust needs to be addressed and confidence restored before (compromise) solutions can be found. Local and/or river basin or national authorities must also commit themselves to contribute and share responsibilities and benefits.

To give local community associations a more important role in local wetland management it is important to look at the legal status. The legal status determines its influence and formal authority, e.g. to formulate and enforce by-laws, to collect and use fines for the benefit of the wetland, etc. Also the composition is important: which community groups are represented? Are women represented? Is it composed by elections of by representation of certain interest groups?

In all study sites (southern cases) there is no or little attention for the interests and needs of women or the role they can play or the organisations they are organised in. They can be especially instrumental in finding local management solutions, and advocating and implementing them. Especially in cases where women have organised themselves locally they should be engaged in WETwin throughout.

In some sites, e.g. Spreewald (Germany) they are more advanced in resolving conflicting interests and finding management solutions at wetland level (prevailing conflicts are mainly externally induced). In the context of WETwin for the generic guidelines it would be interesting to learn from this stakeholder engagement process: how have they managed to come to a compromise solution? What were the key factors for success, why? Who were the key stakeholders, why? Because conflict management is an important issue at all sites, they could learn from each other to on how to handle conflicting interests.

Where traditional management systems exist or existed it might be interesting to look at what can be learned from this and how things were arranged with which stakeholders that might be useful for WETwin. What worked and why, and what can be learned from it? For this purpose local “headmen”, “masters” or other traditional leaders are important stakeholders to consult.

2.6 Interrelationships and (possible) conflicts of interests between key stakeholders

Guidance and tools were given to identify and give an overview of interrelationships between actors/stakeholders, especially:

- existing formal and informal platforms and networks that can be used for WETwin purposes,
- power relations and
- existing and potential conflicts (especially related to resource use, and access to and ownership of resources and ecosystem services)

It was considered important to make maximum use of existing platforms and networks in stead of creating new ones and to foresee and address existing and potential conflicts (of interest).
A summary of formal and informal platforms, existing and potential conflicts, gender specifics and actions if available for all case study sites at wetlands as well as river basin level is provided in table 2-8. For details see annexes 1-7.

Table 2-8: Interrelationships between key stakeholders

Wetland	Formal/informal platforms; power relations	Existing & potential conflicts	Gender specifics[76]	Actions
Ga - Mampa[77]	• Wetland Committee (see section 2.5) • Community Development Forum • Water User Association • Other ocal user associations and groups? • NGO's/CSO's/CBO's? • Churches • Local headmen/chiefs	• Between organization (MWP) pro-conservation and the community (resources issues) • Land use conflicts between livestock owners and croppers • In local leadership, mainly between village head (GaMampa) and the CDF	*No information available*	A lasting solution has to involve as many stakeholders as possible in a forum where all stakeholders are taken into account. This will open negotiations regarding how the wetland can best be managed.
OR (SA)	• *Limpopo River Basin Committee (LIMCOM)* • *Olifants River Catchment Management Agency (planned)?* • *Olifant River Forum?*	*No information available*	*No information available*	*No information available*
Nabajjuzi[78]	• Existing local user associations and groups • NGos/CSOs/CBOs working at local level (esp. Nature Uganda) • Commercial user associations • Government departments, extension system • District executive and planning committees and sectoral (NR) committees • Divisional Environmental Committees[79] • School clubs; education system • Churches and mosques; religious networks	• Between agriculture land use and wetland reserve • Land/water use between commercial and other users • Between fish farming and irrigation systems • Between brick making and car washing activities • Ownership issues • Pollution: effluents of factories into wetlands • Regulated activities (e.g. construction) and extraction (e.g. for brick making • Disposal of sewage • Silting from farming • Building in wetlands	• Women farmers are organised in group • For wetland resource use, women participate in papyrus harvesting, fetching water, firewood and cultivation and men in clay & sand mining, fishing and cultivation • At family level, benefits derived from the wetland resources however, are mostly for men as compared to Women. • Issues for women farmers are ownership, pollution and water pollution	*No information available*
Namatala	• District executive and planning committees and sectoral (NR) committees • Resource user groups • ***Inter-district Environment Committees have been formed but effectiveness not yet tested***	• A higher percentage of conflicts are related to land ownership • Between alcohol distillers & the housing project • Encroachment of crop farmers on the wastewater	• For wetland resource use, women participate so much in fetching water, firewood and subsistence cultivation and men in clay & sand	*No information available*

[76] Gender specifics are probably most relevant at local user level and for the Southern cases, where probably differences are in the way women use the wetland resources and have access to it or ownership rights.
[77] Author's interpretation of SA stakeholder report
[78] Based on author's interpretation of Uganda stakeholder report with additions from Wetland Leader
[79] But mistrust and negative attitude needs to be addressed

Wetland	Formal/informal platforms; power relations	Existing & potential conflicts	Gender specifics[76]	Actions
		pond area	mining, fishing and commercial cultivation • At household level, benefits derived from the wetland resources however, are mostly for men as compared to Women. • Issues for women farmers are ownership of land and ?????	
UWN (Uganda))	*- NBI?* *- Lake Victoria Basin Commission?*	*No information available*	*No information available*	*No information available*
Macina[80]	• District/village councils ("Cercles"?) • CAFO Are the most relevant as platform for negotiations and agreement between stakeholders.	In general conflicts between groups using the same resource that becomes scarcer: • Conflicts between cattle herders and farmers because of cattle ramblings, farmers converting livestock zones into farms or farms located near drinking paths of livestock; anarchic exploitation of pastures and drinking water • Conflicts between fishers caused by fishing in fishing areas belonging to another community or tribe, bad fisheries management, use of prohibit fishing techniques and fishing in protected areas • Between cattle herders and vegetable garden owners, because of livestock rambling in gardens located near the River • Conflicts between farmers due to the fact that in some cases the same plot could be given to more beneficiaries by the Office du Niger	Men and women have the same rights in access to water, but generally men use more water than women (domestic uses and for their vegetable gardens only).	Potential solutions: • Elaboration and/ or implementation of local conventions for managing natural resources (at district level between stakeholders of one area). • Elaboration and/ or implementation of local conventions on fisheries • Apply and respect of legislation and laws (sometimes the laws are not known or understood because of illiteracy).
Mopti	• District/village councils ("Cercles"?) • Local masters • CAFO	In general conflicts between groups using the same resource that becomes scarcer:	Men and women have the same rights in access to water, but generally men	Potential solutions: • Sharing ideas; elaboration of local conventions

[80] Partly author's interpretation of Mali stakeholder report and partly provided by Wetland Leader

Wetland	Formal/informal platforms; power relations	Existing & potential conflicts	Gender specifics[76]	Actions
		• Between cattle herders and farmers, because of cattle ramblings, farmers converting livestock zones into farms or farms located near drinking paths of livestock, non respect of exploitation calendar, reduction of pasture areas, weakness of Government representative • Between fishers because of fishing in fishing areas belonging to another community or tribe; none conventional protection, prohibited fishing, hidden fishing • Between farmers because of non respect of traditional regulations, convention, judiciary decisions, and weakness of State representatives	use more water than women (domestic uses and for their vegetable gardens only).	• implementation of law and regulations; information, education and communication • Involvement of State technical institutions; creation of protection committees; elaboration of management plan and information, education and communication
Youwarou	• District/village councils ("Cercles"?) • Local masters • CAFO	In general conflicts between groups using the same resource that becomes scarcer: • Between cattle herders and farmers, because of cattle ramblings, farmers converting livestock zones into farms or farms located near drinking paths of livestock, non respect of exploitation calendar, reduction of pasture areas, weakness of Government representative • Between fishers because of fishing in fishing areas belonging to another community or tribe; none conventional protection, prohibited fishing, hidden fishing • Between fisher and boat transporters, because of fishing nets across the river bed • Between cattle breeders, due to the violation of traditional rules for accessing bourgou pastures.	Men and women have the same rights in access to water, but generally men use more water than women (domestic uses and for their vegetable gardens only).	Potential solutions: • Elaboration and implementation of local convention for managing natural resources • Elaboration of local convention for managing fisheries • Respect of laws and legislation • Respect of traditional regulations: Dioro, a Fulani tribe, traditionally should have first access to bourgou pastures but violation leads to violent conflicts
IND (Mali)	• District/village councils,	Not known	Men and women have the same rights	*No information*

Wetland	Formal/informal platforms; power relations	Existing & potential conflicts	Gender specifics[76]	Actions
	• Local masters and • CAFO[81] *(also at IND level?)*		in access to water, but generally men use more water than women (domestic uses and for their vegetable gardens only).	*available*
Abras de Manteq.[82]	*Formal Platforms:* • CEDEGE (for hydrological issues) • Environmental Ministry (for environmental issues) • Commonwealth (for cross-cutting issues) *Informal Platforms:* • Existing local user associations • NGos/CSOs/CBOs working at local level. *Power Relationships:* Wetland inhabitants declared emphatically that they do not believe in institutions such as CEDEGE and Ministry of Environment. [83]	*Potential conflicts* Waterworks in upstream and downstream of wetland *Existing conflicts* There are recent conflicts between local organizations. These conflicts have several causes: • Political • Social • Cultural related to resource use, and access to and ownership of resources and ecosystem services *Mistrust* Between of local population towards government institutions like CEDEGE	• There is only one women organization at local level called LA AMALIA. • Some municipalities have women at management positions, such as: o Mayor of Baba o Chief of Planning Department	*No information provided*
Guayas (Ecuador)	See above	See above	See above	
Spreewald	*No information available*	*No information available*		*No information available*
EHS (Ger.)	*No information available*	*No information available*		*No information available*
Gemenc[84]	Platforms and networks: • There are official or formal and private or informal platforms and networks of information exchange and cooperation in the Gemenc. These are mostly connected to ongoing intervention planning processes or researches. During intervention planning processes public	The most important **existing** conflicts are between: • Wood production and Ecological health[85] • Navigation, Flood control and Ecological health • Recreation and Ecological health	The most important commercial activities in the floodplain such as wood production, fisheries and hunting are traditionally practiced by men. This is the situation today as	

[81] Are these also the most appropriate Platforms at IND (river basin) level? What about the Office du Niger, provincial council, AFBN, Agricultural Chamber?
[82] As provided by Wetland Leader
[83] This issue needs to be addressed
[84] As provided in stakeholder report and by Wetland Leader
[85] This is the most important conflict, having resulted in a 'state of war' between the National Park (being interested in Ecological Health) and the Gemenc Forest and Game Co (wood production): hey hardly talk to each other and hamper each-other's activities.

Wetland	Formal/informal platforms; power relations	Existing & potential conflicts	Gender specifics[76]	Actions
	participation and consultation is a strategically important approach and required by law. • The GEF Project – DDNP Component founded by the World Bank and the ongoing Environmental Impact Assessment of the proposed interventions provide a proper basis or platform for communication and information exchange with stakeholders.	Possible conflicts can be **foreseen** between: • Wetland revitalization intervention[86] and Forest management, wood production[87] • Wetland revitalization intervention and Game management • Wetland revitalization intervention and fishing, angling activities • Wetland revitalization intervention and Recreation, tourism • Wetland revitalization intervention and Navigation	well. Even the most important recreational activity, the sport fishing, is rather a men's business. So the use of the wetland's resources/services is a male business. On the other hand there are many women actively involved into nature conservation and research issues related to Gemenc (e.g.: Beáta), including on leading positions.	
Danube (Hun.)	• ICPDR	*No information available*		*No information available*
Lobau[88]	*No information available*	• Conflicting conservation objectives (e.g. fish vs. birds; dynamisation vs. conservation of reed communities) • Wetland revitalization and drinking water supply • Navigation, Flood control and Ecological health • Recreation and Ecological health • Nutrient reduction and Ecological health • Wetland conservation and Fishing activities • Wetland conservation and recreation		*No information available*
Danube (Au)	*No information available*	Not known		*No information available*

2.7 Summary conclusions and recommendations on stakeholder analysis

[86] World Bank GEF project in collaboration with National Park
[87] Gemenc Forest and Game Co
[88] Information based on stakeholder report

The focus of the stakeholder analysis has been mostly on wetland level and also on the duration of WETwin, logically, because that is the main concern of the Wetland Leaders at the moment. However, in view of achieving WETwin objectives it is very important to identify and engage stakeholders that are important for implementing management solutions or generic guidelines after WETwin, and take their interests, needs and suggestions into account from the beginning. Likewise it is important to identify and engage stakeholders that can be instrumental in spreading management solutions or provide the right conditions for implementation (e.g. policies). By monitoring and evaluating the process of engaging these stakeholders, this could serve as a test case for the stakeholder engagement part in the generic guidelines.

If possible, a more formal engagement needs to be obtained from certain key stakeholders, especially the "managers" identified at river basin level, e.g. in the form of a signed statement that they will contribute to and support the developed strategies and guidelines and its implementation. For governmental stakeholders, the statement can contain the intention to integrate the endorsed results and strategies into management practice. However, it might be difficult to obtain a formal commitment at this stage. At this stage it is especially important to take the interests, needs and ideas of these stakeholders into consideration when developing local management solutions as well as in the generic guidelines. This will increase the chances of the management solutions and generic guidelines to be actually applied. Engaging this type of stakeholders perhaps goes beyond the responsibility of the Wetland Leaders and could be a task of the WETwin leaders.

At several study sites the establishment of local conventions or stakeholder discussion forums emerge as possible ways to get to solutions for conflicts over resource use.

Stakeholders can't be separated from the institutions they function in, their composition, legal status, etc. Therefore there should be a much closer collaboration and synergy between WP2 and WP4 (existing policies, institutional set-up, key wetland services dealt with). A complicating factor is the uncertainty about the (future) status of certain important institutes (e.g. CEDEGE for Ecuador and LIMCOM and the Olifants River Catchment Management Agency for South Africa).

For the benefit of comparing, analysing and developing generic guidelines, including on stakeholders to engage for implementation after WETwin, it is important to make the stakeholder information of the study sites an integral part of the WETwin database.

3 Stakeholder engagement strategies

Given the different contexts to each study site the exact manner of engaging stakeholders in project activities differs. However, it is important that certain general principles are as far as possible maintained in the process. This includes the involvement of municipalities and higher-level governments (depending on the degree of decentralization in study site countries) as well as all relevant sectors and departments such as the departments for wetlands, water resources, irrigation, agriculture, economic development, environment and nature conservation. The level and method of involvement should have been set in accordance with the expectations of the responsible decision-makers. Because the European sites use information from ongoing other projects, only for the Southern sites engagement strategies were developed.

Stakeholder participation can be passive and active, i.e. "passive" in terms of communicating general project aims and objectives and communicating end results, and "active" in terms of engaging stakeholders in providing input, guidance and perspective in the research process and design of tools. This includes using stakeholders as a reality check on the aims of the site studies and approaches. To ensure the support of local stakeholders in the research and development of decision-support tools each study area needed to engage the key stakeholders. Where formalised structures exist that provide a sensible basis for engagement in the project's aims, such as the Niger Basin Agency (NBA) or the Olifants River Catchment Management Agency[89], stakeholder participation can be built on them. Where these formalised structures are not present the strategy is to either use other appropriate platforms, such as the local councils ("cercles") in the Inner Niger Delta. In areas where not much experience with stakeholder participation in water resources management exists, a "learning by doing" approach needs to be followed. At the same time stakeholder institutional capacity needs to be built.

3.1 Steps in developing a stakeholder engagement strategy

The information from the stakeholder analysis at each study site was essential to develop a stakeholder engagement strategy. The information out of the stakeholder analysis was:

1. A list of ***all stakeholders*** and their interests (output 1)
2. The ***importance*** of the different stakeholders and ***influence*** in decision making in relation to WETwin objectives (output 2)
3. Table/overview of the ***key stakeholders*** with their characteristics, interests in WETwin, possible contributions they can make, challenges that need to be addressed and actions required to engage key stakeholders (output 3)
4. Overview of ***interrelationships*** between key stakeholders, existing formal and informal platforms, networks or other ***consultation structures*** WETwin can build on; ***power relations***; existing and potential ***conflicts*** (of interests) (output 4)
5. ***Preliminary proposal*** on which key stakeholders to engage in different stages of the process (output 5)

Using the information from the stakeholder analysis and if possible with the information obtained from WP3 (natural and socio-economic status) and WP4 (management practices and institutional setting), the following steps were suggested to take for developing a stakeholder engagement strategy:

Step 1: Distinguish the different stages in the process
Step 2: Identify the key stakeholders to engage in each stage
Step 3: For each stakeholder identify to what level and how they need to be engaged in each stage
Step 4: Identify required actions to engage stakeholders

[89] Planned but not operational yet

Step 5: Plan for stakeholder engagement

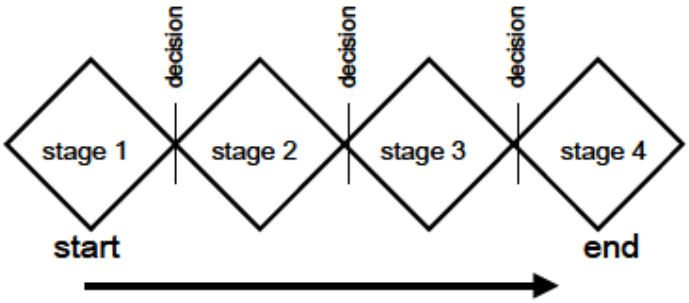
What should have been produced after going through these steps was:

1. A table with the results of the first 4 steps: the engagement strategy (output 6)
2. A detailed plan for stakeholder engagement (output 7)

3.2 Different stages identified in the WETwin process

It was important to distinguish the different stages of a project (see figure 3-1) because key stakeholders and the level of engagement of each stakeholder might differ in each stage.

Figure 3-1: A process represented in diagram form (Guidance Document No 8; Public Participation in Relation to the Water Framework Directive)



Hence a clear understanding was needed of the distinct stages in the project as well as a good understanding of the stakeholders. For each stage, it needed to be reviewed and agreed which stakeholders were relevant, if the stakeholders had the same importance, how they should be engaged, how the process could be build on existing networks and platforms and where new ones needed to be created.

The first step was to distinguish the different stages in the process, which was done using the WETwin conceptual framework as a reference (Annex 11). The framework is built on a basic project management cycle (conception of program, setting objectives, making a plan, implementing the plan, monitoring the system, adjusting the objectives and plan). In this cycle for WETwin some specific points have been further elaborated on, such as the important interaction between different scales (wetland ⇔ river basin, local ⇔ national) and the approach to setting management objectives, optimization of ecosystem services and identification of the best compromise solution.

A schematic representation of the conceptual framework is presented in figure A11-1 (see annex 11). WETwin only deals with the first half of the cycle, however in view of designing a stakeholder engagement strategy it is necessary to also consider the post project stakeholder engagement (and the stakeholders involved).

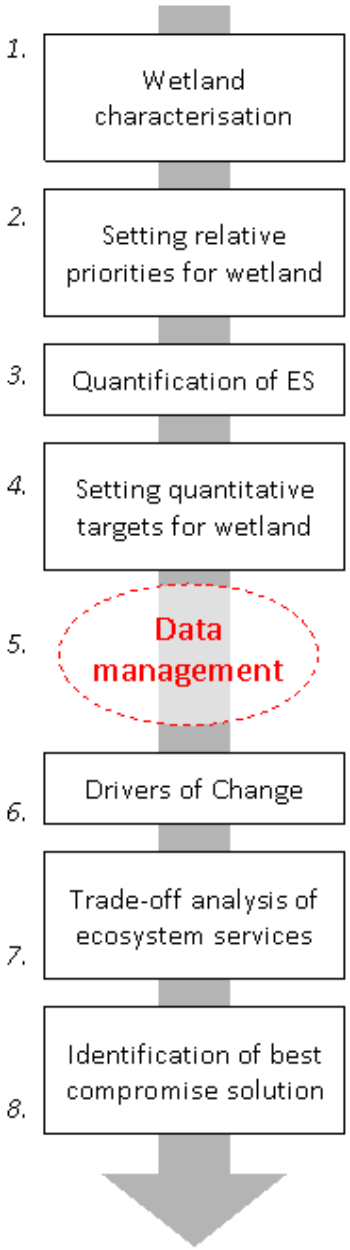
WETwin is not dealing with the river basin management as such but boundary conditions for wetland management options are influenced by or set in function of the river basin and, vice versa, management decisions in the river basin will need to consider the wetland processes. ***This emphasises the importance of involving stakeholders at both levels and interaction between wetland managers and decision makers and river basin managers and decision makers throughout the entire management cycle.***

Stages and stakeholders in the WETwin process

With regard to the stakeholder engagement strategy and based on the WETwin conceptual framework, the following stages in the cycle were considered:

1. Wetland characterisation (WP 2, 3, 4)
2. Setting relative priorities for wetland (WP 3)
3. Quantification of ecosystem services (WP 7)
4. Setting quantitative targets for wetland (WP 8)
5. Data collection and management (WP 6)
6. Divers of change (WP 5)
7. Trade-off analysis of ecosystem services (WP 7,8)
8. Identification of the best compromise solution (WP 8)
9. (Planning for sustainability) (WP 2)

Figure 3-2: WETwin stages



This is represented in a linear way as stages in figure 3-2. The following describes the different stages and the suggested stakeholders to be engaged in each stage:

1) ***Wetland characterisation:*** The characterisation of the wetland and its basin includes the natural and socio-economic description, the institutional assessment and stakeholder analysis. These should give an indication as to what extent stakeholder involvement is desired or needed in this stage.

⇨ *At this stage probably mostly crosschecking with key stakeholders is needed at strategic and local level if the characterisations that are used are correct and verify uncertain information*

2) ***Setting relative priorities for wetland***: The selection of favoured eco-system services the wetland should be providing and existing or future trade-offs[90]. Users of the wetland and in the river basin need to be consulted to identify which ecosystem services are important to them. In most case studies this has been done already as ecosystem services for optimisation and trade-offs are known for all sites.

⇨ *Stakeholders to be involved at this stage: as wide a range as possible, e.g. on the wetland, downstream, upstream, local and national decision makers. Formulation of research questions is done by academic staff, policy makers and end users.*

3) ***Quantification of ecosystem services***: Ecosystem services are quantified with the help of **indicators** to characterise the current status. The space formed by the value sets of the selected indicators is the **objective space**.

9. Planning for sustainability

⇨ *Stakeholders to be involved at this stage: setting and quantification of indicators involves knowledge of the wetland hydrological and ecological processes and is therefore mainly a matter for researchers. Additionally, stakeholders that can provide data to quantify services need to be engaged, e.g. the Ministry of Agriculture for rice production needs data.*

[90] Trade-offs occur when the provision of one ecosystem service is reduced as a consequence of increased use of another ecosystem service. The use of "trade-offs" has been discussed during the meeting in January 2009, see annex 10 for more explanation in the context of WETwin

4) ***Setting quantitative targets for wetland:*** For each indicator a *threshold* value is defined. Threshold values for the indicator can either be constraints which need to be respected or desired values established by certain stakeholders to sustain a certain ecosystem service[91].

⇨ Stakeholder to be involved at this stage: threshold values need to be compliant with national policy or standards and need to be representing local stakeholders' views; both policy makers and wetland users need to be involved.

5) ***Data collection and management*** is not a specific stage in the process but it is important to consider this in view of the stakeholder engagement strategy. Existing data is collected, data gaps is analysed, new measurements will be done based on findings of gap analysis, a data base is designed and finally a plan is made for management of the data, i.e. who will maintain and update the data and make available for future work.

⇨ Stakeholders to be involved at this stage: data will be mainly provided by national authorities but for specific information needs other stakeholders might need to be involved in data collection and/or analysis. Data managers need to be identified i.e. who is in charge of data collection and management at this moment (data generating and holding stakeholders). Also database ownership need to be considered and availability for key stakeholders who might want to use it.

6) ***Drivers of change*** are natural or human-induced factors that directly or indirectly cause a change in an ecosystem. Drivers include **management options** and **vulnerability** which result in combined scenarios for evaluation using the decision support tools.

Vulnerability is taken into account in the models as various sets of boundary data. Vulnerability is the "capacity to be wounded" [Kates, 1985]. Vulnerability is characterized by three components:

- Sensitivity,
- Exposure to future pressures and
- Adaptive capacity, i.e. resilience. Three types of adaptive capacity will be determined:
  1. Natural adaptive capacity (of the wetland);
  2. Governmental adaptive capacity (of the decision-making structure, in WP4) and
  3. Adaptive capacity of the wetland communities.

Management options (measures) are potential strategies for the future management and development of the wetland. Unlike vulnerability scenarios (which are determined by external processes) management options are created by the stakeholders, decision makers and/or researchers being interested in the wetland. Management options can be combined if their implementations do not exclude each other. For example reducing fish harvesting can be combined with the option of reducing wastewater loads into the wetland. A feasible combination of concrete management options results in a *management solution* for the wetland. The set of all alternative management solutions is the **decision space**.

⇨ Stakeholders to be involved at this stage: management options will result from the targets which were set in stage 2 (setting priorities), hence this needs to be done with all key stakeholders.

7) ***Trade-off analysis of ecosystem services (TOA)..*** The objective of trade-off analysis is to identify the set of optimal solutions within the decision space[92]. Tools needed for trade-off analysis are put together into the "decision support toolbox". Tools are selected in function of the ecosystems services under consideration, quantity and quality of data available and the capacity of the end users of the tools. Hence, a clear understanding of the institutional set-up, participation mechanisms or division of responsibilities is needed at each case study site. The institutional set-up and management practices are described in WP4 (D4.3).

⇨ Stakeholders to be involved at this stage: end users which may be national authorities, basin management authorities or others who are also likely to be in charge of data management,

[91] E.g. at least 20% of the area needed for agriculture to be able to produce sufficient food
[92] For the approach used for trade-off analysis and Pareto-optimal solutions seen annex 12

including monitoring of certain parameters necessary for running tools. Therefore these stakeholders need to be involved in the design of the database, transfer of data and set-up of sustainable data management. End users need to be identified and consulted in the final selection of tools.

8) ***Identification of the 'best compromise solution'*** Experts, decision makers and stakeholders will evaluate the model results of the different scenarios and identify the best compromise management solution within the given "Pareto-optimal" set of solutions (see annex 12). The 'best compromise solution' resulting from the evaluation of management options under different scenario's will differ from one site to another depending on the specific decision making process at the site. In case the decision makers and stakeholders cannot be satisfied with any of the Pareto-optimal solutions, then the process can loop back to 'Setting quantitative targets for wetland' where the level of constraints can be modified and the steps of trade-off analysis and solution identification can be repeated.

⇨ *Stakeholders to be involved at this stage: wide range of stakeholders at all levels*

Development of guidelines

The development of guidelines is not part of the management cycle but it is a final result of the WETwin project. Guidelines will be developed from the lessons drawn throughout the project and specifically on the case study sites. Hence input from the case studies will be needed. *At this point selected stakeholders e.g. decision makers and end-users of tools need to be involved again at this stage.*

9) ***Planning for sustainability***

Once decision makers have reached consensus on the best compromise solution, a new phase in the process commences. To avoid that stakeholder participation becomes inactive when the project funding stops, ***a plan setting the conditions that facilitate stakeholder participation needs to be developed.*** This includes institutional arrangements, generation of funds, how to sustain the motivation to participate and enhance further empowerment of stakeholders, etc. For this reason it is important from the onset to get commitment of stakeholders, especially at decision making level and end user level, that they will use and integrate the recommendations of the project. It is necessary to consider the special role of women, not only in the use of water resources but also in its management. It is equally important to consider how to adapt guidelines and tools and make them accessible at different (strategic and implementation) stakeholder levels and how to build the capacity at local level to use tools or guidelines. To avoid pitfalls, lessons from other study areas need to be exchanged. Activities should be linking with existing initiatives related to water management (e.g. income generation activities, micro finance networks, implementation of Poverty Reduction Strategy Papers (PRSP), national or regional expenditure frameworks etc.), involving and establishing links with donor community, enhancing advocacy and lobbying activities. The results of this task will be included into the Project "After-Life Plan" prepared by WP10.[93] This process of planning for sustainability needs to start early on – it is of little value in the last weeks of the project. The discussion should be launched at the beginning and then a dialogue between key stakeholders should be maintained during the project to reach an agreed position by the project end. If this does not happen we will not achieve real embedding in local stakeholders planning.

In general, stages 2, 6, 7, 8, and 9 are the most important stages where thorough stakeholder engagement is needed.

3.3 Key stakeholders to engage in each stage

[93] WETwin annex 1, 2008

The next step was to identify the key stakeholders to engage in each stage. Following the suggestions for stakeholder participation in each stage under and based on the information from the stakeholder analysis on the importance, influence (see section 2.4) and the characteristics, interests and possible contributions of each stakeholder (see section 2.5) the key stakeholders to involve in each stage were identified using the following criteria:

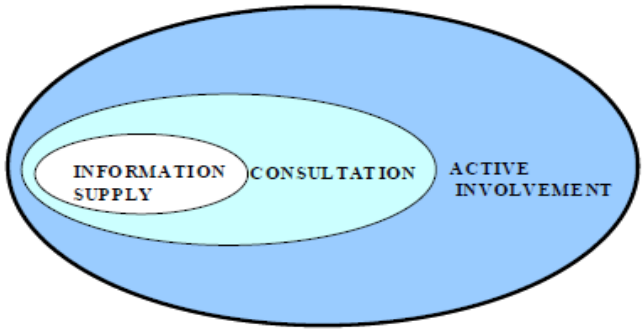
1. Influence: which stakeholders have the power to influence decisions, facilitate implementation or exert influence (either positively or negatively) at a particular stage (including after WETwin)? It should also be considered if the power or influence of certain stakeholders would possibly change as a result of e.g. resources or activities introduced at a particular stage. Check for all stakeholders identified as having a high influence (see section 2.4 and annex 8)) and the characteristics of the key stakeholders (see section 2.5 and annex 9).
2. Importance: which stakeholder's priority needs, interests or expectations are addressed or significantly lose or gain at a particular stage (including after WETwin). Check for all stakeholders identified as being important (see section 2.4 and annex 8)) and the interests of the key stakeholders (see section 2.5 and annex 9).
3. Possible contributions: which stakeholders can make important contributions at a particular stage, e.g. by giving or collecting data or information; human, material or financial resources; facilities; network; policy support, awareness, etc. (see section 2.5 and annex 9).

3.4 Level of participation of each stakeholder in each stage

For each defined stage, and for each stakeholder considered important to be engaged in a certain stage, also the level of participation needs to be agreed. According to different models levels of participation can be ranging from three levels of participation, to five or seven, depending on which model is used (see annex 13).

In the simplest model with three levels of participation (see figure 3-3) information supply is the foundation of public participation, necessary to make consultation and active involvement work. The first level of 'real participation' is consultation. Stakeholders are consulted to learn from their knowledge, perceptions, experiences and ideas. A higher level of participation is participation in the development and implementation of plans, shared decision-making and self-determination. Having a share in the decision-making implies a degree of responsibility in the outcome.

Figure 3-3: Degrees of participation[94]



All models show increasing levels of participation. One level is not necessarily better than any other, although you might strive to a certain level of participation in general, e.g. functional or interactive participation (Pretty's model – see annex 13). Different levels for different stakeholders can be appropriate at different times or stages in the project.

[94] WFD CIS Guidance Document No.8 on public participation

It is important to realise that there are different possible levels of participation and that decisions need to be taken for each stage of the project which stakeholders are important to engage and at what level. E.g. it might be that in a particular stage certain stakeholders will just be informed while other stakeholders are actively involved in decision making and implementation. Or a particular stakeholder can be involved in setting priorities in one stage and just be informed in another stage.

The level of participation of each stakeholder in each stage depends on:

- The desired level of participation depending of influence and/or importance of the stakeholder in terms of the intervention at stake (stage) and in terms of longer term sustainability (is it a "decision taker" or "end user"?)
- Feasibility of participation at the desired level, depending on:
    - Available resources and capacities (human, financial, material, information) – WETwin related (internal) factors
    - Existing opportunities, e.g. existing formal and informal platforms and networks that can be used; the support of influential stakeholders, etc. – external factors
    - Existing constraints and obstacles, e.g. conflicts of interests; mistrust of stakeholders; lack of functional relationships/platforms, etc. – external factors
    - Issues of power and control, e.g. the formal or positional power of a certain stakeholder; the level of control over finances, resources and information; knowledge and expertise; "rank" in power relationships; opposition of stakeholders who feel threatened in their power and control, etc. – external factors
    - Other limiting factors like the system the stakeholders are operating in, interrelationships, institutional limitations – external factors
- Optimum balance between effectiveness and costs

In general: the higher the level of participation the higher the probability of effectiveness and sustainability. However, in practice there will be all kind of limiting factors and increasing the level of participation might not have the same increase in effectiveness and sustainability ("law of diminishing returns" – see annex 13), and too much participation can even be counterproductive.

Thus, it needed to be decided for the identified key stakeholders in each stage to what level and in what way they need to be engaged. This could range from just being informed till active involvement in decision making, design, analysis, implementation or monitoring.

From the above it is clear that there are all kind of enabling or limiting factors that determine the level and ability of participation of stakeholders. Apart from the available resources and capacity of the stakeholders it is depending on the system. The challenge was to find the most functional balance between the desired level of participation and cost-effectiveness, taking into account enabling, limiting and other factors that determined the feasibility and that are different at each site. A good stakeholder analysis was therefore important to provide the foundation for informed decisions about the most functional level of participation.

The internal enabling and limiting factors and the external enabling factors/opportunities and limiting factors/constraints needed to be checked. The challenges (see section 2.5) and the overview of interrelationships, consultation platforms, power relations and conflicts) (see section 2.6) should have provided the necessary information for this.

From the above it will be clear that the desired level of participation is not always possible, so the most functional balance in each stage had to be found and choices had to be made, either:

- In the level of engagement of a stakeholder, e.g. being informed with a leaflet or by letter in stead of being invited to a consultative workshop where decisions were taken, or

- Between stakeholders: as a rule of thumb it was suggested that the selected stakeholders considered important and influential in a certain stage needed to be involved at the desired level of participation as much as possible, and that for stakeholders of the other categories it needed to be decided if they would be engaged at all or that they should be engaged at a lower level.

3.5 How to engage stakeholders and required actions

The HarmoniCOP handbook on Public Participation has two decision matrixes which are helpful to select participatory methods and tools to use in different stages of the process (see annex 14). The matrices give the applicability of tools depending to a large extend on the stage of the participation process and the level of participation.

Decision matrix 1 distinguishes between three different phases:
1) Starting → developing and initiating a participatory strategy
2) Managing → implementation of the project
3) Improving → monitoring and evaluating

The levels of participation are those discussed earlier:
1) Information → also referred to as 'co-knowing'
2) Consultation → also referred to as 'co-thinking'
3) Active involvement → also referred to as 'co-operating'

After identifying the most functional level and feasible methods and tools of engaging key stakeholder in each stage, actions needed to engage these stakeholders in the way previewed should also be identified. The stakeholder analysis (see section 2.5) should have given an overview of required actions to take for each stakeholder in general. For each stage and each stakeholder this needed to be refined with the help of questions like:
- Do we need to prepare the stakeholder? E.g. community representatives for a workshop where researchers and politicians will also participate (e.g. in final stakeholder workshop).
- Do we need to increase interest or decrease opposition of a stakeholder, e.g. a local (influential) private company
- How do we avoid creating unrealistic expectations?
- Do we need to address a certain conflict before participation can take place?
- What can we do to make illiterate stakeholders participate?
- How do we ensure participation of women (groups)?
- How do we deal with hidden agenda's?
- Etc.,

Of course the answers to these questions and the required actions depended on site specifics.

Also the following needed to be considered to fine-tune the level and way of participation[95]:
- Active involvement of people in research and analysis means that all participants should have ownership of the results. This implies effective and timely feedback, the sharing of results, and the recognition of contributions.
- The use of interactive, participatory methods may generate enthusiasm and excitement and raise expectations. This implies that follow-up plans must always be part of these activities. Rooting research work within local structures, seeking alliances with development actors on the ground, and finding means to pursue findings all require prior planning and a commitment that stretches

[95] IIED, 1997

both before and beyond the research study. Unrealistic expectations and consequently disappointments need to be avoided.

- Open and frank discussions about research use can raise latent resource-related conflicts that then need to be addressed. Do researchers have the skills to deal with some of these conflicts?
- Finally, active local involvement in research has costs as well as well-recognized benefits. These costs include the real costs of time out of busy (stakeholder) lives and material costs in terms of accommodation and food provided, as well as the potential costs of political and social disputes generated by the intervention.

3.5.1 Stakeholder workshops

For each of the Southern case study sites a series of 6 stakeholder workshops were foreseen as one of the ways of stakeholder engagement, preferably making use of existing stakeholder platforms. Special workshops with representatives of key stakeholders could be organised, during which information on the project and research process can be disseminated to stakeholders; stakeholders can be consulted; feedback on results can be provided and obtained; and next steps to take in the process and responsibilities and other issues can be agreed. The planning of these workshops needed to be harmonised with the general planning and Work Package leaders, timing depends on progress in the research process.

In the guidelines for stakeholder engagement a proposal for subjects to discuss at the stakeholder workshops at study sites was given (table 3-1). This was interactively developed during the Consortium meeting in Ecuador in May 2009. This proposal needed to be taken as a guideline and, depending on site specific circumstances, needs and priorities, the Wetland Leaders with local partners could decide which workshops were needed (not necessarily exactly 6), for what purpose and with whom (e.g. separate workshops for strategic and local level might be more appropriate) or if information should be collected or verified at another way. Hence it is the Wetland Leader who decides on the most appropriate use of the funds for stakeholder workshops. However, most crucial are the first (probably separate workshops for different levels of stakeholders) and the last workshops (preferably with all the stakeholders together). Sufficient funds need to be left for the final concluding workshop.

Table 3-1: Tentative proposal for stakeholder workshops

WS	Purpose of workshops and relation to the WETwin process	WP/ Task	Stakeholders to involve	Expected date(s)	Remarks
1	- ***Introduction to WETwin*** ***- Discuss wetland and RB characterisation:*** crosschecking in general if the characterisations that will be used are correct and verifying uncertain information - ***Discuss and get views on preliminary DPSIR*** - ***Discuss and agree on the stakeholder engagement process:*** 1. which stakeholders will be engagement during the process and 2. how they should be engaged, and 3. agree on simple indicators to monitor and evaluate the stakeholder engagement process **(For more details see section 3.5.2)**	2.1 3.1-2 4.1-3 3.3 2.3	- Key water, RB & Wetland managers (strategic level) and key local stakeholder reps - Perhaps different Workshops for different groups of stakeholders	June 2009 or soon after	Depending on specific Workshop objectives and key ecosystem services (ES) identified for the study site
2	***- Agree on information and tools needed:*** Discuss and agree on which information is valuable/important (indicators) to make site	3.3, 7.1-2		Before Mali workshop	Related to Key ES

WS	Purpose of workshops and relation to the WETwin process	WP/ Task	Stakeholders to involve	Expected date(s)	Remarks
	specific, key ES related decisions? How is this information best presented? What is the usability of existing tools and data? Who are the end-users of data and tools and what are their needs? Who are the decision makers?			in November	
3	- Apply ***Wetland Management Game*** (WMG) at wetland and catchment level[96] ***- Discuss elements of the process***, e.g. • Site-specific model and quantification of status quo • Exposure and sensitivity, vulnerability, adaptive capacity (of communities, management) • Management and adaptation practices and options • Decision space and trade-off analysis	2.4 7.6, 7.7 5.1 8.2 8.3			
4	- Present and discuss results ***vulnerability assessment & application of TOA*** at study site	5.1, 8.4			
5	- Present and discuss ***preliminary scenarios***	5.1			
6	- ***Presentation and discussion of WETwin results*** (incl. twinning results) - ***Evaluation of stakeholder participation*** throughout WETwin - ***Agree on recommendations for the future*** **(For more details see section 3.5.3)**	2.3 2.3 2.5	All key stakeholders!		

3.5.2 Planning for the future

The last workshop needs to be organised with all stakeholders because it is necessary to come to an agreement between stakeholders on how to use the outcomes of the project and actions and roles and responsibilities for the future. It might be that the less powerful and less vocal stakeholder representatives (e.g. local community representatives) need to be prepared for this workshop. However, this discussion should be launched at the first workshop and then a dialogue between key stakeholders maintained during the project to reach an agreed position by the project end. If this does not happen no real embedding in local stakeholders planning can be reached.

At the concluding workshop the WETwin results and outcomes need to be presented and discussed, and the participation of the different stakeholders during the WETwin process needs to be evaluated. This is necessary to agree how different stakeholders should be engaged in the future, which commitments need to be made, and what difficulties need to be addressed for a meaningful engagement of stakeholders or implementation of agreed actions.

Then consensus needs to be reached between the stakeholders on the recommendations for the future – on wetland and river basin level - on:

- Best site specific and issue related management option(s)
- Decision support tools useful to their case
- Management, institutional and capacity requirements at different levels
- Stakeholders to involve at different levels
- Actions that can be taken by stakeholders or others without external support
- Actions for which external support needs to be sought

[96] Developed by Cemagref/IMWI

- How communication will take place
- How to ensure financial sustainability
- How to ensure continued support and guidance by relevant management authorities (which commitments need to be made and formalised)
- A process which is supported by political leaders, public opinion and responsible administrations.
- Roles and responsibilities of different stakeholders in the implementation and monitoring of management options
- Timing of agreed actions

3.6 Stakeholder engagement strategies and plans

The outcomes of the above steps needed to be processed in a stakeholder engagement strategy (output 6: stakeholder engagement matrix) and subsequently in an action plan (output 7: plan for stakeholder engagement), including the proposals of how to engage different stakeholders in the different stages, the required actions to engage them meaningfully, the foreseen workshops, stakeholder engagement after the project and how the stakeholder engagement plan will be monitored. These stakeholder engagement strategies and plans were only developed for the southern sites.

3.6.1 Stakeholder engagement matrix

The stakeholder engagement strategies include the different stages; the stakeholders to engage in each stage, their importance and/or influence[97], the (most functional) way of engagement and the required actions to engage the stakeholder meaningfully in that stage. In tables 3-2 and 3-3 only the key stakeholders identified to engage in each stage at each (southern) site will be indicated. For the detailed engagement strategies see annex 1-4.

Table 3-2: key stakeholders to engage in each WETwin stage[98]

Key stakeholders/ Stage	South Africa	Uganda	Ecuador
1. Wetland characterisation	1. Legalametse Nature Reserve (D) 2. Natural products collectors (B) 3.Wetland croppers (B) 4. Livestock keepers (B) 5. Community Development Forum (CDF) and village committees (B) 6. International water Management Institute (IWMI) (A) 7.Cemagref 8.Kruger National Park 9. Traditional authorities –Kgoshi and Headmen Of Manthlane & GaMampa (A) 10. Local communities in Mafefe ward downstream of GaMampa wetlands (B) 11.University of Limpopo (A) 12. Department of Agriculture (Limpopo Province) (A) 13. Department of Water Affairs and Forestry	1. Nature Uganda 2. Farmers 3. Water users 4. Community service departments 5. District Environment Departments 6. Agricultural departments 7. Water departments 8. Wetlands Management Department 9. National Water & Sewerage Corporation 10. National Agr. Research Organisation	1. CEDEGE (A) 2. Environmental Ministry 3. Sub secretary fishing 4. INP 5. ESPOL (CD) 6. University of Quevedo 7. University of Babahoyo 8. Municipalities of Baba, Pueblo Viejo, and Vinces. 9. Landowners/direct users.

[97] A - Influential and important; B – Important but not influential; C – Influential but not important. In which category a certain stakeholder is placed might differ between different stages and not always coincide with the category it is placed in the general influence/importance matrix (output 2), e.g. The Head of the National Wetlands Department might be considered influential in the general influence/importance matrix and for the outcomes of the project, but not necessarily in each stage of the process.

[98] As provided by Wetland Leaders. Because Mali has specified the stakeholders in the three different study sites this is presented in a separate table.

Key stakeholders/ Stage	South Africa	Uganda	Ecuador
	(Limpopo Province) 14. Department of Water Affairs and Environment (DWAE, National and regional level) (A) 15. Limpopo department of Economic Development, Environment and Tourism (LEDET) (A) 17. Working for Wetlands (A) 18. Olifants River Forum (B) 19. Legalametse Nature Reserve (D) 20. Local municipality 21. Ward councillor 22. Wetland committee (Kudumela) (B)		
2. Setting relative priorities for wetland	Same as 1: wetland characterisation	1. Wetlands Management Department 2. National Water & Sewerage Corporation	1. National RAMSAR Committee 2. Commonwealth. 3. Landowners 4. Environmental Ministry
3. Quantification of ecosystem services	1. IWMI (A) 2. G-EAU/Cemagref, Cirad, IRD, Engref (A) 3. LEDET (A) 4. Ward councillor 5. Local communities in Mafefe ward downstream of GaMampa wetlands 6. Wetland croppers (B) 7. Livestock owners (B) 8. Natural product harvesters (B) 9. DWAE(National and regional offices) (A) 10. Department of Agriculture (Limpopo Province) (A) 11. University of Limpopo (A) 12. Olifants River Forum 13. Kruger National Park 14. Local Municipality 15. Traditional authority (Kgoshi, headmen) 16. Irrigation Committee / Water User Association (C)	1. Nature Uganda 2. District Environment Departments 3. Wetlands Management Department 4 National Water & Sewerage Corporation	1. INP (CD) 2. ESPOL (CD)
4. Setting quantitative targets for wetland	1. Wetland croppers 2. Livestock keepers 3. Natural products collectors 4. Irrigation committee / water user association 5. Mondi Wetlands Project 6. Working for Wetlands 7. Olifants River Forum 8. Department of Agriculture (Limpopo Province) 9. Department of Water Affairs and Environment (National and regional) 10. LEDET	1. District Environment Departments 2. Wetlands Management Department 3. National Water & Sewerage Corporation	1. Environmental Ministry (A) 2. Commonwealth (A)
5. Data collection and management	1. IWMI, G-EAU/ Cemagref, Cirad, IRD, Engref (A) 2. GaMampa wetland community (data collectors identified in community) (B) 3. University of Limpopo (A)	1. Wetlands Management Department 2. National Water & Sewerage Corporation 3. Directorate of Water Resources Management 4. Nile Basin Initiative	1. Commonwealth
6. Drivers of change (vulnerability and management	1. Wetland committee (Kudumela) (B) 2. Wetland croppers (B) 3. Livestock keepers (B) 4. Natural products collectors (B) 5. Department of Agriculture (Limpopo	1. Wetlands Management Department 2. National Water & Sewerage Corporation	1. Farmers (A) 2. Direct Users (A) 3. CEDEGE (A)

Key stakeholders/ Stage	South Africa	Uganda	Ecuador
options)	Province) (A) 6. DWAE (national and provincial) (A) 7. University of Limpopo (A) 8. Legalametse Nature Reserve (B) 9. Working for Wetlands 10. Olifants River Forum 11. LEDET (A) 12.Traditional authorities – Kgoshi and Headmen Of Manthlane & GaMampa (A) 13. Local communities in Mafefe ward downstream of GaMampa wetlands (B) 14. Ward Councillor (C) 15. Community Development Forum and village committees (B) 16. Mondi Wetlands Project (C) 17 Working for Wetlands (C)		
7. Trade-off analysis of ecosystem services	1. IWMI (A) 2. G-EAU (Cemagref, Cirad, IRD, Engref) France (A) 3. Department of Agriculture (Limpopo province) (A) 4. DWAfE (regional office) (A) 5. DWAfE (National) (A) 6. Working for Wetlands (A) 7. University of Limpopo (A) 8. Wetland croppers (B) 9. Livestock keepers (B) 10. Natural products collectors (B) 11. Local communities in Mafefe ward downstream of GaMampa wetlands (B) 12. Wetland committee (B) 13. Community 14. Development Forum (B) 15. Traditional authorities –Kgoshi and Headmen Of Manthane & GaMampa (A)	1. Wetlands Management Department 2. National Water & Sewerage Corporation 3. National Environment Management Authority 4. Directorate of Water Resources Management 5. Nile Basin Initiative	1. National Ramsar Comimite. 2. Council of River 3. Landowners 4. Direct users
8. Identification of best compromise solutions	1. Wetland croppers (B) 2. Livestock keepers (B) 3. Natural products collectors (B) 4. Local communities in Mafefe ward downstream of GaMampa wetlands (B) 5. Department of Agriculture (Limpopo Province) (C) 6. Department of Water Affairs and Environment (regional office) (A) 7. Department of Water Affairs and Environment (national level) (A) 8. University of Limpopo (A) 9. Working for Wetlands (C) 10. Ward councillor (C) 11. Olifants River Forum (??)	1. Water users 2. District Environment Departments 3. Wetlands Management Department 4. National Water & Sewerage Corporation 5. National Environment Management Authority 6. Directorate of Water Resources Management 7. Nile Basin Initiative	1. Landowners 2. Direct users 3. Commonwealth
9. Post project sustainability plan	*Information not provided*	1. Subcounty Environment Committees 2. District Environment Departments 3. Wetlands Management Department 4. National Water & Sewerage Corporation	1. Commonwealth 2. Environmental Ministry 3. National RAMSAR Committee

Table 3-3: key stakeholders to engage in each WETwin stage in IND study sites[99]

Key stakeholders/ Stage	Macina	Mopti	Youwarou
1. Wetland characterisation	1. Decentralized institutions (A): • Province councils • Rural districts of Kolongo and Kokry 2. Office du Niger 3. NGOS (B): • Foundation Inter vida 4. Government technical institutions (C): • Local hydrology office • Local fishery office • Local forestry office • Local sanitation office • Local husbandry office • Local Veterinary office • Local health office 5. Socio-professional groups (B): • Rice farmers • Fishermen • Herders	1. Regional Direction of Hydrology (C) 2. Regional Direction of Fishery (C) 3. Regional Direction of Sanitation and pollution control (C) 4. Regional Direction of Agriculture (C) 5. Regional Direction of Livestock (C) 6. Regional Direction of Forestry (C) 7. Regional Agency of the Niger River (C) 8. Rice Office Mopti (C) 9. Farmers (A) 10. Herders (A) 11. Fishermen (A) 12. Regional House of Agriculture (C) 13. Decentralized Institutions (B):	1. Government technical institutions (A): • Local office of hydrology • Local office of forestry • Local office of sanitation, control of waste and nuisance • Local fishery office • Local husbandry office • Local Veterinary office • Local health office 2. Socio-professional groups (A): • farmers • Fishers • Herders 3. Decentralized institutions (C): • Province councils • Rural districts of Youwarou and Deboye • Local representative of agriculture chamber
2. Setting relative priorities for wetland	1. Decentralized institutions (A) (see stage 1) 2. Government technical institutions (C) (see stage 1) 3. Socio-professional groups (B) (see stage 1)	Same as Stage 1	1. Government technical institutions (A) (see stage 1) 2. Socio-professional groups (C) (see stage 1) 3. Decentralized institutions (C) (see stage 1) 4. Local delegation Agriculture (C)
3. Quantification of ecosystem services	1. Decentralized institutions (A) (see stage 1) 2. Government technical institutions (C) (see stage 1)	1. Regional Direction of Hydrology (C) 2. Regional Direction of Fishery (C) 3. Regional Direction of Sanitation and Control of Pollution (C) 4. Regional Direction of Forestry (C) 5. Regional Agency of the Niger River (C) 6. Meteorology Office (C) 7. Rural Economic Institute (C) 8. Regional Direction of Agriculture (C) 9. Regional Direction of Livestock (C) 10. Rice Office Mopti (C) 11. Regional House of Agriculture (C) *12.* Decentralized Institutions (B)	1. Government technical institutions (A) (see stage 1) 2. NGOs/Programs (B): Wetlands International IUCN, PROTOS, FODESA, PASAM, PASY 3. Decentralized institutions (C) (see stage 1)
4. Setting quantitative targets for wetland	1. Decentralized institutions (A) (see stage 1) 2. Office du Niger (A) 3. Government technical institutions	1. Regional Direction of Hydrology (C) 2. Regional Direction of Fishery (C) 3. Regional Direction of Sanitation and Control of Pollution (C) 4. Regional Direction of Forestry (C) 5. Regional Agency of the Niger River	1. Government technical institutions (A) (see stage 1) 2. Socio-professional groups/associations (C) (see stage 1)

[99] Because Mali has specified the stakeholders in the three different study sites this is presented in a separate table

Key stakeholders/ Stage	Macina	Mopti	Youwarou
	(C) (see stage 1) 4. Socio-professional groups (B) (see stage 1)	(C) 6. Rural Economic Institute (C) Decentralized Institutions (B) 7. Regional Direction of Agriculture (C) 8. Regional Direction of Livestock (C) 9. Regional House of Agriculture (C)	3. Decentralized institutions (C) (see stage 1) Local delegation Agriculture Chamber (C)
5. Data collection and management	1. Office du Niger (A) 2. NGO Foundation Inter vida (A) 3. Local hydrology office 4. Local forestry office	1. Regional Direction of Hydrology (C) 2. Regional Direction of Fishery (C) 3. Regional Direction of Sanitation and pollution control (C) 4. Regional Direction of Agriculture (C) 5. Regional Direction of Livestock (C) 6. Regional Direction of Forestry (C) 7. Regional Agency of the Niger Basin (C) 8. Regional House of Agriculture (C) *9.* NGOs (C) 10. Rural Economic Institute (C)	1. Government technical institutions (A) (see stage 1) 2. NGOs/Programs (B?) (same as above) 3. Decentralized institutions (C) (see stage 1)
6 Drivers of change (vulnerability and management options)	1. Office du Niger (A) 2. Decentralized institutions (A) (see stage 1) 3. NGO Foundation Inter vida (C) 4. Government technical institutions (C) (see stage 1)	1. Regional Direction of Hydrology (C) 2. Regional Direction of Fishery (C) 3. Regional Direction of Sanitation and Control of Pollution (C) 4. Regional Direction of Forestry (C) 5. Rural Economic Institute (C) 6. Regional Direction of Agriculture (C) 7. Socio-professional groups of women (CAFO) 8. Regional Agency of the Niger River (C) 9. Regional Direction of Livestock (C) 10. Regional House of Agriculture (C)? 11. Decentralized Institutions (B)	1. Government technical institutions (A) (see stage 1) 2. NGOs/Programs (B?) 3. Decentralized institutions (C) (see stage 1)
7. Trade-off analysis of ecosystem services	1. Office du Niger (A) 2. Decentralized institutions (A)) (see stage 1) 3. NGO Foundation Inter vida (c) 4. Government technical institutions (C) (see stage 1)	1. Farmers (A) 2. Herders (A) 3. Fishers (A) 4. Regional Direction of Hydrology (C) 5. Regional Direction of Fishery (C) 6. Regional Direction of Sanitation and pollution control (C) 7. Regional Direction of Agriculture (C) 8. Regional Direction of Livestock (C) 9. Regional Direction of Forestry (C) 10. Regional Agency of the Niger River (C) 11. Rice Office Mopti (C) 12. Regional House of Agriculture (C) 13. Decentralized Institutions (B) (see above) 14. Socio-professional groups of women (CAFO) 15. EDM-sa (electricity company) (C) 16. Rural Economic Institute (C)	1. Government technical institutions (A) (see stage 1) 2. NGOs/Programs (B?) 3. Decentralized institutions (C) (see stage 1)
8. Identification of best compromise solutions	1. Office du Niger (A) 2. Decentralized institutions (A)) (see stage 1) 3. NGO Foundation Inter vida (c) 4. Government technical institutions (C) (see stage 1)	1. Farmers (A) 2. Herders (A) 3. Fishers (A) 4. Regional Direction of Hydrology (C) 5. Regional Direction of Fishery (C) 6. Regional Direction of Sanitation and pollution control (C) 7. Regional Direction of Agriculture (C) 8. Regional Direction of Livestock (C) 9. Regional Direction of Forestry (C)	1. Government technical institutions (A) (see stage 1) 2. NGOs/Programs (B?) 3. Decentralized institutions (C) (see stage 1)

Key stakeholders/ Stage	Macina	Mopti	Youwarou
		10. Regional Agency of the Niger River (C) 11. Rice Office Mopti (C) 12. Regional House of Agriculture (C) 13. Decentralized Institutions (B): *(See above sections)* 14. Socio-professional groups of women (CAFO) 15. EDM-sa (electricity company) (C) 16. Rural Economic Institute (C) NGOs	
9. Post project sustainability plan	Same as stage 1	Same as stage 8	Same as stage 1

3.6.2 Stakeholder engagement plans

Subsequently a plan for stakeholder engagement needed to be developed (see table 3-3) containing:

1. Required activities to undertake in each stage
2. When this should each activity take place
3. Who is responsible that each activity takes place
4. Which stakeholders are engaged or targeted with each activity
5. What the intended outputs or outcomes are of activities
6. Indicators for successful stakeholder engagement

Table 3-4: format for stakeholder engagement plan

WETwin Stage	Stakeholders	Activities	Timing	Responsible	Outcome(s)
1. Wetland characterisation					
2. Setting relative priorities for wetland					
3. Quantification of ecosystem services					
4. Setting quantitative targets for wetland					
5. Data collection and management					
6 Drivers of change (vulnerability and management options)					
7. Trade-off analysis of ecosystem services					
8. Identification of best compromise solutions					
9. Post project sustainability plan					

This plan should also take into consideration:

- Foreseen stakeholder workshops
- Conflict management
- Communication strategy
- Monitoring and evaluation of the stakeholder participation process
- How to develop post project sustainability and stakeholder engagement

For the detailed stakeholder engagement plans see annexes 1-4.

3.7 Preliminary conclusions and recommendations for engagement strategies and plans

From tables 3-2 and 3-3 it is very hard to draw any conclusions because these tables only gives lists of stakeholders and not the details of how the stakeholders will be engaged in different stages. The engagement strategies and plans are given in annex (1-5). Because of all the site specific details at this stage only some general conclusions and recommendations can be given:

- At some study sites (especially South Africa but also some others) many stakeholders seem to be engaged in almost every stage. This raises the question if sufficient thought is given to the functionality and cost-effectiveness. The whole reason for developing stakeholder engagement strategies and plans is to ensure stakeholder participation throughout WETwin and beyond. With the limited funds available for stakeholder participation it is crucial to prioritise and plan this carefully in the most functional and cost-effective way, so that sufficient funds will be left for the stakeholder participation at the final stages of the project when for implementation and sustainability need to be agreed and planned.
- In fact planning for sustainability is something that needs to be done from the onset and especially stakeholders that need to implement the management solutions and generic guidelines ("end users") and the ones who should provide the right conditions ("decision takers") are essential to engage from the beginning. The discussion about long term sustainability should have been launched from the start with key stakeholders and a dialogue between them should be maintained during the project to reach an agreed position by the project end. Only then embedding in stakeholder institutions and planning processes can be reached.
- Also, to ensure the use and implementation of the project outcomes (decision support tools, best management options, generic guidelines) after WETwin, key stakeholders at strategic/decision making level should be actively engaged throughout the project.
- Outputs (publications, tools) need to be adapted and made accessible at the different user levels, i.e. strategic/decision making level and local user and management level. Furthermore capacity building (for all levels) to use the tools or guidelines need to be ensured and considered from the onset.
- Especially at the "Southern" case study sites the process would benefit from engaging women (associations) more than is the case now, especially when dealing with domestic water use and sanitation issues. In some cases little or no attempt seems to be made to engage women or women groups, or only for part of the process even if identified as an important engagement platform (e.g. CAFO groups in Mali).
- With stakeholder engagement a lot can go wrong when conflicts or negative sentiments are not addressed or because of bad communication to and with stakeholders. Therefore these need to be addressed in the engagement plan as well.
- In some engagement plans the desired "outputs/outcomes" are formulated as for instance "reports". However, the desired outcomes or outputs should rather be formulated as "agreement on actions to take for sustainability" or "stakeholders perceptions on ecosystem services". Formulated this way it will give more direction on who and how to involve to achieve this.
- The stakeholder engagement strategies and plans should not be taken rigidly but as the guideline for a process that needs to be monitored regularly to ensure continuous attention for stakeholder participation and that can and should be adapted when needed (see chapter 4).
- For the development of the generic guidelines it is important to agree in an early stage on a set of simple indicators of successful stakeholder engagement that are an indication of a good process. At the final stages of WETwin these could be evaluated to draw lessons for the local sustainability plan and for the generic guidelines.

4 Monitoring and evaluation of stakeholder engagement

4.1 Purpose

Stakeholder participation is not only desired throughout the WETwin process, the selection of management options and design of management plans. Different stakeholders will carry key responsibilities in the implementation of plans, monitoring of impacts, feedback and adaptation of the plan following changing context and improved knowledge, etc. Hence the importance of a sustainable stakeholder engagement strategy to assure participation in river basis and wetland management will continue after the project has ended. It is also important to explore and learn from this process on how to engage stakeholders in integrating wetland management into river basin management.

To monitor and evaluate the stakeholder participation process is essential for several reasons:

- To keep people aware and alert on the engagement of stakeholders
- To be able to adapt the stakeholder participation process during WETwin if considered necessary or appropriate
- To assess which kind of stakeholder engagement is functional at the study site area after WETwin
- To learn lessons and draw conclusions on stakeholder engagement in general that can be integrated in the generic guidelines

Hence the objectives of monitoring and evaluating the stakeholder engagement process are on the one hand to ensure continuous constructive engagement of stakeholders throughout WETwin and beyond (the main objective under WP2 of WETwin), and on the other hand to develop generic guidelines for stakeholder engagement at the wetland, river basin and political level to relate river basin and wetland management in a more integrated way (so to feed into WP9).

4.2 Issues to explore and monitor

The aim of developing a stakeholder engagement strategy and plan is to achieve the sustainable integration of wetlands into river basin management, and certain intermediate outcomes in each stage that will bring WETwin closer to that goal. The stakeholder engagement strategies developed are based on what is assumed to be most cost effective strategy taking into account the enabling and limiting internal (resources, time, etc.) and external factors (existing policies, institutes, stakeholder relationships, major conflicts, uncertainties, etc.) and other assumptions (e.g. that raising awareness will change a certain behaviour). On this basis choices are made about key stakeholders to engage, the level and the way of engagement, and the strategy and the actions that need to be undertaken to make it happen. However, as argued before, the choices of stakeholders at wetlands level need to be reviewed and prioritised in relation to the site specific WETwin issues as well as how stakeholders at river basin and political “decision taker” and “end user” level can be engaged more actively.

What needs to be monitored is if the choices made are getting WETwin closer to the end goal. External circumstances might change or assumptions might be wrong: a lot can interfere with what was planned, as illustrated in figure 4-1. If things are not going as planned, or not giving the expected (intermediate) outcomes, the question needs to be posed “why not” and what needs to be done to adapt or improve. Likewise it is important to identify, learn from and document when something goes very well and what the factors of success are.

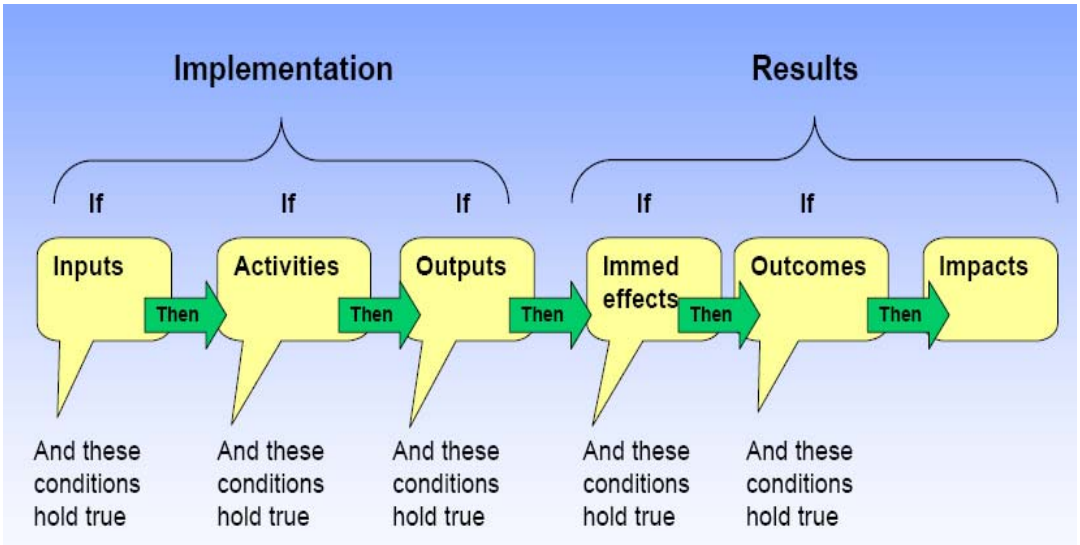


Figure 4-1: chain of intervention assumptions

To keep people aware and alert on the engagement of stakeholders, to be able to adapt the stakeholder participation process during WETwin if necessary, and to learn lessons about stakeholder engagement for the generic guidelines the following issues should be reflected on and documented regularly, preferably every 6 months (e.g. one month before a consortium meeting):

1. Choice of key stakeholders: were the identified key stakeholders (different categories, different levels) the right choice or are there others to engage? *Why or why not? What do we therefore need to adjust? How are we going to adjust?*

2. Level and way of engagement: are these the most suitable for the moment and the future, i.e. do they give the desired results as formulated in the stakeholder engagement plan? *Why or why not? What do we therefore need to adjust? How are we going to adjust?*

3. The way of addressing problems and obstacles: regarding stakeholder participation (e.g. mistrust between stakeholders or towards WETwin) and conflicts of interest between stakeholders (within and between levels). What worked and what didn't work? *Why or why not? What do we therefore need to adjust? How are we going to adjust?*

4. Communication, information supply, transparency: have these sufficiently been taken care of? Are stakeholders satisfied, positive and cooperative? *Why or why not? What do we therefore need to adjust? How are we going to adjust?*

5. External circumstances: are there external factors that have changed or will change (e.g. changing institutes, government reforms, new policies) and that change all, some or one of the points mentioned above (e.g. the decision in Ecuador to build a large dam upstream probably changes the focus of most of the above). *What do we therefore need to adjust? How are we going to adjust?*

6. Sustainability: have actions been undertaken with "end users" and "decision takers" to ensure after WETwin sustainability? *Why or why not? What do we therefore need to adjust? How are we going to adjust?*

Apart from answering the above questions with “yes” or “no” or “partly”, it is very important to answer and document in a summary report the related critical reflection questions (*why or why not? What do we therefore need to adjust? How are we going to adjust?)* and to adapt the stakeholder engagement process accordingly. Certain activities or even the strategy might need to be adapted. Then a new cycle of “trial, error and learning” starts. For this reason, as argued before, this overall stakeholder analysis and engagement report and the study site stakeholder reports should be considered as a baseline that will need adaptation, and not as an end report.

This stakeholder engagement monitoring process shouldn’t be seen as an extra burden for reporting purposes, but as a help to stay aware and assess if the stakeholder engagement as planned is effective and to adapt the engagement strategy or plan if necessary. Also, it shouldn’t be complicated, but simple and focused is the key! It is a matter of staying alert and having open eyes and ears at interactions with stakeholders for the above issues, reflect on these and write the most important or remarkable ones down in a simple report every 6 months, e.g. in the following matrix:

Case study site: …….	**Reporting period (e.g. 6 months): …….**			
	What?	**Why?**	**So what needs to be adjusted?**	**Adaptations in engagement plan**
1. Choice of key stakeholders	Any new stakeholders emerged or stakeholders “dropped”?			
2. Level and way of engagement	Any changes in level or way of engaging stakeholders?			
3. Addressing problems and obstacles	What problems or obstacles emerged regarding stakeholder engagement during the past 6 months and how were they addressed?			
4. Communication, information supply, transparency	Are stakeholders cooperative, positive, satisfied? If (certain are) not, can this be solved by improving transparency, communication and/or information supply?			
5. External circumstances	Are there external factors that have changed or will change (e.g. changing institutes, government reforms, new policies) and that change points mentioned above?			
6. Sustainability	Interactions and progress/problems/obstacles with engaging “end users” and “decision takers” Any other remarkable issue emerging in relation to stakeholder engagement and sustainability?			
Miscellaneous	Any other important or remarkable stakeholder issue?			

4.3 Issues to evaluate

Monitoring the six questions above and documenting this in simple reports would be a good basis for at the end of WETwin:

- Assess whether the kind of emerging stakeholder engagement is likely to be functional at the study site area after WETwin, and
- Compare the different study sites on stakeholder engagement, learn lessons, draw conclusions and formulate guidelines for stakeholder engagement in implementing the WETwin outcomes that can be integrated in the generic guidelines.

This could result in site specific and generic guidelines for the WETwin issues about:

9. Choice of key stakeholders: the essential stakeholders to engage out of:
   - the different categories,
   - the three types of stakeholders (direct wetland users and managers; "decision makers" and "end users of WETwin results") and
   - different levels (wetlands, river basin and political).

10. Level and way of engagement: most functional (i.e. cost-effective) level and way of engagement for different key stakeholders.

11. Addressing problems and obstacles: most important obstacles for successful stakeholder engagement that need to be addressed; best strategies to address these problems, obstacles and conflicts of interest between stakeholders (within and between levels).

12. Communication, information supply, transparency: most effective communication strategies to ensure stakeholders' satisfaction and collaboration.

13. Assumptions: which assumptions about stakeholder engagement have proven to be valuable and true and which ones not?

14. External circumstances: what are (changing) external circumstances with a big impact and what is a good way to react in relation to stakeholder engagement?

15. Sustainability: best strategies to ensure sustainability, i.e. use of decision support tools, management solutions, generic guidelines.

16. Factors of failure and success: what can be concluded about factors of failure and success in relation to stakeholder engagement?

For each of the above, evaluation questions of impact, relevance, sustainability, effectiveness and efficiency need to be considered as well.

4.4 How to monitor and evaluate the stakeholder engagement process

For good and critical monitoring it is essential to:

- Plan for it!
- Discuss progress, relationships and how to improve actions or strategies regularly (formal or informally)
- Consider mistakes and failures as valuable for learning and not as shameful
- Communicate openly and regularly with key partners/stakeholders involved, value their ideas and suggestions, and seek solutions together
- During meetings set time aside for discussing mistakes and learning lessons

Every 6 months (e.g. one month before a consortium meeting) each of the Southern case studies could send a simple report about the six issues mentioned in section 4.2 to Wetlands International. Wetlands International could then make a comparative analysis to discuss at the consortium meeting, and advise on adapting individual stakeholder engagement strategies if needed and on inputs for the generic guidelines.

What could help for the end-evaluation and the development of generic guidelines is to agree with key stakeholders on a set of simple indicators of successful stakeholder engagement, related to the eight issues mentioned in section 4.3. At the final workshop these could be evaluated to draw lessons for the local sustainability plan and for the generic guidelines.

This general stakeholder report and the site specific stakeholder analysis and engagement reports (Annexes 1-7) can serve as a baseline and in the end, depending on the monitoring and evaluation results, be transformed in generic guidelines for stakeholder engagement intended for river basin – wetland management.

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http://portals.wi.wur.nl/ppme/ (for more information, tools and methods, for Participatory Planning Monitoring and Evaluation)

Annex 1: Summary of South Africa case study

River Basin: Olifant River Basin
Wetland: Ga-Mampa

1. Context: geographic scope and key issues that will be addressed

The GaMampa wetland is located in the Mohlapetsi river catchment which falls within the Olifants river basin. It is located 24° 05' – 24° 20' S and 30° 00' -30° 25' E in the Limpopo Province of South Africa. The Mohlapetsi River originates in the Wolkberg Mountains and is one of the tributaries of the Olifants river. The wetland covers approximately 1 km^2 in a total area of 490 km2 at the confluence with the Olifants River. The Mohlapetsi is perceived as important for the hydrology of the Olifants River as it makes a significant contribution to the flow of the lower Olifants particularly in the dry season. The area falls within the Lepele Nkumpi Municipality, Capricorn District of the Limpopo province, part of the former Lebowa homeland. The majority of the inhabitants are of Pedi tribe.

The catchment surrounding the wetland comprises of relatively natural grassland vegetation contained within a national reserve. It is predominantly rural with a low population density. The total population in the immediate area surrounding the wetland is estimated at about 1 700 people. Agricultural activities are carried out in the valley bottom and in the wetland.

The main sources of livelihood in the valley come from smallholder agriculture, both in the irrigation scheme and in the wetland, and social transfers from the government. The wetland is also used for livestock grazing, collection of raw material for craft and building and collection of edible plants. The wetland is also a source of water for domestic and irrigation purposes.

The main pressures on the wetland are due to increasing agricultural use, which jn the past 10 years has encroached half of the original natural wetland area as a consequence of the increasing population subsisting on limited land. This is worsened by degradation because of the neighbouring small scale irrigation schemes. There are potential tensions between the local community and external stakeholders such as sector government departments, local government and environmental lobbyists.

Key impacts of human activities on the ecosystem were identified as:

- Depletion of organic matter with potential impacts on morphometry of the wetland and pattern of flow;
- Increased erosion of the river bank;
- Decreased biodiversity;
- Reduced capacity for flood attenuation and flow generation;
- Diminished nutrient assimilative capacity

The study under which stakeholder analyses activities were implemented sought to analyse trade-offs between the provision of livelihood services (cropping, natural resources collection) versus water regulating services (river flow regulation, flood prevention) as well as assess the cumulative effects of the impact of wetland use for livelihoods at river basin level

2. Process followed for the stakeholder analysis and developing an engagement strategy

A qualitative research methodology was adopted for the study. Data was collected as part of three MSc research projects according to the following steps:

1. Initial stakeholder analysis with a focus at local level in 2005 (Darradi 2005)
2. Analysis of wetland management process and practices at local level in relation with formal wetland management policies at national level in 2005-06 (Tinguery 2006)
3. Complementary stakeholder analysis at national and regional levels and update on wetland policies and strategies in 2008 (Dos Santos 2009)

These three MSc research were complemented by additional search and analysis of documents available from the worldwide web.

(1) The initial stakeholder analysis was undertaken as the first step of a broader research project seeking to support decisions on wetland management. It was motivated by the need to understand the factors underlying what can be seen as an unsustainable use of the wetland.

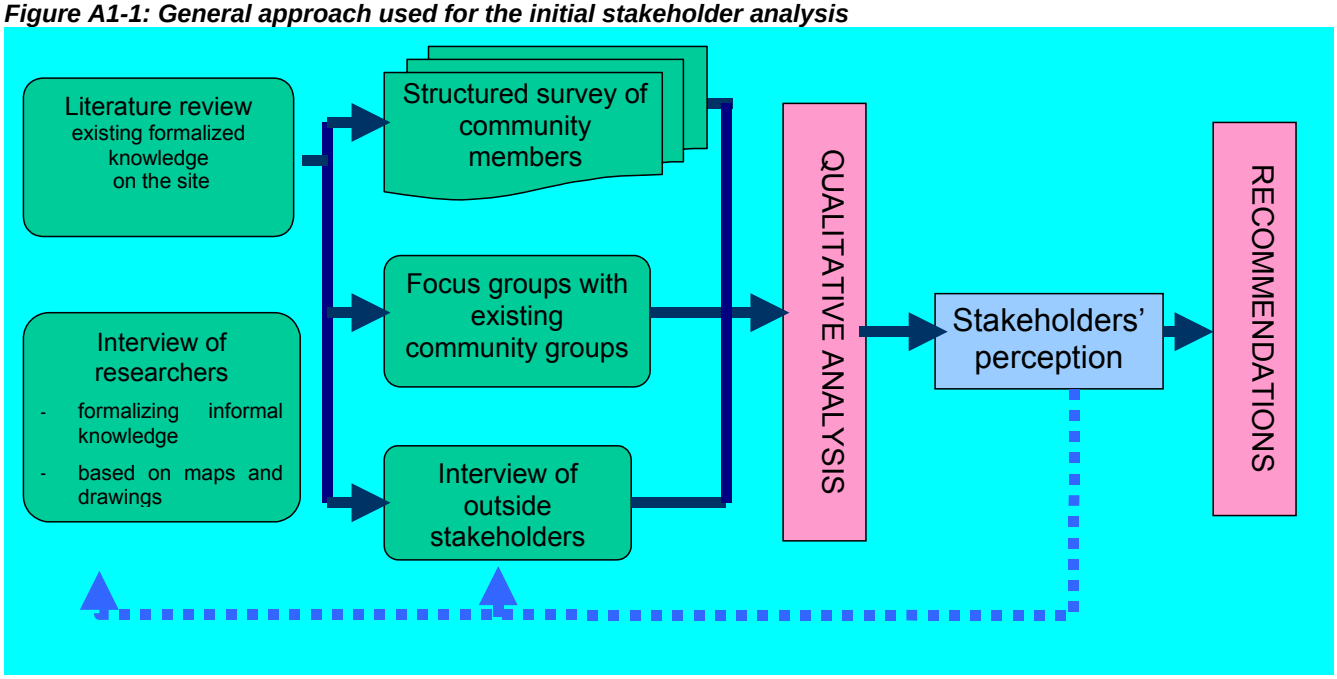
The general approach used was based on the five steps suggested by Grimble and Wellard 1997 and Grimble 1998:

(i) identification of the main purpose of the analysis;
(ii) understanding the system and identifying the main decision-makers;
(iii) identification of stakeholder groups;
(iv) assessment of stakeholders' interests and characteristics; and
(v) characterizing the relationships between stakeholder groups.

As the stakeholder analysis was designed as the first step of a broader research project, it was crucial to present the results of the analysis to the various stakeholders interviewed and get their comments. Several feedback meetings were organised with the researchers and external stakeholders on one hand, and with local stakeholders on the other hand. The latter focused more on the differences of perceptions between the different categories of stakeholders.

Figure ***A1-1*** summarizes the approach used and shows that a special place was given to researchers interviews, even if they were considered as stakeholders.

Figure A1-1: General approach used for the initial stakeholder analysis



(2) The second analysis looked at the interface between wetland policies, laws, and institutions, and local community-based natural resource tenure of wetlands. The objectives of this research were:

- To explore water and land tenure issues in relation to sustainable wetlands management in the context of South Africa;
- To understand issues related to water management in rural settings and food security that need to be addressed by governments and policymakers;

- To understand the potential of customary laws to create enabling conditions for the productive and wise use of wetlands;
- And to make some policy recommendations for wetland utilisation and management.

The analysis comprised of two main steps:

- Interviews of key stakeholders at national level and analysis of written documents such as laws and policies;
- Analysis of the GaMampa case study based on various data collection techniques at local level. Interviewees were selected according to the following categories;
  a) identified groups of users of the wetland
  b) traditional leadership and elected representation of wetland riparian villages
  c) different socio economic stratification categories and gender,
  d) other key local stakeholders in the management of the wetland.

(3) The main objective of the last study was to characterise the wetland management policies in South Africa and their implementation on the ground in relation with the Ramsar convention recommendations on wise use of wetlands. The analysis was conducted at two levels: national (including international commitments of South Africa towards the international community), and regional/provincial (focusing on the Olifants River basin and Limpopo and Mpumalanga provinces as a case study). The assessment was further sub-divided into 4 sub-objectives:

1. Examining and assessing pieces of South African legislation and policies related to wetlands and their implications regarding the implementation of Ramsar convention principles;
2. Characterising stakeholders' networks related to wetland management at various scales and assessing whether all users are integrated and represented;
3. Describing the main projects and programmes related to wetland management in the Olifants River basin and their implementation with regards to Ramsar convention recommendations
4. Reporting on recent progress in terms of wetland knowledge in South Africa: classification, inventory, and other knowledge that are necessary to develop a national strategy for wetland management.

Different but related methodological approaches were used:

a. Methods used for the interviews of local stakeholders

During the initial stakeholder analysis, the interviews with local stakeholders were designed to get their perceptions on

a) Their conception of what a wetland is (What are the characteristics they used to define a wetland? What is the extension of Ga-Mampa wetland?);
b) The services provided by the wetland and how the people used it;
c) The characteristics of each service in terms of who was concerned, how many people were involved, where and when and the impacts on the wetland);
d) How has the wetland evolved over time;
e) The concerns and tensions among users and/or other stakeholders; and
f) The solutions to better manage the wetland.

Data on personal characteristics (age, gender, role in the community) was gathered so as to complement the perceptions. A semi-opened questionnaire was used to acquire the data. A map of the locality, with some basic indications, was used to help people drawing geographical indications (extension of the wetland, location of specific uses). In total, fifteen people were interviewed. The selection of interviewees was based on geographical location and whether people cultivated or not in the wetland.

The second study used Participatory Rural Appraisal (PRA) techniques to generate community discussion and analysis. The activities entailed participatory mapping, diagramming and visual sharing, listing and linking, comparing and scoring.

To share their knowledge of the space, villages and resources maps were drawn by community members.

Figure A1-2 : Illustration of the occupation of the wetland on Ga-Mampa side

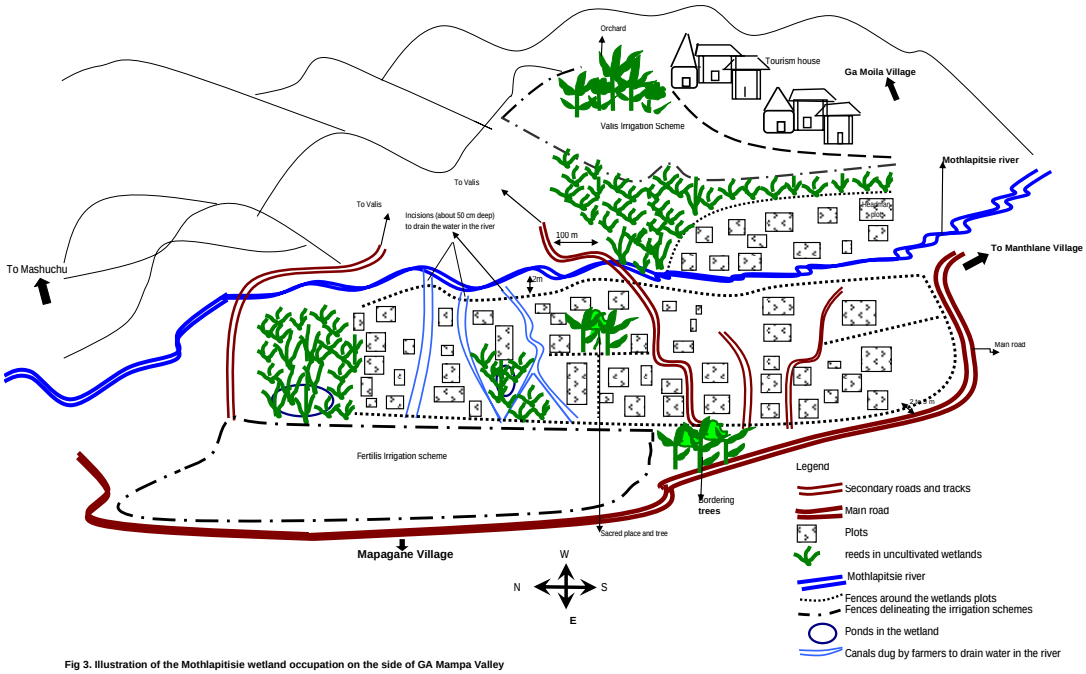


Fig 3. Illustration of the Mothlapitsie wetland occupation on the side of GA Mampa Valley

The depiction of the development context was made throughout Venn diagrams and institutional profiles. The livelihood analysis was made by the means of daily activity clocks for men and women, seasonal calendars, resources access and control profiles and gender desegregated activities. These activities were performed through focus groups meetings followed by exchanges on the results of the findings.

A wealth ranking exercise was conducted to show social stratification. Representatives of different wealth categories were then interviewed. Transect walks were undertaken with community members. Direct observations were also made to provide more information and also for purposes of triangulation.

Semi-structured interviews were conducted with local key local informants at community and local administration levels in relation to issues related to institutional arrangements. The key informants included the headmen of Ga-Mampa and Manthlane villages, the wetland committee, the community development forum executive board, the irrigation scheme committee chair and the ward councillor.

Information was organised at the end of daily sessions of work with the community in order to facilitate review of these notes, seeking for more information on some points during following sessions. Some intermediary reports on the findings were produced at the end of each stay with the community. To provide a better context of the study historical factors were taken into account. The interrelations between the environmental and socio economic realities and how they work through the institutional arrangements at community level and even at the intermediary level, constituted the core of the analysis. A last step was the organisation of feedback meetings with the community and other stakeholders in order to validate the information.

b. Methods used for the interviews of external stakeholders

In the initial stakeholder analysis, external stakeholders were interviewed using an open-ended questionnaire. Questions were designed to highlight general points of view on the wetland. Basically, the questions asked concerned the same topics as for local stakeholders: definition of a wetland, their functions and uses, definition of a good management of a wetland, possible tensions or conflicts, ways to manage them. As their knowledge on Ga-Mampa wetland was not known, people were asked to answer first from a general point of view and, when possible, for Ga-Mampa wetland specifically. People were asked to draw a picture of Ga-Mampa wetland.

In total six persons were interviewed who were either representatives of agricultural administration at different levels (one representative of the National Department of Agriculture (DoA), one of the Capricorn District Department of Agriculture (CDDA), and the extension officer working in the area (EO), or persons concerned with wetlands conservation at provincial and national levels. These included one representative of Working for Wetlands (WfWet) - a government programme in charge of wetlands conservation, the wetland expert at the Limpopo department of Economic Development, Environment and Tourism (LEDET) and one representative of Mondi Wetland Programme (MWP) - an active lobbying group for wetlands preservation in South Africa.

During the second study, interviews were held with personnel from the National Biodiversity Institute (SANBI) and from Working for Wetlands (WfWet) in order to get the perceptions of policy and decision-makers on the wetland policies, laws and regulation in South Africa.

For the stakeholder analysis at national and regional levels, data collection included search of legal documents from governmental organisations websites and interviews of key informants.

At national level data collection was directed at understanding the intentions behind the wetland related policies, assessing their strengths and weaknesses, identifying government initiatives to fill legal and regulatory gaps, determining the role of present and future institutions and their relevance in relation with the various aspects of sustainable management of wetlands.

At regional level, the aim was to find out whether wetland management activities at the regional level differed from the national level. This included:

- Identifying stakeholders involved in wetland management at regional level, their activities and how they contribute to cooperative governance and participatory process;
- Documenting participation processes e.g. tools, representation of all stakeholders and equity in participation
- Assessing progress in the realisation of the wetland inventory, guidelines on wetland management and other data and tools created for wetland management.

Documents collected and analysed included wetland related laws and policies; DoA and DWAF wetland position papers; provincial and national wetland forum recommendations; terms of reference for the DWAF Wetlands Task Group; Upper Olifants Wetlands Management Strategy.

The analysis of wetland management tools analysis focused on the type of tools developed and used by stakeholders to concretely manage the wetlands, their effectiveness and efficiency as they are perceived by stakeholders.

Findings of stakeholder analyses were discussed with the community in feedback sessions. In addition, focus group discussions were held to cross check some information. Where wrong interpretations had been made by researchers, the feedback sessions provided the space for corrections to be made.

3. List of all stakeholders with their interest/stake in WETwin area/issues or outcomes

Table A1-1: List of stakeholders with their roles, characteristics and level of importance and influence

Stakeholder	Type	Role	Level of importance	Level of influence	Remarks
LOCAL					
Ward councillor	Decision taker	Representative of local	Average	High	Influence depends on personal networks.

Stakeholder	Type	Role	Level of importance	Level of influence	Remarks
		municipality at ward level, links with villagers			Could be interested in re-election
Community Development Forum and village committees	Civil Society/Governance structure	Expresses views and needs of local community to ward councillor, traditional and municipalities, Aims to reach agreement on management arrangements	High	Low	Enjoys elected legitimacy although the CDF term has long expired, recognised by headman, good relations with extension officer, wields little formal power, has no legal status, entire membership belongs to the ruling political party (the ANC), lacks human and financial resources and technical expertise
Wetland committee (Kudumela)	Civil Society		High	Low	Enjoys local legitimacy, lacks resources
Wetland croppers	Civil society	Includes 25% of households and interest is cultivating maize and cash crops	High	Low	Conflict with livestock keepers
Wetland livestock owners / breeders	Civil society	Strategic forage resources especially for old people with limited labour	High	Low	Potential conflicts with croppers, however 27% are also croppers
Natural products (reeds and sedges) collectors	Civil society	Interested in generating income (23% of households are involved, 30% are also croppers	High	Low	Very little power, and not organised
Irrigation committee – water users association	Civil society	In charge of local management in the scheme, relays information from CDF	High	Low	In the process of transformation into a water users association
Traditional authorities – Headman Of Manthalane	Civil society	Wields authority over plot allocation and harvesting of reeds, involved in conflict management	High	High	Enjoys traditional legitimacy although this is decreasing; highly respected by the community
Traditional	Civil society	Allocates plots,	High	High	Enjoys traditional

Stakeholder	Type	Role	Level of importance	Level of influence	Remarks
authorities - Headman of GaMampa		authorises cutting of reeds and sedges, involved in conflict management			authority although this is decreasing, tensions with other stakeholders over fees for agricultural use of wetland
Traditional authority – the Kgoshi	Civil society	Appealed to when headmen fail to resolve conflicts	High	High	Enjoys traditional legitimacy although this is decreasing
Churches	Civil society	Social cohesion	Low	High	Influential but not represented at CDF
Legalametse Nature Reserve	Governance structure?	Management and use of the reserve	High	High	
Volkseberg Conservancy	Governance structure?	Management and use of reserve	High	High	
Local communities in Mafele ward downstream of GaMampa wetlands	Civil society	Affected by changes in river flows due to wetland use	Low		Influence needs to be established
DISTRICT/MUNICIPAL					
Agricultural Extension Officer	Advisory	Advises farmers on good farming methods, interested in agricultural development	Moderate	High	State legitimacy, listened to by the community, does not understand the concept of wetland functions
Municipal government	Decision taker	In charge of local government and water services in Lepelle-Nkumpi	Moderate	Moderate	Elective legitimacy, limited capacity
PROVINCIAL					
Limpopo Wetland Forum	Advisory	Information sharing	Low	Low	Has no decision making power
Provincial Government – RESIS (revitalization of small irrigation schemes) Programme	Policy maker/Decision Taker	Rehabilitation of irrigation schemes, no direct interest in wetlands	Low	Moderate	State legitimacy, characterised by incoherent ideas because of the involvement of consultants
Department of Agriculture	Policy maker/Decision taker	Responsible for formulating agricultural policy and its implementation	Moderate	Moderate	
Limpopo department of Economic Development	Decision taker		High	Moderate	No resources (manpower) – only one wetland specialist for the

Stakeholder	Type	Role	Level of importance	Level of influence	Remarks
Environment and Tourism (LEDET)					province
University of Limpopo	Research/education	Research and outreach on wetland use	High	High	High credibility with local community
NATIONAL					
Mondi Wetland Project	Civil society	Advocacy on wetland conservation	High	Moderate	Has no influence at local level where people are suspicious of it, tends to have influence at national and international level
Department of Agriculture	Policy maker/decision taker	Formulates and enforces agricultural policy and conservation of wetlands	Moderate	High	Strong policy making role. But operates at national level, no direct influence of activities at local level.
Department of Environmental Affairs and Tourism[100]	Policy maker	In charge of environmental policy which included wetland conservation	Moderate	Moderate	Operates at national level, no direct influence of activities at local level.
Department of Water Affairs and Forestry	Policy maker/Decision taker	Interested in interactions between wetland use and water resources	High	High	Operates at national level, no direct influence of activities at local level.
South African National Biodiversity Institute	Research/Education	Conservation of biodiversity	High	High	
Working for Wetlands	Advocacy	Wetland restoration	High	High	Focus is on wetland rehabilitation (and providing work to community members)
BASIN					
Olifants River Forum	Governance Structure	Forum for powerful stakeholders (such as mining and tourism), interested in conserving wetland for water supply	Moderate to high	High	This is a powerful and highly vocal group. It is well organized and meets regularly
Kruger National Park	Research/Education	Receives water flow from the Olifants which can potentially have been	Moderate to high	Moderate	

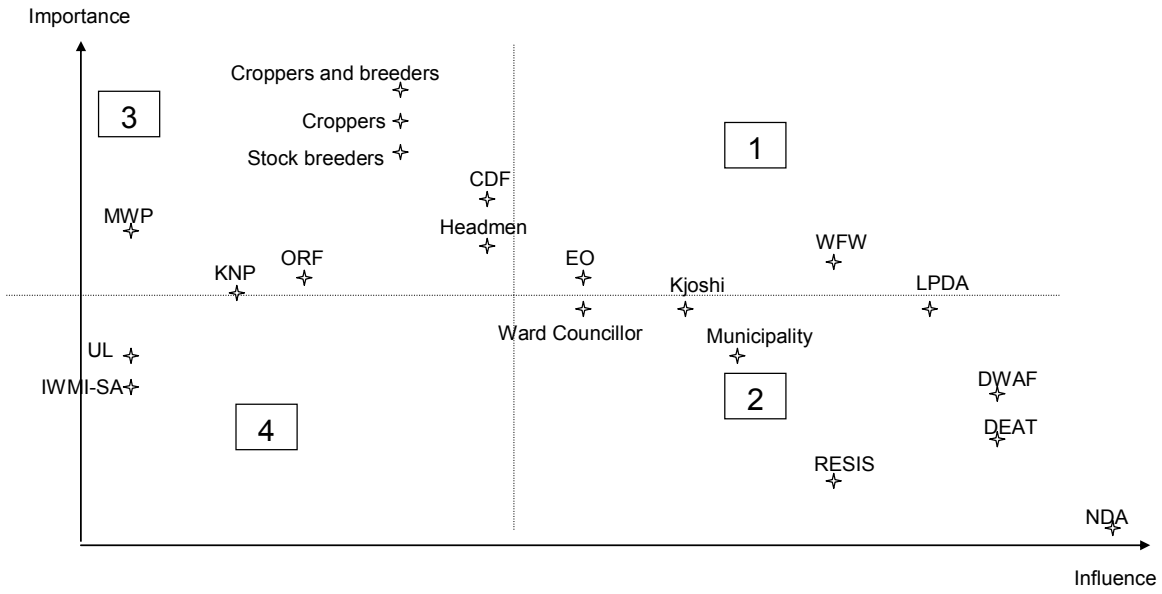
[100] At the time of the three studies that comprise the basis of this report, the ministry structure at national level had a Department of Water Affairs and Forestry and a separate Department of Environmental Affairs and Tourism. From the beginning of 2009, parts of the two ministries merged into the Department of Water and Environmental Affairs (DWEA).

Stakeholder	Type	Role	Level of importance	Level of influence	Remarks
		affected by wetland use			
International					
International water Management Institute	Research	Research on biophysical and socio-economic aspects of wetlands	Moderate	Low	An international organization and outsider. Tries to maintain neutrality in discussions with all stakeholders. Can potentially make recommendations that will be taken up by government at national level.
G-EAU/ Cemagref, Cirad, IRD, Engref	Research	Research on biophysical and socio-economic aspects of wetlands	Moderate	Low	Have had sustained presence in the area. Some credibility with local stakeholders.

4. Influence/importance matrix of all stakeholders and identified key stakeholders (important, influential or both)

Figure A1-3 below presents a diagrammatic representation of the importance and influence of key stakeholders. What is significant from the diagram is that the direct wetland users tend to wield less influence as far as the management of the wetland is concerned. This is unfortunate because this tends to compromise their importance. If the wetland is to be used sustainably then this anomaly needs to be corrected. The question of who champions such a transformation is not clear because state intervention may generate feelings of apathy. At the same time it is clear that there are few prospects for local solutions for local problems. For example the traditional leaders are welcome in some areas and not in others. In any case their influence is now decreasing. Against such a background it is important to explore the new relationships that can emerge between the communities and the traditional leaders to avoid a power vacuum in the event the traditional leaders cease to wield meaningful power in the wetland.

Figure A1-3: Importance and influence of identified stakeholders for the GaMampa wetland



5. Most important features of key stakeholders

From Figure A1-3 we can see that there are many direct and indirect stakeholders in the wetland with diverse and divergent interests. At the local level there are stakeholders who are likely to clash over how the wetland is used, e.g. croppers and livestock keepers. The fact that there is institutional overlay in the form of traditional leaders adds to the complexity, and may result in certain livelihoods being compromised.

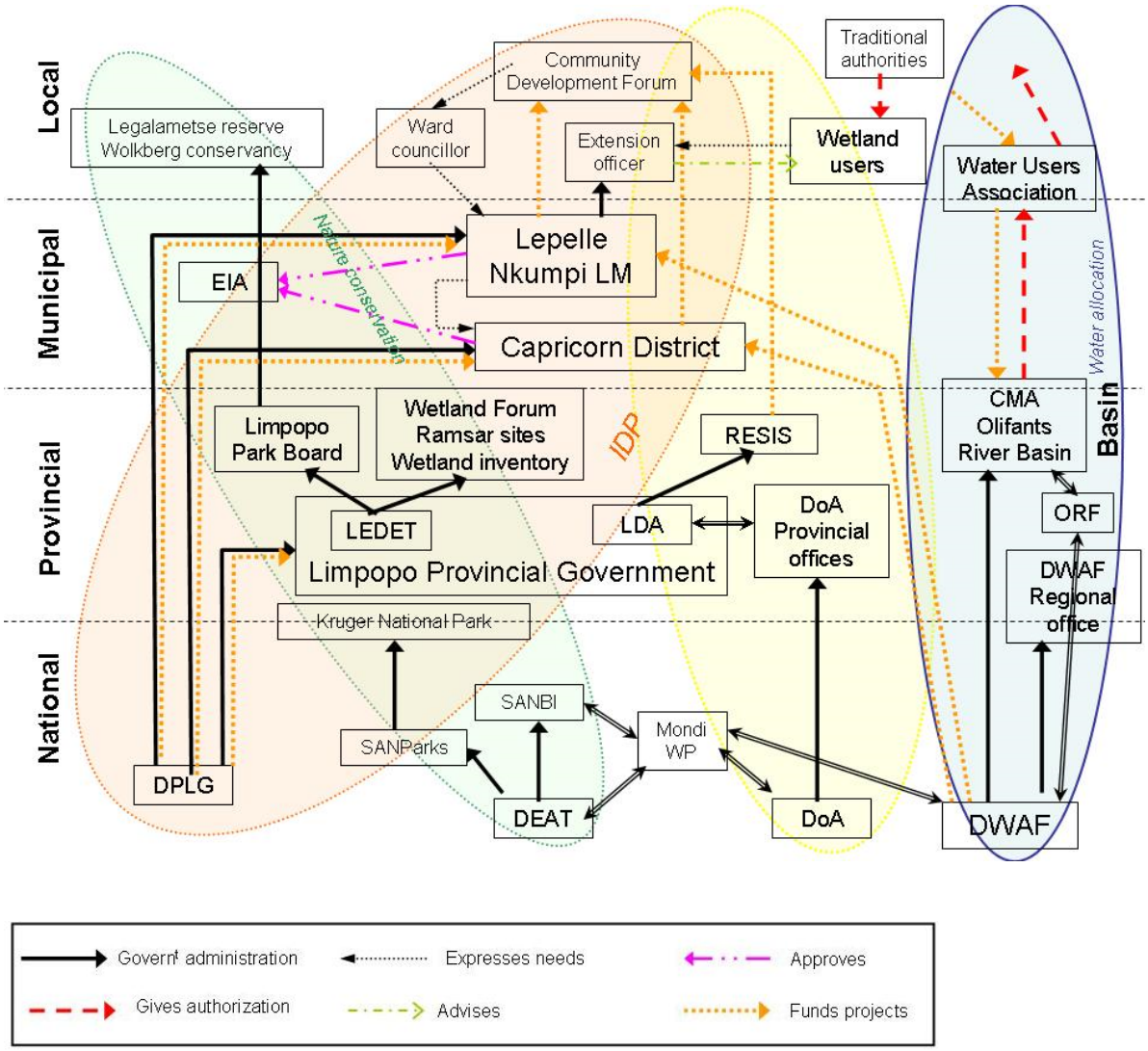
It is also important to note that the livelihoods that are drawn from the catchment are not necessarily agricultural. Some of the traditional leaders obtain their livelihoods by overseeing administration (e.g. plot allocation). A lasting solution to the how the wetland is managed has to involve as many stakeholders as possible in a forum where all stakeholders are taken into account. This will open negotiations regarding how the wetland can best be managed.

6. Overview of interrelationships (formal and informal platforms and networks, power relations, existing and/or potential conflicts of interests) between key actors/stakeholders

Interrelationships

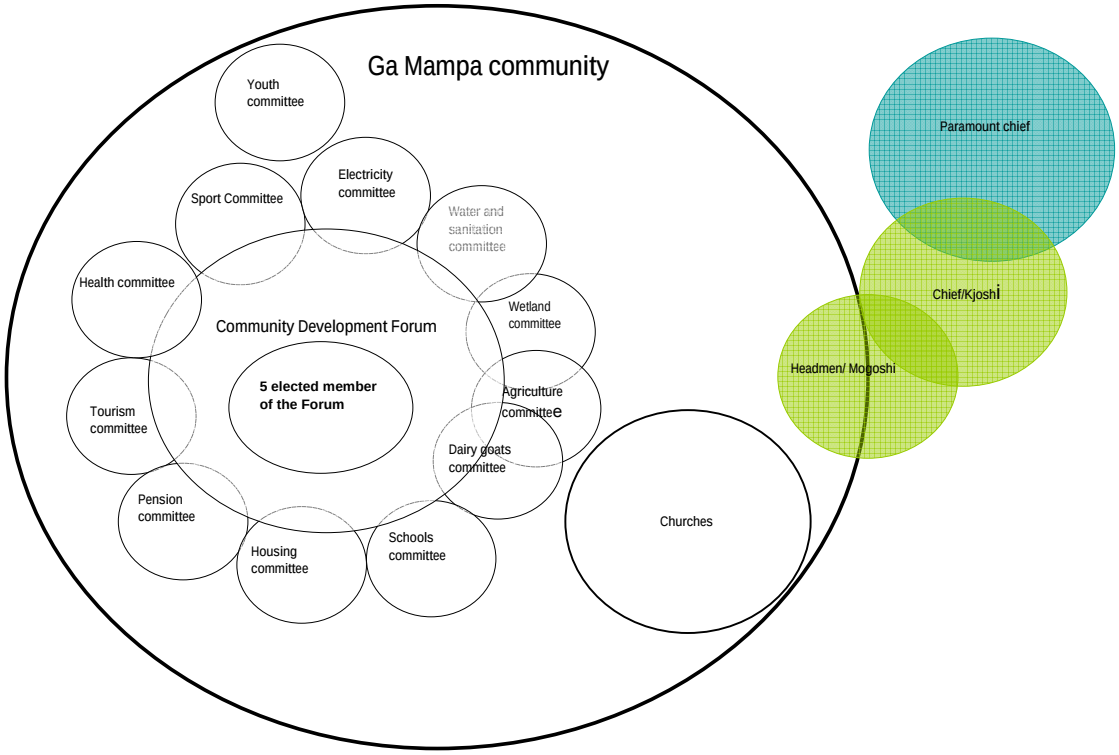
A comprehensive depiction of the existing formal structures and informal platforms and networks of stakeholders at the local, municipal, provincial, and national level is shown in Figure A1-4 below. A distinct characteristic of the stakeholder relations is the limited interaction between stakeholders. For example, there are limited horizontal linkages between the water management structures at all levels with the social development planning process represented by the IDP process at provincial level. There are mainly vertical flows of information and resources that could be better reinforced by horizontal integration.

Figure A1-4: Existing formal structures and informal platforms and networks of stakeholders



The Venn diagram in Figure A1-5, that is based on a representation by the community, shows the most important institutions at GaMampa as perceived by the community (Tinguery, 2006). Traditional leadership is organized around village headmen, and above these, chiefs, who are under paramount chiefs.

Figure A1-5: Venn diagram at local level for the GaMampa wetland (Source: Tinguery 2006)



Power relations:
The intermediate level not shown in the Venn diagram is the local government consisting that links the central government level with the local level. Organizations at this level include the Lepelle Nkumpi Municipality, and the Ward Councillor. These organizations are meant to represent the interests of communities and act as catalysts for collective sustainable socio-economic progress. While the local community is important for the management of the wetlands, it has limited influence on the planning and decision making process. The community influence extends only as far as the Ward 24 boundary.

Conflicts
The results of the initial analysis of relationships and conflicts between the different stakeholders (Darradi, 2005) showed potential tensions exist between the organizations that are pro-conservation of the wetland and the community. This is because the community views the wetland as a resource to be utilized while these organizations perceive it as a resource to be conserved. As such they push for conservation without consideration of alternative options for sustainable use or alternative livelihoods. At the time of this analysis potential tensions were also evident between livestock owners and croppers. At the time of the study most livestock owners had to seek alternative pastures, located in the mountains some distance from the village. The plots in the wetlands were not fenced, and keeping livestock in the wetland pastures could result in crop damages. Tensions existed in the local leadership, mainly between the village head and the Community Development Forum (CDF). These relationships all form past relevant experiences that can inform future management and decision making about the wetland.

7. Stakeholder engagement strategy indicating the different stages of the WETwin process and thereafter, the stakeholders to engage in each stage, in which category they should be placed, the (most functional) way of engagement and the required actions to engage each stakeholder meaningfully in that stage.

Table A1-2 presents the project team's perception of the stakeholders to engage in each stage of the stakeholder engagement process, stakeholder category, the way the stakeholders should be engaged, and the

required actions to engage the stakeholder meaningfully in that stage. This perception was informed by the views of several stakeholders

Table A1-2: stakeholder engagement matrix

Stage	Key Stakeholders	Category A[101], B[102], C[103]	Way of enganging	Required actions
1: Wetland Characterization and Setting relative priorities for the wetland,	Traditional authorities – Kgoshi[104] and Headmen Of Manthlane & GaMampa	A	Consult, and characterization shared with them	Carry out informal interviews and present results on a one to one basis and in workshops
	Local communities in Mafefe ward downstream of GaMampa wetlands	B	Consulted in characterization	Semi-structured interviews
	Ward councillor	C	Consult	Informal interviews and invite to workshops
	Community Development Forum and village committees	B	Consult	Invite to workshop
	Wetland committee (Kudumela)	B	Consult	Invite to workshop
	Wetland croppers, livestock keepers and natural products collectors	B	Consult Ensure participation in decision making of priorities	Semi-structured interviews, observation of their fields and invite to workshop
	Department of Agriculture (Limpopo Province)	A	Consult Ensure active participation in characterization Priorities shared with them	Provide reports, invite to workshop and request them to present
	University of Limpopo	A	Consult Ensure active participation characterization Priorities shared with them	Provide reports, invite to workshop and request them to present their work / objectives in the wetland
	Legalametse Nature Reserve	D	Consult	Informal interview and invite to workshop
	Department of Water Affairs and Environment (Regional Office)	A	Consult Ensure active participation in characterization	Provide reports, invite to workshop and request them to present, request

[101] Category A stakeholders - Stakeholders who stand to lose or gain significantly from the project and whose actions can affect the project's ability to meet its objectives. The project needs to ensure that their interests are fully represented in the coalition. Overall impact of the project will require good relationships to be developed with these stakeholders.

[102] Category B - Stakeholders who stand to lose or gain significantly from the project but whose actions cannot affect the project's ability to meet its objectives. The project needs to ensure that their interests and values are fully represented in the coalition.

[103] Category C - Stakeholders whose actions can affect the project's ability to meet its objectives but who do not stand to lose or gain much from the project. They may be a source of risk; and you will need to explore means of monitoring and managing that risk.

[104] Kgoshi is "chief" in Sepedi

Stage	Key Stakeholders	Category A[101], B[102], C[103]	Way of enganging	Required actions
	Limpopo Economic Development and Tourism (LEDET)	A	Priorities shared with them	feedback from them
	Department of Water Affairs and Environment (National level)	A		
	International Water Management Institute	A	Active involvement in design, implementation and decision making	Informal interview and invite to workshop
	Working for Wetlands	A	Share priorities with them	Informal interview and invite to workshop
	Olifants River Forum	B		
2: Quantification of Ecosystem services	International water Management Institute	A	Responsible for the design, implementation and decision making	Informal interview and invite to workshop
	G-EAU (Cemagref, Cirad, IRD, Engref)	A	Design, implementation and decision making	Share responsibilities
	Department of Water Affairs and Environment (Regional office)	A	Inform	Invite to workshop, disseminate results to them
	LEDET	A		
	Department of Agriculture (Limpopo Province)	A		
	University of Limpopo	A	Consult for the design, implementation and decision making	Provide reports, invite to workshop and request them to contribute, request for feedback
	Wetland croppers, livestock keepers and natural products collectors	B	Consult, active involvement in decision making	Consult and invite to workshop, facilitate participation of different groups
	Irrigation committee / water user association	C	Consult, active involvement in decision making	Consult and invite to workshop
	Department of Agriculture (Limpopo Province)	A	Inform, active involvement in design and decision making	Invite to workshop and request them to contribute
	Department of Water Affairs and Environment (Regional office)	A	Inform, active involvement in design and decision making	Invite to workshop and request them to contribute, request feedback
	Department of Water	A	Inform, active	Invite to workshop and

Stage	Key Stakeholders	Category A[101], B[102], C[103]	Way of enganging	Required actions
	Affairs and Environment (national level)		involvement in design and decision making	request them to contribute, request feedback (if targets conform to national plans)
4: Data collection and management	International water Management Institute G_EAU/Cemagref. Cirad, IRD, Engref	A	Active involvement in design and implementation	Coordinate, identify responsible persons and provide resources
	GaMampa wetland community (data collectors identified in community)	B	Individual or group training	Responsible for day to day data collection at wetland level
	University of Limpopo	A	Inform Involve university students in data collection, possible facilitation during meetings and translations (Sepedi – English)	Send plan and reports
5: Drivers of Change (vulnerability and management options)	Traditional authorities – Kgoshi and Headmen Of Manthlane & GaMampa	A	Active involvement in decision making	Interview and invite to workshop and request to present
	Local communities in Mafefe ward downstream of GaMampa wetlands	B	Active involvement in decision making	Interview and invite to workshop and facilitate active involvement
	Ward councillor	C	Active involvement in decision making	Interview and invite to workshop
	Community Development Forum and village committees	B	Active involvement in decision making	Interview and invite to workshop
	Wetland committee (Kudumela)	B	Active involvement in decision making	Interview and invite to workshop
	Wetland croppers, livestock keepers and natural products collectors	B	Active involvement in decision making	Interview and invite to workshop and facilitate active of different social groups involvement
	Department of Agriculture (Limpopo Province)	A	Consult, involve in decision making	Invite to workshops and request to present
	Department of Water Affairs and Environment (national and	A		

Stage	Key Stakeholders	Category A[101], B[102], C[103]	Way of enganging	Required actions
	regional)			
	LEDET	A		
	University of Limpopo	A	Consult, share outcome	Invite to workshops and request to present
	Legalametse Nature Reserve	B	Consult and share outcome	Invite to workshops
	Mondi Wetlands Project	C		
	Working for Wetlands	C	Consult and share outcome	Invite to workshops
6: Trade–off analysis of ecosystem services	International Water Management Institute	A	Active involvement in design and implementation	Identify responsible persons, identify tools resources and implement
	G-EAU (Cemagref, Cirad, IRD, Engref) France	A	Active involvement in design and implementation	Share responsibilities and coordinate with responsible persons
	Department of Agriculture (Limpopo province)	A	Share results	Send reports and invite to workshops
	Department of Water Affairs and Environment (regional office)	A	Share results	Send reports and invite to workshops, request feedback on results
	Department of Water Affairs and Environment (National)	A	Share results	Send reports and invite to workshops, request feedback on methodology and results
	Working for Wetlands	A	Share results, requested for opinion	Send reports and invite to workshops
	University of Limpopo	A	Share results, request for opinion	Send reports and invite to workshops, request for feedback / opinion
	Wetland croppers, livestock keepers and natural products collectors	B	Share results, request for feedback / opinion	Interview, disseminate results to in workshop setting, facilitate active participation, request feedback on results
	Local communities in Mafefe ward downstream of GaMampa wetlands	B	Share results, request for feedback / opinion	Disseminate results to in workshop setting, request feedback on results
	Wetland committee	B	Informed of results, requested for	Send reports and invite to workshops

Stage	Key Stakeholders	Category A[101], B[102], C[103]	Way of enganging	Required actions
			opinion	
	Community Development Forum	B	Informed of results, requested for opinion	Send reports and invite to workshops
	Traditional authorities –Kgoshi and Headmen Of Manthane & GaMampa	A	Informed of results, requested for opinion	Send reports and invite to workshops
7: Identification of best compromise solutions	Wetland croppers, livestock keepers and natural products collectors	B	Consulted active involvement in design, implementation and decision making	Present results, invite to workshop, facilitate active involvement of different social groups, request feedback / opinion
	Local communities in Mafefe ward downstream of GaMampa wetlands	B	Informed of results	Present results, invite to workshop, facilitate active involvement of different social groups, request feedback / opinion
	Department of Agriculture (Limpopo Province)	C	Consult, active involvement in monitoring	Send reports, invite to workshop, present results to, request feedback / opinion
	Department of Water Affairs and Environment (regional office)	A	Consult, active involvement in design, implementation and decision making	Invite to workshop, share results, request for opinion / feedback
	Department of Water Affairs and Environment (national level)	A	Consult, active involvement in design, implementation and decision making	Invite to workshop, share results, request for opinion / feedback
	University of Limpopo	A	Consult, active involvement in design, implementation and decision making	Invite to workshop, share results, request for opinion / feedback
	Working for Wetlands	C	Consult, active involvement in monitoring	Send reports and invite to workshops, engage in discussion of results and request opinion / feedback
	Ward councillor	C	Consult, active involvement in design, implementation	Present results, invite to workshop, facilitate active participation in workshop

Stage	Key Stakeholders	Category A[101], B[102], C[103]	Way of enganging	Required actions
	Olifants River Forum	B	and decision making	Present results, invite to workshop, facilitate active participation in workshop, requested for feedback / opinion

8. Stakeholder engagement plan, including required actions, intended outputs, responsibilities and the timing, the foreseen workshops, and how the plan will be monitored

The stakeholder engagement plan for GaMampa consists of a series of individual consultations, informal interviews, questionnaires, and workshops. The process is divided into 5 stages as outlined in Table A1-3. During each stage facilitation skills including communication, visualization, translation, and use of codes will be utilized.

Stakeholder workshops and facilitation

Stakeholder workshops will be a key component of the stakeholder engagement strategy. All the stakeholder workshops will be carried out in a facilitated process. A professional facilitation process will ensure that the best comes out of the workshops by engendering trust, showing respect, posing the right questions to encourage reflection about new angles of an issue, respectfully challenging assumptions, equalizing power imbalances or opportunistically applying the right set of tools to address emerging challenges. In this context facilitation involves applying a set of processes and "soft skills" to help groups to attain their objectives. It will involve an individual or group – preferably someone with knowledge of the issue being addressed and prior experience leading groups through change – leading a group through a process of change. The facilitator will help the group to: jointly identify problems and opportunities; discuss and negotiate desired future states; jointly plan; frequently monitor performance, reflect on progress made towards agreed goals and adjust action plans; perceive and respond to emerging challenges and opportunities.

A wide range of processes and tools will be used on to assist the stakeholders to realize their objectives. These will be drawn upon opportunistically, based on the specific needs at hand. The most important (facilitation) tools and process that will be used include communication, visualization and the use of codes.

Table A1-3 is a summary of the WETwin process at GaMampa focussing on stakeholder engagement. It shows the stage of the project, activity type, stakeholder, the required actions to engage the stakeholder meaningfully, the intended outputs, the responsibilities and the timing, and the foreseen workshops

Table A1-3: Ga-Mampa stakeholder engagement plan

WETwin Stage	Activities	Timing	Responsible	Stakeholders	Way of Engaging	Information sought
1: Wetland Characterization and Setting relative priorities for the wetland: Wetland characterization (WP 2, 3, 4) Setting relative priorities for wetland (WP 3)	Consolidation of interview material available	August 30 2009	Edward Chuma	IWMI Cemagref	Literature review, informal discussion	Relevant literature
	Semi-structured interviews Informal interview	August 30 2009	Stakeholder Analysis consultant	Local communities in Mafefe ward downstream of GaMampa wetlands Ward councillor Local Municipality Traditional authorities –Kgoshi and Headmen Of Manthlane & GaMampa Legalametse Nature	Consulted and participate in decision making of priorities Provide characterization and priority information Consultation	Priorities for wetland Priority setting for downstream areas Agreed characterization and priority setting

WETwin Stage	Activities	Timing	Responsible	Stakeholders	Way of Engaging	Information sought
				Reserve Working for Wetlands Olifants River Forum Kruger National Park		
	Workshop	30 August 2009	Edward Chuma Mutsa Masiyandima Sylvie Morardet	Traditional authorities –Kgoshi and Headmen Of Manthlane & GaMampa Ward councillor Local Municipality Community Development Forum and village committees	Workshop	
				Wetland committee (Kudumela) Wetland croppers livestock keepers natural products collectors Department of Water Affairs and Environment (National level) Legalametse Nature Reserve Working for Wetlands Olifants River Forum		
	Dissemination	31 October 2009	Case study leader	University of Limpopo Department of Agriculture (Limpopo Province) Department of Water Affairs and Forestry (Limpopo Province) Department of Water Affairs and Environment (National level) Limpopo department of Economic Development Environment and Tourism (LEDET) Working for Wetlands Olifants River Forum Legalametse Nature Reserve Local municipality Ward councillor	Email, delivering hard copy of report, request for comments Email, Request for comments Delivering hard copy of report	Dissemination of final characterizatio n and priority setting reports
2: Quantification of Ecosystem services				International water Management Institute G-EAU/Cemagref,	Design, implementation and decision	

WETwin Stage	Activities	Timing	Responsible	Stakeholders	Way of Engaging	Information sought
Quantify ecosystem services				Cirad, IRD, Engref	making	
	Consultations Semi-structured interviews with key personnel	31 October 2009	Stakeholder analysis consultant	Department of Water Affairs and Environment (National and regional offices) Department of Agriculture (Limpopo Province) LEDET University of Limpopo	Inform using reports Interview key personnel	Perceptions on wetland functioning and role of wetland in catchment
	Informal interviews			Olifants River Forum Kruger National Local Municipality Ward councillor	Interview key people within the organization	Stakeholder perception(s) on ecosystem services provided by wetland
	Semi-structured interviews			Local communities in Mafefe ward downstream of GaMampa wetlands Other downstream stakeholders (Kruger National Park)	interviews Invite to workshops and inform them of results Validate results Interviews Provide reports Invite to workshops Engage (actively solicit feedback to findings on ecosystem services)	Perceptions on ecosystem services provided by the wetland upstream Perception on impact of activities of the wetland communities on the ecosystem services of benefit to these
	Workshop	31 October 2009	Case study leader Facilitator	Wetland croppers, livestock owners, and natural product harvesters Department of Water Affairs and Environment (National and regional offices) Department of Agriculture (Limpopo Province) LEDET University of Limpopo Olifants River Forum Kruger National Municipality Local Municipality Traditional authority (Kgoshi, headmen)	Invite to workshop Present ecosystem service information to	Perceptions on ecosystem services of benefit to wetland croppers, livestock owners, and natural product harvesters Perceptions on services provided by the catchment upstream Perceptions on impact of activities on the catchment downstream
3: Setting Quantitative target	Consultation / semi	31 October	Stakeholder analysis	Wetland croppers, livestock keepers and	Consult Active	Stakeholder perception of

WETwin Stage	Activities	Timing	Responsible	Stakeholders	Way of Engaging	Information sought
for wetland	structured interviews	2009	consultant Case study leader Sylvie Morardet (Cemagref)	natural products collectors Irrigation committee / water user association Mondi Wetlands Project Working for Wetlands Olifants River Forum Department of Agriculture (Limpopo Province) Department of Water Affairs and Environment (National and regional) LEDET	involvement in decision making	target for wetland
	Workshop	31 October 2009	Edward Chuma	Olifants River Forum Irrigation committee / Water User Association Department of Agriculture (Limpopo Province) Department of Water Affairs and Environment (national and regional) LEDET Mondi Wetlands Project Working for Wetlands	Request participation in workshop setting facilitate participation	Agreed quantitative target
4: Data collection and management	Coordinate, identify responsible persons and provide resources Day to day data collection at wetland level Send plan for data collection and reports	31 October 2009	Case study team (IWMI, Cemagref)	International water Management Institute G_EAU/Cemagref, Cirad, IRD, Engref GaMampa wetland community (data collectors identified in community) University of Limpopo	Involve in design and implementation Provide individual or group training for actual data colletion Provide student internships	Key stakeholders consulted in data collection and data verified Data gaps identified
5: Drivers of Change (vulnerability and management options**)**	Semi-structured interviews	31 October 2009		Wetland committee (Kudumela) Wetland croppers, livestock keepers and natural products collectors Department of Agriculture (Limpopo Province) Department of Water	Consultation	Story lines Management options

WETwin Stage	Activities	Timing	Responsible	Stakeholders	Way of Engaging	Information sought
				Affairs and Environment (national and provincial) University of Limpopo Legalametse Nature Reserve Working for Wetlands Olifants River Forum		
	Data collection		Lisa-Maria Rebelo	Department of Water Affairs and Environment (national and regional) LEDET	Data sharing	Local data to validate global databases
6: Trade–off analysis of ecosystem services and identification of best compromise solutions	Workshop	August 2009	Facilitator Case study tam	Department of Water Affairs and Environment (National / headquarters and regional offices) Wetland croppers, livestock keepers and natural products collectors Working for Wetlands University of Limpopo Wetland croppers and livestock owners Wetland committee Local communities in Mafefe ward downstream of GaMampa wetlands Community Development Forum Traditional authorities –Kgoshi and Headmen Of Manthlane & GaMampa Local Municipality Ward Councillor Traditional authorities –Kgoshi and Headmen Of Manthlane & GaMampa	Consulted and results shared Interviews and invited to workshop and facilitate active participation Inform, seek feedback (implication of results)	Validation of model results Alternative wetland management scenarios Feedback - implication of results; alternative scenarios
	Modeling	2009 - 2010	Case study leader Modeling team	International Water Management Institute Cemgref / G-Eau (with other project partners)	Active involvement in TOA model design and implementation	Optimal solutions within the decision space identified through modeling
	Workshop	2010	Case study leader Workshop	Department of Water Affairs and Environment	Disseminate results to stakeholders in	Modeling outcome and optimal

WETwin Stage	Activities	Timing	Responsible	Stakeholders	Way of Engaging	Information sought
			facilitator Modeling team	(headquarters and regional office) LEDET Limpopo Department of Agriculture Mondi wetlands project Working for Wetlands Olifants River Forum Kruger National Park University of Limpopo Wetland croppers and livestock owners Community Development Forum Traditional authorities (Kgoshi and Headmen of Manthlane and GaMampa Wetland committee Local communities in Mafefe ward downstream of GaMampa wetlands Local Municipality Ward Councillor	workshop setting Request feedback on results Informed of results, requested for feedback / opinion	solutions presented and evaluated by stakeholders Feedback from stakeholders
	Final Dissemination workshop	2011	Case study team Facilitator Modelling team	All stakeholders	Invite to workshop Present results and final report Distribute hard copy of final report	

Annex 2: Summary of Uganda case study

River Basin: Upper White Nile
Wetland(s): Nabajjuzi and Namatala wetlands

1. Context: geographic scope and key issues that will be addressed

The geographical scope of the WETwin project includes two wetland sites in Uganda that is, Nakayiba/Nabajjuzi and Doko/Namatala wetland systems. The wetland systems play an important role in providing drinking water and processing wastewater.

The NakayibaNabajjuzi wetland system lies South west of Central Uganda in Masaka district. The system covers 12 sub-counties with a population of 380,000 people living in these subcounties. The population has had a lot of negative impact in the catchment area and on the wetland itself.

The Doko/Namatala system is shared among six districts of Mbale, Pallisa, Tororo, Budaka, Butaleja and Manafwa. The population in the sub-counties adjacent to the wetland is about 656,299 people.

The main issues of focus in these two wetlands

- Drinking water supply function in Nabajjuzi wetland
- Nutrient retention/wastewater discharge in Namatala wetland

Foreseen interventions

The foreseen interventions include;

- Series of field studies to investigate the hydrological, drinking water supply potential and wastewater purification capacities of the wetlands.
- Stakeholder involvement to improve wetland management.
- Development of decision support tools to facilitate generation of new management solutions.
- Analysis of technical, organizational and institutional factors.

Other important contextual information

In both study sites these activities are integrated with/into already existing efforts by the respective districts and other Agency work, e.g. in Nabajjuzi Nature Uganda has an Environment and Education Programme with Wetlands as one of the aspects, in Namatala which is an import Bird Area it has a Biodiversity Monitoring project. For the Districts it is mainly, awareness, sensitization, and Compliance Monitoring and wetland restoration exercises.

2. Process followed for the stakeholder analysis and developing an engagement strategy

Literature review

In order to come up with information on the stakeholder analysis for the two sites a situational analysis was done and this involved a review of various books, reports and other publications relevant to the study. The information that was derived out of this process included the list of stakeholders and their interests, and the positive and negative impacts on the wetlands and their importance and influence.

Stakeholder workshops

Stakeholder workshops were used to collect information and views of stakeholders and to introduce the WETwin research project as well as the study sites. Information collected from previous research work was authenticated with further discussions and consultations at the stakeholder workshops held in Kampala, Masaka and Mbale.

Results of stakeholder analysis process in Nabajjuzi-Masaka wetland

3. List of all stakeholders with their interest/stake in Nabajjuzi

The major stakeholders for the Nabajuzzi wetland include the following:

- Farmers (crop, livestock, fisheries, bee keepers)
- Extension staff
- Opinion leaders[elders, prominent people]
- Religious leaders
- Schools/teachers
- Local Councils, I-V
- Sub-county chiefs
- Businessmen
- Herbalists
- Hunters
- Resource users/harvesters
- Investors
- Donors
- Non Governmental/Community Based Organizations
- Central Government
- National Water and Sewerage Corporation, Uganda (Water works)
- Politicians

Table A2-1: Summary of stakeholder interests and impacts on Nabajjuzi Wetland

Stakeholder	Interest	Positive impact	Negative impact
1. Resource harvesters	• Wetland resources	• Income • Food security • Medicine	• Over harvesting • Degradation
2. Farmers	• Land • Water • Pasture • Fish	• Income • Food security	• Degradation • Pollution
3. Extension staff	• Production • Sustainability	• Food security • Income	• Degradation • Pollution
4. Opinion leaders	• Heritage • Culture	• Conservation	• Over protection
5. Religious leaders	• Heritage • Spiritual • Sustainable use • Welfare	• Conservation	• • Over protection
6. LC executives	• Revenue collection • Sustainable management • Votes from communities	• Protection	• Degradation • Lack protection
7. Businessmen	• Profits • Production	• Increased production • Improved livelihood	• Degradation
8. Investors	• Land • Water	• Boost economy • Employment • Income for district	• Pollution
9. Donors	• Sustainability • Prestige	• Funds • Protection	• Overprotection
10. NGOs/CBOs	• Production • Prestige • Employment • Protection	• Income • Food security	• Over protection • Degradation
11. Central	• Sustainability	• Development	• Over protection

Stakeholder	Interest	Positive impact	Negative impact
government			
12. Politicians	• Votes from wetland users • Improve livelihood	• Development	• Degradation
13. District technical staff	• Employment • Production • Sustainability	• Food security • Income • Revenue	• Sustainability

4. Influence/importance matrix of all stakeholders and identified key stakeholders (Nabajjuzi) (important, influential or both)

Table A2-2: Identified key stakeholders of Nabajjuzi wetland and their level of influence/importance

No.	Name	Level of influence	Level of importance
	Community level		
1	Nature Uganda	High	High
2	Bee keepers	low	Medium
3	Nabajjuzi water users group	Little	*High?*
4	Bakasimbi development group, papyrus harvesters	Low	High
5	Ssenya Fish farm	Medium	High
6	Bisanje farmers group	*Low?*	*High?*
7	New Kumbu housing estate	Moderate	Moderate
8	National Water and Sewerage Corporation-Masaka area	High	High
	Municipal and Sub county level		
9	Environment Committee Katwe/Butego division	Moderate	*Low?*
10	Environment Committee Kimanya-kyabakuza	Moderate	*Low?*
11	Environment Committee Mukungwe	Moderate	*Low?*
	District level		
12	Department of Environment	High	High
13	Agricultural extension office	Low	
14	Community development department	Moderate	
15	Wetlands department	High	High
16	Water department	Low	Low
17	Concerned women farmers organization	High	High
	National level		
18	Wetlands management department	High	High
19	National Environment Management Authority	High	High
20	Directorate of Water Resources Management	Moderate	High
21	Nile Basin Initiative	High	High
22	National Agricultural Research Organization	Low	Low

5. Analysis matrix of key stakeholders (Nabajjuzi) with their characteristics, interests in WETwin, possible contributions they can make, challenges that need to be addressed and actions required to engage key stakeholders

Table A2-3: Characteristics, expectations, interests, resources, challenges and actions required of key stakeholders of Nabajjuzi wetland

No	Name	Nature of Organization	Expectations	Interests	Resources	Challenges	Actions
1	Nature Uganda-Masaka Area	Arm of a National NGO, operating in Masaka and neighbouring districts	Increased knowledge of wetlands conservation	• Conservation of biodiversity • Capacity building of communities	• Personnel • Network • Data/ information	• Lack of cooperation • Time • Integration of activities in workplan	• Sensitization • Trainings about wetlands • Formal communication

No	Name	Nature of Organization	Expectations	Interests	Resources	Challenges	Actions
2	Bee keepers	Local association of 20 people	Sensitization of communities on bee keeping	• Production of honey	• Information	• Lack of resources	• Sensitization on resource use
3	Nabajjuzi water users group	Local association of about 300 resource users	Sustainable resource use	• Abstraction of water	• Data • Personnel • Facilities • Platform for cooperation	• Lack of knowledge	• Sensitization • Information flow
4	Bakasimbi development group	Community group of papyrus harvesters	Provide trainings, Funding, Development of Bylaws	• Extraction of wetland resources, papyrus.	• Data &Personnel	• Conflicts with other wetland users; cattle keepers, brick makers	• Training and funding for community mobilization &research work
5	Ssenya Fish farm	Private enterprise covering three acres within catchment	Safe reliable and sustainable water resource	• Use of surface water for fish farming	• Information	• Negative attitude of members	• Sensitization • Group meetings • Avail data collection tools • Analysis of data
6	Bisanje farmers group	Community group of 20 members	Empowering CBO	• None	• Network • Sensitization	• Political interference	• Identify how WETWIN can help them
7	New Kumbu housing estate	Urban estate with about 250 households	Clean source of water for the community	• Waste water disposal • expansion of estates	• Network • Facilities	• Community Resistance • Political interference	• Sensitization • Formulation of by laws
8	NWSC-Masaka Area	Part of the Main Parastatal operating in Masaka area		•	•	•	•
9	Katwe/ Butego division-Environment committee	Division within Masaka municipal council	Generation of knowledge on wise use	• Wetland protection	• Personnel • Information	• Lack of cooperation platforms	• Communicate to the administrative & political supervisors
10	Environment Committee-Kimanya Kyabakuza Division	Division within Masaka municipal council	More wetlands to be conserved	• Wetland conservation	• Data/information	• Political influence • lack of community sensitization	• Community awareness • Workshops • Provide funding
11	Mukungwe Subcounty-Environment Committee	Division within Masaka municipal council	Regulation of wetland encroachment	• Wetland conservation	• Data/Information • Expertise	• Attitude of communities • Political interference	• Community sensitization • Facilitation
12	Department of Environment	District arm charged with environment affairs	Capacity building for wetland management	• Wetland conservation • Sustainable resource use	• Data/information • Expertise	• Time • Negative attitudes of communities • Political intervention	• Awareness campaigns • Information flow about the project

No	Name	Nature of Organization	Expectations	Interests	Resources	Challenges	Actions
13	Agricultural extension department	Local Government department in charge of agricultural production	Development of tools for effective management& decision making	• Household food security • Income security • water for irrigation	• Data • Expertise	• Time • Low cooperation by community	• Sensitization of administrative & political leaders
14	District Community Developmen t Department	Local Government department in charge of community services	Improved management and decision making	• Income generating activities among communities • Strategies for food security among communities	• Mobilization	• Lack of cooperation • Community negative attitude	• Consensus between political and technical leaders
15	District wetlands Department		Data collection & analysis	• Infrastructure • urbanization	• Human resource • Networking • Information	• Political interference • attitudes	• Awareness • Sensitization • Legislation
16	Concerned women farmers organization	Community based organization of 80 members	Knowledge of wetland conservation	• Use of wetland resources for Income	• Platform • Information sharing and reports	• Political interference • Mobilization	• Communicati on to members • Capacity building

Table A2-4: Roles, concerns and expected contribution from stakeholders of Nabajjuzi wetland

No	Stakeholder	Roles of organization	Concerns	Research studies	Models/tools	Other contribution
1	Nature Uganda	• Awareness • Sensitization • Environmental Education in schools	• Bush fires • Eco-tourism development	• Eco-tourism site • Tree planting	• Management plan	• Data on biodiversity • Personnel
2	Bee keepers	• Wise use of wetland resources	• Training of communities on wise resource use	• None	• None	• None
3	Nabajjuzi water users	• Wise use of water	• Water resource management	• None	• None	• Dissemination of information • Data collection
4	Bakasimbi development group	• Craft making • Mobilization of communities for income generation	• Mobilization • Sensitization	•	• None	• Community mobilization
5	Ssenya Fish farmers	• Ensuring good management	• Pollution from toxic chemicals	• None	• None	• Research data
6	Bisanje farmers group	• Mobilization • Sensitization	• Immigrants • Poachers	• Lake Victoria catchment environment education programme	• District planning committees	• Data collection • Mobilization
7	New Kumbu housing estate	• Abiding with by-laws • Implementing conservation measures	• Contamination of water resources • Encroachment	• None	• Establishment/pr ovision of garbage skips by municipal council	• Proper planning
8	NWSC-	•	•	•	•	•

No	Stakeholder	Roles of organization	Concerns	Research studies	Models/tools	Other contribution
	Masaka Area					
9	Katwe/Butego division	• Wetland protection • Enforce law	• Wetland pollution • Wetland encroachment	• None	• More poster of awareness	• Participation • Build capacity in research
10	Kimanya-Kyabakuza	• Enforce laws and regulations	• Intervention & enforcement of laws	• Nature Uganda	• By laws developed on wetland use	• Disseminate information
11	Mukungwe sub-county	• Community mobilization • Enforcement • Operationalization of environment committees	• Contamination • Encroachment • Proper planning and sensitization	• Ramsar sites activities • Fish farming • Eco-tourism	• Action plans	• Knowledge acquired from NAADS
12	Department of Environment	• Enforcement of laws • Restoration • Preparation of action plans	• Encroachment • Pollution	• Environment pedagogic centre is under construction	• Masaka municipal council by laws 2009	• Dissemination of information on wetlands
13	Agricultural extension	• Sensitization • Ordinance • Law enforcement	• Draining • Erosion • Resource conflicts • Bush fires	• Tree planting • Sustainable agriculture practices	• Wetland action plan • Three year development plan	• Mobilization support
14	Masaka Local Government	• Extension services • Ordinances and bylaws	• Regulate hunting • Bush fires • Agricultural activities	• Water shed management • Tree planting • Analysis on household levels	• Action plans • Three year development plan	• Ownership
15	Concerned women farmers organization	• Sensitization • Awareness	• New immigrants	• Lake Victoria catchment education	• Strategic plans with nature Uganda	• Information on sustainable utilization
16	Masaka local Govt	• Awareness • Sensitization • By-laws	• Encroachment • Poor water quality • Land use planning • Awareness • Restoration measure	• Ramsar sites • Eco-tourism Promotion • Fish farming	• Nabajjuzi wetland management plan • Action plan at s/c levels	• Management of uplands areas through NAADS

6. Overview of interrelationships (formal and informal platforms and networks, power relations, existing and/or potential conflicts of interests) between key actors/stakeholders (Nabajjuzi)

For a few stakeholders, there exist formal and informal platforms that can be useful for WETwin project. A number of conflicts are related to resource use, and access to and ownership of resources. A summary of these interrelations are provided in tables 9 and 10 below.

Table A2-5: Interrelationships and conflicts among stakeholders of Nabajjuzi wetland

No	Stakeholder	existing formal/informal platforms	Existing conflicts
1	Nature Uganda	• Community Based Organization • Clubs in model schools	• None
2	Bee keepers	• None	• None
3	Nabajjuzi water users	• Nursery operators association	• Land use

No	Stakeholder	existing formal/informal platforms	Existing conflicts
		• Motor cycle washers association	
4	Bakasimbi development group	• Poster • Films • Religious organization	• Bush burners • Sand miners and cabbage growers
5	Ssenya Fish farmers	• Fish farmers association	• Unresearched directives by field staff.
6	Bisanje farmers group	• Nature Uganda	• eviction
7	Katwe/Butego division	• Tree farmers along the wetlands • Papyrus harvesters • Churches and mosques	• Ownership
8	Concerned women farmers organization	• Nature Uganda • Worldwide fund • Religious leaders	• Ownership • Pollutants
9	Department of Environment	• Lake Victoria region local authorities cooperation	• Factories releasing effluents into wetlands • Brick makers • Illegal construction
10	Agricultural extension	• Extension system • Civic system • Religious networks • Education system	• Wetland reserve • Land use
11	Community development department	• Nature Uganda • Lake Victoria regional local authority cooperation	• Factories • Disposal of sewage • Silting from farming • Building in wetlands
12	Masaka Local Government	• District executive committee • Technical planning committee • Sectoral committee on natural resources	• Irrigation systems • Fish farming.
13	New Kumbu housing estate	• None	• Brick making and car washing activities

Results of stakeholder analysis process in Namatala-Doko wetland

3. List of all stakeholders with their interest/stake in Namatala wetland

Stakeholders in Doko-Namatala wetland site include the following:

- Forest Department
- Sand and clay miners (clay for smearing/plastering houses, pottery, sand for building)
- Crop farmers (rice, maize, sugarcane, yams, sweet potatoes cabbages, tomatoes, cotton, cassava and bananas)
- Wetland resource raw material harvesters (papyrus for roofing, mat and craft making, building materials – poles for building and fencing, palm leaf harvesters)
- Grass harvesters (for mulching, brewing, crafts and thatching)
- Fisher folk
- Livestock keepers
- Fish farmers
- Bee keepers
- Woodlot owners
- Water users (domestic, livestock, transport and irrigation)
- Wild fruit collectors
- Charcoal burners
- Herbalists
- Hunters

- Firewood collectors
- Extension staff
- Opinion leaders[elders, prominent people] and religious leaders
- Schools
- Local Council leaders from Local Council I - V
- District and Sub-county Technical officials related to wetland management
- Doho Rice scheme
- Donors
- NGOs, CBOs
- Central Government
- National Water and Sewerage Corporation (has sewerage ponds)

Table A2-6: Summary of stakeholder categories, interests and impacts on Doko–Namatala wetland System

Stakeholder	Stakeholder category	Interest	Positive impact	Negative impact
1. Forest Department	Secondary	• Conservation • Tree products	• Conservation of biodiversity • Contribution to livelihood	• Encouraging wrong tree species
2. Sand and clay miners	Primary	• Sand and clay • Raw material products for construction	• Income	• Leaving behind open pits
3. Farmers	Primary	• Land • Water • Pasture • Fish	• Income • Food security	• Degradation • Pollution • Loss of some species • Conversion of entire ecosystems
4. Beekeepers	Primary	• Honey	• Income • Pollination • Conservation	• None
5. Wetland resource harvesters	Primary	• Wetland resources (papyrus, palm leaves, grass, herbs, wild animals, fish, trees, timber, herbs, fuel wood)	• Income • Food security • Medicine	• Over harvesting • Degradation • Depletion of biodiversity • Reduction of some species
6. Water users	Primary	• Water	• Conservation	• Pollution
7. Hunters	Primary	• Wild meat	• income	• Overhunting and depletion of some species • Loss of biodiversity due to burning • Loss of some raw materials e.g. grass due to burning
8. Schools	Primary and secondary	• Dissemination of information • Building skills • Raw materials for craft and other products	• Knowledge and attitude enhancement	• Providing wrong information leading to degradation of resources and promotion of wrong practices

Stakeholder	Stakeholder category	Interest	Positive impact	Negative impact
		• Teaching materials		
9. Extension staff	Secondary	• Productivity • Sustainable utilisation of resources	• Food security • Income	• Providing wrong information leading to degradation of resources and promotion of wrong practices
10.Opinion and Religious leaders	Secondary Tertiary	• Heritage • Culture • Sustainable use • Welfare	• Conservation	• Promoting strict protection
11.Doho Rice scheme	Primary	• Rice	• Income and livelihood enhance	• Monoculture and loss of biodiversity • Depletion of species
12.LC executives	Secondary	• Revenue collection • Livelihood enhancement • Sustainable management • Votes from communities	• Conservation	• Promoting degradation in order to protect their votes
13.Donors	Tertiary	• Sustainability • Prestige	• Funds • Protection	• Overprotection
14.NGOs/CBOs	Primary Secondary	• Production • Prestige • Employment • Conservation	• Income • Food security • Technical backstopping and service delivery	• Encouraging protectionism • Provision of wrong information/promotion of wrong practices leading to abuse and degradation
15.Central government including the Wetlands Management Department	Secondary	• Conservation • Policy guidance • Technical backstopping of conservation activities	• Development and contribution to poverty reduction through promotion of best practices	• Weak enforcement • Poor information dissemination and follow-up
16.Politicians	Secondary	• Votes from wetland users • Improve livelihood	• Development	• Supporting abuse and degradation, for votes
17.District technical staff	Secondary	• Employment • Production • Conservation • Policy guidance	• Food security • Income • Revenue	• Weak enforcement • Poor information dissemination and follow-up
18.Nature Uganda	Primary Secondary	• Birds • Conservation	• Conservation of an Important Bird Area	• Focus of conservation efforts, that is protection for only birds
19.National Water and Sewerage Corporation	Primary Secondary	• Water • Employment • Income	• Conservation • Waste water treatment	• Pollution from leakages • Limiting access by other users

4. **Influence/importance matrix of all stakeholders and identified key stakeholders (Namatala) (important, influential or both)**

Table A2-7: Identified key stakeholders of Namatala wetland

#	Stakeholder group	Level of influence	Level of Importance
	Community level		
1	Rice farmers	High	High
2	Sand and clay miners	Low	Moderate
3	Other Crop farmers	Moderate	High
4	Papyrus harvesters	Moderate	High
5	Fish farmers	Low	Low
6	Alcohol distillers	Moderate	High
7	ADRA housing project	Low	Moderate
8	National Water and Sewerage Corporation-Mbale Area	High	High
	Municipal/Subcounty level		
9	Community based services department	????	????
10	Environment focal person-Bungokho	Medium	????
11	Environment focal person-Nakaloke	High	????
12	Environment focal person- Wanale	Medium	????
	District level		
13	Community based services department-Mbale district	????	????
14	Environment department-Mbale district	High	High
15	Agriculture department	Moderate	Moderate
16	Water department	Low	Moderate
	National level		
17	Wetlands management department	High	High
18	National Environment Management Authority	High	High
19	Directorate of Water Resources Management	Moderate	High
20	Nile Basin Initiative	High	High
21	National Agricultural Research Organization	Low	Low
22	National Water and Sewerage Corporation	High	High

5. **Analysis matrix of key stakeholders (Namatala) with their characteristics, interests in WETwin, possible contributions they can make, challenges that need to be addressed and actions required to engage key stakeholders**

Table A2-8: Characteristics, expectations, interests, contributions and challenges of key stakeholders of Namatala wetland

#	Stakeholder group	Nature of organization /group	Expectations	Interests	Contributions to project	Challenges	Required actions
1	Rice farmers	Community based group with over 500 rice farmers	Redirect water away from farmers fields	Food production	Information & human resource	• Too much water in the gardens, • convincing other farmers to support the project	Sensitize members

#	Stakeholder group	Nature of organization /group	Expectations	Interests	Contributions to project	Challenges	Required actions
2	Kibiniko crop farmers	Local association of farmers at wetland scale	Redirecting R. Namatala to its original direction	Food production	Sensitization of other community members	• Activities that may hinder crop growing	Visiting, sensitizing, surveying ,monitoring & meeting
3	Alcohol distillers	Local association of both women and Men operating along R.Namatala	Increased Incomes	Discharge of wastes into streams	Data & Information	• Interferenc e from other activities	Capacity building
4	ADRA Housing project	Charity project among Mbale communities	Improved livelihoods	Land for houses	Mobilization of communities	• Lack of cooperation platforms	Winning the community confidence
5	NWSC – Mbale area		Reduced pollutants entering the water body	Wastewate r discharge	Data collection, laboratory facilities, personnel	• High sewer connection costs • Old sewerage network • Mixing of storm water & sewage	Formal communicati on from head office for secondment of the project activities
6	Bungokho sub-county Environment Committee	Lower local Government	Implementatio n of Namatala wetland management plan	Wetland conservati on	Data & information, Personnel	• Negative political will • Negative attitude • Limited land	Awareness ,Information collection &involvement of local leaders
7	Nakaloke Subcounty-Environment Committee	Lower local Government	Involvement of communities in wetland management	Wetland conservati on	Personnel expertise, net working.	• Inadequat e facilitation of personnel	Community mobilization, ,sensitization , data collection & facilitation
8	Wanale Sub-county Environment Committee	Lower local Government	Good management of wetlands	Wetland conservati on	Data & information Personnel Human resource	• Displacem ent of peoples	Staff training & sensitization s, Facilitation
9	District Community Development Department	Local government department responsible for community services	Involvement of communities in wetland management	Food security & income generation among communiti es	Information & Human resource	• Negative altitudes especially on land ownership	Training & mobilization in data collection
10	Mbale district Environment	Local government	Improvement of the wetland	Wetland conservati	Data & information,	• Limited political will	Awareness ,Information

#	Stakeholder group	Nature of organization /group	Expectations	Interests	Contributions to project	Challenges	Required actions
	department	department responsible for Environment affairs	management plan in place	on	Expertise	• Negative attitude	collection &involvement of local leaders

Table A2-9: Roles, concerns and expected contribution from stakeholders of Namatala wetland

#	Stakeholder category	Roles of organization/group	Concerns	Research studies	Available data, Models/tools	Other contribution
1	Rice growers	Compliance to the wetland use policies	• Flooding of the area	None	None	Information and data compilation
2	Kibiniko crop farmers	Use of wetland for food production	• Diverting Current Namatala flow	None	None	
3	Alcohol distillers	Prevention of rivers from pollution with alcohol wastes	• Management of other wastes	None	None	None
4	ADRA Housing project		•		None	
5	NWSC-Mbale Area	Sewage treatment to prevent pollution	• Low sewerage coverage • Poor final effluent-Tertiary treatment of sewage	None	None	Technical knowledge input
6	Bungokho sub-county-Environment Committee	Awareness ,Information dissemination	• Loss of biodiversity, Flooding, Pollution, water depth	None	Wetland action planning	None
7	Nakaloke Subcounty-Environment ommittee	Compliance monitoring, awareness	• Loss of wetland area	None		Provision of available data
8	Wanale subcounty-Environment Committee	Community sensitization & awareness Compliance monitoring	• Land conflicts among wetland users. Floods, water& sanitation diseases	None	Baseline on social status of Namatala wetland by MWE	Collaboration, participation &networking
9	Community development department	Community mobilization	• Land conflicts among wetland users		Baseline survey on socio-Economic status by MWE	Collaboration, participation & networking
10	Mbale district environment department	Enforcement of policies & laws	• Loss of biodiversity, Flooding, Pollution ,		Wetland action planning	None

7. **Overview of interrelationships (formal and informal platforms and networks, power relations, existing and/or potential conflicts of interests) between key actors/stakeholders (Namatala)**

Information not available.

Stakeholder engagement strategies for Nabajjuzi and Namatala wetlands

8. **Stakeholder engagement strategy indicating the different stages of the WETwin process and thereafter, the stakeholders to engage in each stage, in which category they should be placed, the (most functional) way of engagement and the required actions to engage each stakeholder meaningfully in that stage.**

Table A2-10: Preliminary engagement plan and required actions for stakeholders of Nabajjuzi and Namatala wetlands

Stakeholder organization/group	Stage of involvement	Extent of involvement	Required Actions
Nature Uganda	• Wetland characterization, Identification of best compromise solutions, setting quantitative targets for the wetland, • Quantification of ecosystem services, post project wetland management	• Data collection and provision ,sensitization of communities, provision of personnel, awareness, information dissemination • Consultation	• Capacity building, • request for data and personnel, • communication, facilitation
Farmers-Masaka & Mbale	• Wetland characterization	• Provision of information	• Capacity building, communication
Nabajjuzi water users group	• Wetland characterization, • identification of best compromise solutions and post project wetland management	• Provision of data on water use, field data collection, awareness to other resource users	• Capacity building of resource harvesters
Subcounty Environment Committees-Masaka & Mbale	• Post project wetland management	• Information sharing & dissemination	• Develop &strengthen platforms
Community based services departments-Masaka & Mbale	• Wetland characterization	• Provision of information • Dissemination of results	• Capacity building
District Environment Departments-Masaka & Mbale	• Wetland characterization, Identification of best compromise solutions, setting quantitative targets for the wetland, • Quantification of ecosystem services, post project wetland management	• Provision of existing data, communication, sensitization and networking • Consultation	• Capacity building, facilitation, formal communication
Agricultural Departments-Masaka & Mbale	• Wetland characterization	• Provision of existing data	• Formal communications
Water Departments-Masaka & Mbale	• Wetland characterization • Assessment of the wetland status	• Provision of existing data • Consultations	• Formal communications
Wetlands Management	• All stages of the project	• Data collection, analysis & dissemination	• Cooperation agreements

Stakeholder organization/group	Stage of involvement	Extent of involvement	Required Actions
department		• Decision Making • Implementation of outcomes	
National Water & Sewerage Corporation	• All stages of the project	• Data collection & analysis • Participate in implementation	•
National Environment Management Authority	• Trade-off analysis of ecosystem services • Identification of best compromise solutions	• Provision of existing data • Data analysis • Implementation of outcomes	• Memorandum of understanding
Directorate of Water Resources Management	• Data collection & Management • Trade-off analysis of ecosystem services • Identification of best compromise solutions	• Data analysis • Decision making	• Cooperation platform • Establishment of a working group
Nile Basin Initiative	• Data collection & Management • Trade-off analysis of ecosystem services • Identification of best compromise solutions	• Consultation • Information flow	• Cooperation platform • Establishment of working groups
National Agricultural Research Organization	• Wetland characterization	• Data collection, analysis & dissemination • Information sharing	• Establishment of a working group

9. <u>Stakeholder engagement plan</u>, including required actions, intended outputs, responsibilities and the timing, the foreseen workshops, and how the plan will be monitored

Table A2-11: WETwin Project Stakeholder Engagement Plan for the Ugandan sites (2009 – 2011)

WETwin Stage	Stakeholders[105]	Activities	Method	Timing	Responsible	Expected output
1. Wetland characterisation	• WMD • NWSC	• Delineation of the wetlands & their catchments	• GIS Mapping	January 2010	Susan Norah	Up dated wetland maps
	• WMD • Nature Uganda (NU) • Resource Users Farmers • Papyrus harvesters	• Assessment of the socio-economic status	• Survey questionnaire • Field data collection	January 2010	Lucy Susan	Wetland status report
	• NWSC • NU • Departments of -Community	• Ecosystem description; natural status, livelihoods, resource use	• Field surveys	January 2010	MUIENR, NWSC research team	Data on hydrology, nutrient, resource use

[105] ***Key:***

DWRM	Directorate of Water Resources
LVBC	Lake Victoria Basin Commission
LVEMP	Lake Victoria Environmental Management Programme
MUIENR	Makerere University Institute of Environment & Natural Resources (MUIENR) (Sub-contractor but not yet on board)
NARO	National Agriculture Research Organization
NBI	Nile Basin Initiative
NEMA	National Environment Management Authority
NU	Nature Uganda (NU) a Non Governmental Organization
NWSC	National Water and Sewerage Corporation
WMD	Wetlands Management Department (Sub – contractor)

WETwin Stage	Stakeholders[105]	Activities	Method	Timing	Responsible	Expected output
	services, -Agriculture, -Wetlands, -Environment, • Directorate of Water Resources Management (DWRM)					and livelihoods
2. Setting relative priorities for wetland	• Resource users • NU • WMD • NWSC	• Selection of ecosystem services	• Stakeholder Consultation meetings	October 2009 (Completed)	NWSC research team	List of ecosystem services for investigation and the Major trade offs
	• Resource users • NU • WMD • NWSC • DWRM	• Problem analysis for each ecosystem service (DPSI)	• Stakeholder Consultation meetings • Review of existing reports	October 2009 (Completed)	NWSC research team	DPSIR chains
	• WMD • NWSC	• Formulation of research questions for ecosystem services to be studied	• Stakeholder Consultation meetings	October 2009 (Completed)	NWSC research team	List of research questions
3. Quantification of ecosystem services	• National Agricultural Research Organization (NARO) • WMD • Nile Basin Initiative (NBI) • DWRM	• Identification of indicators	• Review of existing reports • Consultation of stakeholders	June 2010	NWSC research team	List of indicators
	• WMD • NBI • DWRM • Lake Victoria Basin Commission (LVBC) • Lake Victoria Environmental Management Project (LVEMP) Phase II	• Building of modelling framework	• • Literature review • Desk top analysis of available data	June 2010	NWSC research team	Conceptual Model
	• WMD • DWRM • National Environmental Management Authority (NEMA)	• Identification of technical, management and institutional measures	• Literature review • Consultation of stakeholders	June 2010	NWSC research team, WMD and MUIERN	Report
4. Setting quantitative targets for wetland	• WMD • NWSC • Environment Committees • Departments of	• Defining of threshold values for each indicator	• Stakeholder consultation	August 2010	NWSC research team	Set of defined indicators

WETwin Stage	Stakeholders[105]	Activities	Method	Timing	Responsible	Expected output
	Community services, Agriculture, Wetlands, Environment, Water • DWRM • NEMA					
5. Data collection and management	• WMD • NWSC	• Collection of existing /available data	• Consultation of relevant Institutions	Commenced October 2009	Norah, Susan	Report on available data
	• WMD • NWSC	• Data gap analysis	• Desk analysis	Commenced October 2009	Norah Susan Andrew	Gap analysis report
	• WMD • NWSC • NU • DWRM • Resource users	• Data collection on socio-economic status	• Field surveys	February 2010	Lucy	Report
	• WMD • NWSC • DWRM • Resource users	• Data collection on natural status of wetlands	• Field surveys and sampling	April 2010	Andrew, Susan	Report
	• NWSC • WMD • DWRM	• Data collection on nutrient dynamics and hydrology of wetland sites	• Field surveys and sampling	June 2010	Andrew , Susan	Report
	• WMD • NWSC	• Database design and management	• Desk design and recording	June 2010	Norah, NWSC research team	Updated Database
6. Drivers of change (vulnerability and management options)	• WMD • NWSC • Resource users • District Departments of Environment, Wetlands, Agriculture, and Community services	• Qualitative assessment of wetland drivers and pressures	• • Field data collection	April 2010	Norah, NWSC research team	Report
7.Trade-off analysis of ecosystem services	• Key stakeholders at all levels	• Analysis of collected data and evaluation of decision criteria	• Workshop	December 2010	NWSC research team, WMD and MUIENR	Report
8. Identification of best compromise solutions	• Key stakeholders at all levels	• Evaluation of model results from scenarios/management options	• Workshop	March 2011	NWSC research team, WMD and MUIENR	Evaluation report
	• Key stakeholders at all levels	• Selection of best compromise management solutions	• Workshop	March 2011	NWSC research team	Set of selected management solutions

WETwin Stage	Stakeholders[105]	Activities	Method	Timing	Responsible	Expected output
9. Post project sustainability plan	• Key stakeholders at all levels	• Dissemination of project results	• Workshop	November 2011	NWSC research team, WMD and MUIENR	Report
	• WMD • NWSC • NU • DWRM, • Environment Committees, • District Departments of Environment, wetlands, Water and Community services	• Development of an after life plan; activities and indicators	• Stakeholder consultation meetings	October 2011	WMD and NWSC	Sustainability Plan
	• WMD • NWSC • NU • District Departments of Environment, wetlands, Water & Community services	• Capacity building of stakeholders for implementation of the plan	• Training sessions	October 2011	Lucy and Case study leader	Report

Annex 3: Summary of Mali case study

River Basin: Inner Niger Delta (IND)
Wetland(s): Macina, Mopti and Youwarou wetlands

1. Context: geographic scope and key issues that will be addressed

Three sites have been choosing for implementing the project:
a) Macina site: made of Macina, Kolongo and Kokry rural districts,
b) Mopti site made of Mopti and Konna districts and
c) Youwarou site made of Youwarou and Deboye districts.

A. Macina site

Macina is an irrigated rice farming area, corresponding to the onset of the IND. It is classified as a high pollution agricultural area. For example, the "Office du Niger", that is managing the area has used in 1994, 5 939 t of urea and 4 055 t of phosphate on 47 000 ha of irrigated area. Also, Zinc sulfate has been used the same year for solving soils deficiency. Eutrophication phenomena are perceptible, e.g. invasion of aquatic weeds such as Water Jacinth and Salvinia. Water borne diseases in this area are cholera and diarrhea and vector borne diseases are malaria and schistomiasis. In the area the farming system is mainly linked to the management of the Markala dam which takes 3% and 16% of the Niger River discharge during high and weak flood seasons. The areas covered by the project on the Macina site are: Macina, Kolongo and Kokry rural districts. The climate is a Sahelian type with three seasons (dry, rainy and cold): dry and cold season, October-February, dry and hot season, March to June and a rainy season, July to September. The mean temperature is about 30˚C with a maximum of 42˚C in April-May and minimum of 18˚C December-January.

Macina rural district: Located between the Niger River and the IND, Macina rural district is limited east by Souleye and Diafarabe, west by the rural district of Kokry-Centre, north by the Moninpebougou rural district and South by the rural district of Saloba. The rural district has 29 585 inhabitants (DRPSIAP, 2007) of Bambara and Marka ethnic farmers, Bozo and Somono fishermen and Fulani and Diawando cattle breeders. The landscape of the rural districts is flat and is made of plains favorable to rice farming and livestock keeping. The district is mostly located in the Niger River valley and stretches along it on its east part. The landscape is marked by strong human and agriculture pressure. Wild fauna is scarce due to easy access by hunters during the dry season. Fish fauna is also decreasing and only intensification of fishing effort allow Bozo and Somono to stay in (fishing) business. Nowadays, most of them have become farmers, cattle breeders or are in business.

Kokry rural district: The area covers 80 km² with a total population of 12 058 inhabitants. This population is made of Bambara, Bozo, Minianka, Peul, Songhoi, Mossi and Dogon. It is bordered east and south by Macina district, west by Kolongo district and North by the rural districts of Bokywere and Macina. The district is widely irrigated by the Niger River and irrigation channels of "Office du Niger". It is located in savanna-Sahelian zone with a flat landscape. The vegetation is the typical savanna-Sahelian one. The economy of the district is based on farming, fishing and cattle breeding. The agricultural production is based on rice, garden vegetable and dry crops.

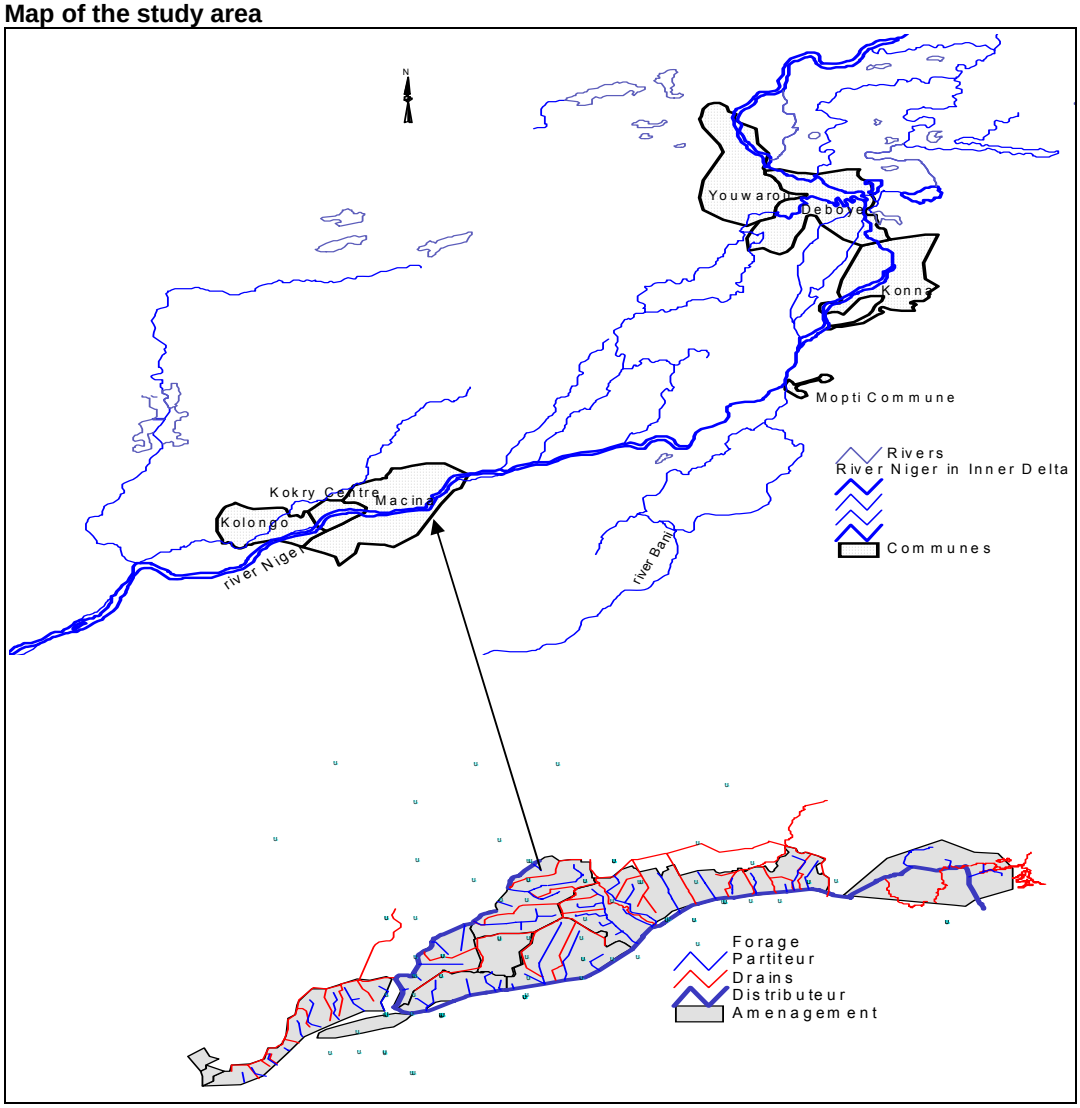
Kolongo rural district: It is limited north by Diebougou and Dioro districts, west by Sibila and Pogo, south and north-west by Siribala and Boky-Were districts and East by Kokry district. According to statistics (DRPS, 2007) the district has 28 984 inhabitants. "Office du Niger" through its Macina department strongly supports development of the district. The landscape is flat and made of floodable plains.. The vegetation is made of trees and thorny bushes.

B. Mopti site

Mopti urban: Since 1995 Mopti urban has grown and expanded to Sevare and Banguetaba and other neighboring villages. Mopti is both headquarters of Mopti region and Mopti Cercle. The district is located at the confluence of the Bani and Niger Rivers. It covers 125 km². Mopti is a township inhabited by Bozo, Peul, Bambara, Dogon, Mossi, Sarakolle, Songhoi, Tamasheq , Bobo, Samog and Minianka. Fulani dialect is the most spoken language followed by Bozo. The total population is estimated to about 100 000 inhabitants. The economy of the district is based on agriculture, fishing and livestock breeding.

Konna district: Konna rural district is located east by Dangol Bore district, north by Ouroube-Doude district, and west by Dialloube district and south by Borondougou district. It is located 55 km from Mopti and consists of 28 villages. The population is estimated to 29 857 inhabitants. Ethnics are Peul, Bozo, Rhimabes, Marka, Somono, Dogon, Sonrhai, and Bambara. The most spoken languages are Peul and Bozo. The main religions are Islam and Christian. The climate is the type savanna-Sahelian; difference between temperatures (day and night) is huge (20-45˚). It is characterized by early or late rains. The total rainfall varies between 250 to 450 mm and it is unequally distributed in time and space. Three seasons are encountered: a rainy season June-October favorable to dry crops, a dry and cold season, November to February, favorable to vegetable farming and a dry and hot season, March to June. There are two types of soils: sand-silt laden soils favorable to rainy season dry crops, animal feed crops and vegetables and silt-laden-clay soils favorable to rainy season dry crops, vegetables and Echinochloa stagnina (bourgou) fields. The vegetation is composed of trees and bushes: Acacia albida, Acacia seyal, Acacia nilotica, Acacia radiana, Cacia siyamina, Cacia siberiyana, Balanites eyptiaca, Zizuphus Mauritania, Combretum migratum, Guiera sengalensis, combretum glitinosum, Boracis flaberiphere, Baboab, Tamaraindus indica, Diospiros, Parkia biglobosa, Pourparcias Berea, etc. Wild animals to be found in the area are hyena, warthog and jackal. The flood area of the district is a wintering area for many migratory water birds. The district is divided into flooded and dry zones. The flooded area is located in the West part and is made of islands with clay soils. The district is crossed by the Niger River on 40 km on which one could sail all year long.

Map of the study area



C. Youwarou site
This area corresponds to the exit of the central lakes of the IND. It carries all water resources of irrigated rice fields, waste water and pollutants allocated upstream. Determination of water quality in this area should give enough information on the filtering capabilities of the Niger River 2500 km downstream its catchment. The project site of Youwarou is made of two districts:

Youwarou rural district: It covers 1 266 km² and it is located: north by Soumpi district, south by Lake Debo and Bimbere-Tama district, and east by Deboye and Dirma districts and west by Farimake district. According to the national census, 1998, the population of Youwarou district is about 17 229 inhabitants. This population is made of Peul, Bozo, Somonos, Markas, Bambara, Sonrhai, Bellas, Tamasheq, Bobos, and Dogons. Most of these populations are Muslim. The soils of the area are classified as tropical ferrous soils. However, one could find clay soils in the floodplains which are favorable to rice farming and off season sorghum cropping. The landscape is fairly broken with some sand dunes. The climate is Sahelian and is characterized by rain falling between June and December. The dominant winds are "harmattan". The rainfall is weak and varies between 350 to 400 mm/year. The district is crossed by the Niger River and its tributary the Diaka. In the rainy season, floodplains, ponds and tributaries form Lake Debo. The vegetation is made of trees and herbaceous and its composition is related to the landscape: (1) On slump areas species characterized by heavy soils: Acacia sp (Acacia nilotica, seyal, albida, etc.), Balanites sp and Borassus flabeliere; (2) On sand dunes Combretum glutinosom, Nitragyna inermis and Gawia flavescens; (3) On dry areas Diospiros mespiliformis and Borassus flabelifere. To these types of vegetation herbs are associated such as: Leptadonia pyrotechnica, Centhrus biflorus, Echinochloa colona, Panicum lavum, Echinochloa stagnina,etc. The fauna is composed of hyena, jackal, monkeys, and rabbits. It could be find some reptiles.

Deboye rural district : It is delineated north by Dirma, N'Dodijiga and Korombana rural districts, south by Dialloube and Konna districts, east by Sindegue and Konna districts and west by Youwarou and Bimbere-Tama districts. It covers 1 012 km² and counts 24 villages and one tribe. The total population is about 11 603 inhabitants. The main ethnics are Bozo, Somonos, Peul, Sonrhai with 6 344 men against 5 259 women. The district is characterized by seasonal migration of cattle breeders and fishers. The main transportation is boat (July to February) and other means March to June. The territory of the district is made of floodable plains. Inside this landscape could be seen Gourao and Soroba mountains. Different types of soils could be encountered and main are: silt- laded –clay soils of flooded plains, sand dune soils and soils of dried plains. The vegetation is composed by trees and herbaceous according of the landscape: (1) in low floodable areas could be encountered Acacias, Balanites aegytiaca and Borassus flaberifere and (2) dried areas are inhabited by Diospiros mespiliformis. This vegetation is associated with herbs as Leptadonia, Centhrus biflorus, Echinochloa Stagnina, Echinochloa colona, Panicum lactum and Panicum anabaptestum. The main economic activities are livestock breeding, fishing, and farming. The population also practices vegetable farming, handcraft, chicken raising and small businesses.

2. Process followed for the stakeholder analysis and developing an engagement strategy

The implementation of the WETwin project in Mali is led by Wetlands International, Mali Office. The lifetime of the project is three years. For achieving the project objectives and synergy of action, Wetlands International/Mali has developed a partnership with several Malian institutions in order to maximize its impacts on beneficiary communities.

In that frame, Wetlands International/Mali has organized seven workshops: one in Bamako and two on each of the project sites (Macina, Mopti and Youwarou). These workshops were meant to inform stakeholders about the project, data collection and analysis of stakeholders on each of the site and their engagement in the different steps of the project. In the long term that will allow ownership of project results by beneficiary populations, but also to assess climate change impacts on functions and services of the basin, water quality and water borne and vector borne diseases.

***Bamako workshop**:* should be considered as the project launching, with as objectives planning the project implementation, determine key national partner institutions and define their tasks. After presentation of the project (WETwin) in general and the Mali project in particular, discussions followed and the workshop has taken three main decisions:

a) Delineation of project intervention area: three sites have been choosen for implementing the project: a) Macina site, b) Mopti and c) Youwarou site.

*b) Definition of responsibilities of involved partners: r*eview of project objectives has allowed planning activities for each partner involved in the project implementation. Table A3-1 below describes activities per partner.

Table A3-1 : Planning of activities for involved partners

Objectives/Activities	**Responsible**
1. Characterize the three selected sites: population, rainfall, hydrology, geomorphology, users, management of water resources and different uses, pollution status, ecological functions of wetlands based on existing and new information	DNH, WI and University of Bamako
2.Characterize regulation functions of water quality of three sites in term of their purification capabilities (nutriments, oxygen, BOD/COD, TSS, COT, heavy metal, microbiology and pathogen agent) based on existing and new information	National Water Quality Laboratory
3. Characterize the three sites: appearance of water borne diseases (diarrhea, cholera, malaria and schistomiasis) based on existing and new information	National Research Institute on Public Health
4. Conduct specific research in order to fill information gap in order to improve decision making system	University of Bamako
5. Develop a decision making system (model) by assessing impacts of different pollutant loads (water quality) on the ecological functions of wetlands of the three sites and livelihood of local communities	University of Bamako and National Hydrology Direction
6. Identify, characterize and test different scenarios of management of pollutants on water resources and wetlands which could reduce impact of water borne diseases and ensure maintaining wetlands ecosystems and their services	University of Bamako, National Hydrology Direction and National Research Institute on Public Health
7.Develop a communication strategy based on results of research –action in order to optimize equilibrium between management of water quality and functioning of wetlands and the other hand increase awareness stakeholders including local, regional and national decision makers	Wetlands International

*c) Definition of the PhD student dissertation subject and requirement for starting his research: "*modeling different scenarios related to wetlands in the IND" has been agreed as the dissertation subject of the student of University of Bamako.

Mopti, Youwarou and Macina workshops: Workshops in Mopti, Youwarou and Macina have been held informing stakeholders about the project and collect data about project sites and stakeholders (their importance, influence, characteristics, relations and interrelations). During these workshops stakeholders of the three sites have been identified, characterized and classified. The interrelations and types of conflicts most encountered have been indentified and their causes. The results of the following stakeholder analysis are a record of the analysis done together with stakeholders at the different sites.

Stakeholder engagement: Stakeholders to be engaged on water resources management have been identified and the different roles they could play in the management process of water resources and at which step. The key stakeholders could play important roles in the process of:

- Management of water resources on their sites;
- Analysis and collection of data, by providing a technical support, by getting information, giving advice, and participating to research mainly on best comprise solutions;
- Advocacy by working closely with weak stakeholders for building transparent process and by helping decision makers in the promotion of equity.
- Mediation between stakeholders of different interests.

On each site, key stakeholders have been engaged in relation of their competencies at different levels of the process

A. Results of stakeholder analysis Macina site

3. List of all stakeholders with their characteristics and interest/stake in WETwin or its outcomes (Macina)

Stakeholders of Macina or interest groups and their activities have been identified and grouped in table2.

Table A3-2: Stakeholders and their activities

Interest groups	Activities and/or interest center
Rice farmers	Rice farming: land clear, ploughing, irrigation. Pesticide treatment, organic and chemical fertilizer, pump of water for irrigation
Cattle breeders	Graze on bourgou fields, exploitation of trees leaves as animal feed, watering livestock and seasonal migration
Fishers	Fishing, put in place fishing techniques, protect some fishing areas, fish processing and packaging
Aquaculture	Fish farming
Vegetable growers	Vegetable farming
Trees growers	Put in place tree nurseries and planting
Aggregate operators (sand, gravels, etc.)	Exploitation of gravels and sand
Office du Niger	Repairing irrigation channels, management of the Markala dam and small irrigation scale
NGOs[106]	Restoration, awareness and support
Government institutions: Regional Directions of Hydrology, Fishery, Sanitation, Agriculture, Livestock and Forestry	Support and awareness
Decentralized institutions	Decentralized management of natural resources including water resources

Ranking of stakeholders has allowed classifying them in primary and secondary
Primary stakeholders are considered to be direct beneficiaries (livelihoods depend on water resources) or are those which are negatively affected worse management or scarcity of water resources of the River. Secondary stakeholders are groups of persons which are intermediate into the system. Table4 gives ranking of stakeholders of Macina.

Table A3-3: Ranking of stakeholders (Macina)

Primary stakeholders	Secondary stakeholders
Rice farmers, Cattle breeders, fishers, aquaculture, vegetable farming, boat transport, exploitation of aggregate, Office du Niger	Governmental institutions, Decentralized institutions, Aquaculture, Trees growers[107]

4. Influence/importance matrix of all stakeholders and identified key stakeholders (important, influential or both)

Table A3-4: Importance and influence of Macina stakeholders

	High influence	Weak influence
High importance	**Category A:** - Decentralized institutions (province and rural district councils of Macina, Kolongo and Kokry) - Office du Niger	**Category B:** - Socio-professional groups: rice farmers, fishermen, vegetable growers, cattle breeders and trees growers
Weak	**Category C:**	**Category D:**

[106] Not specified
[107] Should aquaculture and tree growers not be classified as primary stakeholders?
[108] Inter Vida is working in the field of water and sanitation

	High influence	Weak influence
importance	- Government technical institutions (local offices of hydrology, fishing, forestry, sanitation, health, animal husbandry) - NGO Inter Vida[108]	-Sand and gravel extractors -Boat owners for transporting people and goods.

The stakeholders have been ranked according to their importance and influence for management of water resources in their territories in category A, B, C or D. Stakeholders of categories A, B and C are considered as key stakeholders and they will be closely linked and regularly consulted for decision making.

It could be noticed from the above table that Office du Niger and decentralized institutions have high influence and importance. The rice farmers and fishers as direct beneficiaries are important in the system but they have little influential power. Government technical institutions and NGOs are not directly important but they can have influence. Transport boat owners and sand extractors have weak importance and influence. At Macina, decentralized institutions, Office du Niger, Government technical institutions, NGO Inter Vida, famers, herders and fishers are considered key stakeholders; as a result they should be closely associated to the project and regularly consulted in decision making.

5. Analysis matrix of key stakeholders (Macina) with the possible contributions they can make, challenges that need to be addressed and actions required to engage key stakeholders

The stakeholders have been characterized according to their degree of dependency of the Niger River water resources in terms of social, economy and culture, their efforts to safeguard and interests related to the River water. Also it has been defined impact of their activities, historical and cultural relationship, knowledge, and expertise for managing the water resources of the Niger River. Ownership of the lands and other resources has been investigated. Grading strong medium and weak have been utilized for characterizing relationship between stakeholders and water resources in relation with each criterion.

Table A3-5: Characterisation of Macina stakeholders

Stakeholders	Degree of economic dependence	Degree of social and cultural dependence	Efforts provide and interests for management of water resources	Impact of activities on water resources	Historical and cultural relationship with the River	Knowledge or expertise for managing water resources	Land and other resources ownership
Rice farmers	Strong	Strong	Strong	Strong	Medium	Medium	Weak
Cattle breeders	Strong	Weak	Weak	Strong	Strong	Weak	Weak
Fishers	Strong	Strong	Strong	Strong	Strong	Weak	Weak
Aquaculture	Strong	Medium	Medium	Medium	Strong	Medium	Weak
Vegetable growers	Medium	Medium	Medium	Strong	Weak	Medium	Weak
Trees growers	Medium	Strong	Medium	Strong	Medium	Weak	Weak
Aggregate operators (sand, gravels, etc.)	Strong	Medium	Medium	Strong	Strong	Weak	Weak
Transportation by boats	Strong	Medium	Medium	Medium	Medium	Weak	Weak
Niger Office	Strong	Medium	Strong	Strong	Medium	Strong	Strong
NGOs	Medium	Weak	Strong	Medium	Medium	Strong	Weak
Government institutions	Medium	Weak	Strong	Medium	Medium	Strong	Strong
Decentralized institutions	Medium	Weak	Strong	Medium	Medium	Strong	Strong

It appears from the above table that famers, fishers and herders are considered as primary stakeholders but have weak access to land and other natural resources of Macina zone. In contrary, stakeholders such as Office du Niger, decentralized institutions and Government institutions have very strong rights. This could be explained by the fact that Office du Niger is the main investor in the area and the manager of the Markala dam. The power of the decentralized institutions and Government mean they play an interface role between Office du Niger and famers, herders and fishers.

6. Overview of interrelationships (formal and informal platforms and networks, power relations, existing and/or potential conflicts of interests) between key actors/stakeholders (Macina)

There is a complementarily relationship between different stakeholders in this area. However, it could be registered conflicts between groups using the same resource which is becoming more and scarcer.
The type of conflicts in Macina area the following:
- Conflicts between cattle herders and farmers which happen often because of cattle ramblings, but also farmers have converted livestock zone into farms or farms are located near the drinking paths of livestock.
- Conflicts between fishers and fishers caused by fishing in fishing areas that belong to the community or to another tribe.
- It also happens that rambling livestock could destroy vegetable gardens which creates conflict.
- In some cases the same plot could be give to many beneficiaries by the Office du Niger which is also a source of conflict between famer and farmer.

Table A3-6: Conflict analysis (Macina)

Type of conflicts	Cause of conflicts	Potential solutions
Cattle herders/farmers	Livestock rambling, anarchic exploitation of pastures and drinking water	Elaboration and or implementation of local convention for managing natural resources
Fishers/fishers	Bad management of fisheries and use of prohibited fishing techniques[109], fishing in protected areas	Elaboration and/or implementation of local convention on fisheries
Cattle herders/vegetable garden owners	Livestock rambling in gardens located near the River	Apply legislation and law
Farmers/farmers	Bad management of farming plots	Respect of legislation and law

7. Stakeholder engagement strategy indicating the different stages of the WETwin process and thereafter, the stakeholders to engage in each stage, in which category they should be placed, the (most functional) way of engagement and the required actions to engage each stakeholder meaningfully in that stage.

At Macina, decentralized institutions, Office du Niger, government technical institutions, NGO, rice farmers, herders, and fishers have been considered as key stakeholders. Consequently, they have been associated to the process by getting their engagement to different steps related to their expertise. The latter could collection of data, analysis or providing information, advocacy, mediation, awareness or consultation.
The different strategies of partnership with key stakeholders have been compiled in table A3-7 below.

Table A3-7: Engagement matrix of Macina stakeholders

Steps	Key stakeholders	Categories (A, B or C)	Engagement	Missions
1.Characterization of wetlands	**Decentralized institutions**			
	Province councils	A	Consultation	Support/advice, mobilization and elaboration of Local socio-economic and cultural development plan (LSECDP)
	Rural districts of Kolongo and Kokry	A	Consultation	Support, mobilization and elaboration of Local socio-economic and cultural

[109] Digging fishing channels, using explosive materials, putting tree branches in the river bed, etc.

Steps	Key stakeholders	Categories (A, B or C)	Engagement	Missions
				development plan
	Office du Niger	A	Data supply	Hydro-agriculture planning, water resources management, Support/advice
	NGOS			
	Foundation Inter Vida	C	Data supply	Support decentralized institutions in sanitation fields
	Government technical institutions			
	Local office of hydrology	C	Data supply	Monitoring of hydrology channels
	Local fishery office	C	Data supply	Management and exploitation of fishery products
	Local forestry office	C	Data supply	Management, protection and exploitation of forestry and fauna resources
	Local sanitation office	C	Data supply	Management of wastes and control of pollution
	Local husbandry office	C	Data supply	Monitoring of husbandry industry and support to cattle breeders
	Local Veterinary office	C	Data supply	Monitoring of livestock health
	Local health office	C	Data supply	Training, ensure basic health care for the communities
	Socio-professional groups			
	Rice farmers	B	Information supply	Rice production and marketing
	Fishermen	B	Information supply	Fishing processing and marketing
	Herders	B	Information supply	Exploitation of pastures and livestock production
2.Determination of wetlands priorities	Decentralized institutions	A	Consultation	Support, mobilization and elaboration of LSECDP
	Government technical institutions	C	Data supply	Applying laws and regulations, support to decentralized institutions
	Socio-professional groups	B	Information supply	Production, exploitation of pastures and marketing
3.Quantification of ecosystems services	Decentralized institutions	A	Consultation, awareness	Support, mobilization and elaboration of LSECDP
	Government technical institutions	C	information and data providers,	Implementation of laws and regulation, Support to rural districts
4. Determine quantitative objectives of wetlands	Decentralized institutions	A	Consultation, awareness	Support and mobilization
	Office du Niger	A	Information and data providers	Hydro-agriculture planning, water resources management,

Steps	Key stakeholders	Categories (A, B or C)	Engagement	Missions
				Support/advice
	Government technical institutions	C	Information and data supply	Implementation of laws and regulations, support to decentralized institutions
	Socio-professional groups	B	information supply, awareness	Production, exploitation of pastures and marketing
5. Collect and manage data	**Office du Niger**	A	Data supply	Hydro-agriculture planning, water resources management, Support/advice
	NGO Foundation Inter vida	C	Data supply	Support decentralized institutions in sanitation fields
	Government technical institutions			
	Local hydrology office	C	Information and data supply	Monitoring and management of hydraulic channels
	Local forestry office	C	Information and data supply	Management, protection and exploitation of forestry and fauna resources
6. Strength of change	Office du Niger	A	Information and data providers, awareness	Hydro-agriculture planning, water resources management, Support/advice
	Decentralized institutions	A	Consultation, awareness	Support, mobilization and elaboration of LSECDP
	NGO Foundation Inter vida	C	information and data providers	Support decentralized institutions in sanitation fields
	Government technical institutions	C	information and data providers	Implementation of laws and regulations, support to decentralized institutions
Analysis of compromises (ecosystem services)	**Office du Niger**	A	Consultation, information and data providers, awareness	Hydro-agriculture planning, water resources management, Support/advice
	Decentralized institutions	A	Consultation, awareness	Support, mobilization and elaboration of LSECDP
	NGO Foundation Inter vida	C	information and data providers	Support decentralized institutions in sanitation fields
	Government technical institutions	C	information and data providers	Implementation of laws and regulations, support to decentralized institutions
8. Identification of best compromise solutions	**Office du Niger**	A	Consultation, awareness and active involvement.	Hydro-agriculture planning, water resources management, Support/advice
	Decentralized institutions	A	Awareness	Support, mobilization and elaboration of LSECDP
	NGO Foundation Inter Vida	C	information and data providers	Support decentralized institutions in sanitation fields

Steps	Key stakeholders	Categories (A, B or C)	Engagement	Missions
	Government technical institutions	C	information and data providers, awareness	Implementation of laws and regulations, support to decentralized institutions
9. Sustainability after the project	**Government technical institutions**	C	information and data providers, awareness	Implementation of laws and regulations, support to decentralized institutions
	Socio-professional groups	B	Consultation, awareness and active involvement.	Production, exploitation of pastures and marketing

It could be noticed in the table above of Macina, that all key stakeholders come in the process in relation to their expertise. If famers, herders and fishers are not associated to steps 1, 2, 4 and 9, but stakeholders such as decentralized institutions, Office du Niger, and government institutions participated in all steps.

B. Results of stakeholder analysis Mopti site

3. List of all stakeholders with their characteristics and interest/stake in WETwin or its outcomes (Mopti)

Identification of stakeholders: In Mopti stakeholders or groups of interests and their activities have been identified and listed in table7.

Table A3-8: Stakeholders (Mopti) and their activities

Stakeholders	Activities
Farmers	Rice farmers, vegetable gardening, trees planting, land clear, ploughing, irrigation, pesticide treatment, organic and chemical fertilizer, pump of water for irrigation
Cattle herders	Graze on bourgou fields, exploitation of trees leaves as animal feed, watering livestock and seasonal migration
Fishers	Active fishing, prohibit fishing techniques, protection of some fishing area, processing and packaging fish
Potters	Exploitation of clay, wood and straw
Dyers (women)	Dyeing textile with chemical products (polluting the river)
Domestic users	Domestic uses, dumping of all kind wastes in the River
River food wholesaler	Processing fish
Cars and motorcycle cleaners	Use of lot of water for cleaning car
Boat transport	Persons and goods transport
Aggregate operators	Sand and gravel business
Emptying sewage	Emptying sewage water into the River and other waste water
Population	Use and dispatching water

Stakeholders are classified in primary and secondary stakeholders. Primary stakeholders are considered to be direct beneficiaries (livelihoods depending on water resources) or those affected by bad management or scarcity of water resources of the River. Secondary stakeholders are groups or persons which are intermediate to the system. Table A3-9 gives the ranking of stakeholders of Mopti.

Table A3-9: Ranking of stakeholders (Mopti)

Primary stakeholders	Secondary stakeholders
Rice farmers, Cattle breeders, fishers, Dyers, Domestic users, boat transport, exploitation of aggregate, Car and motorcycle washes, Emptying sewage, Electricity company and population	Potters and River food wholesaler

4. Influence/importance matrix of all stakeholders and identified key stakeholders (Mopti) (important, influential or both)

At Mopti except for pottery and people who are in fish business which have not structured organizations, the stakeholders are classified as primary. The latter have been classified A, B, C and D in function of their influence and importance in water resources management in Mopti zone.
The result of this classification has been compiled in the following table:

Table A3-10: Importance and influence of Mopti stakeholders

	High influence	**Weak influence**
High importance	**Category A :** - Socio-professional groups (farmers, cattle breeders and fishermen) – "masters"[110] - Boat owners for transporting people and goods	**Category B :** Electricity company (EDM sa), Meteorology office, Regional Direction of Hydrology , Agriculture, Fishery, Sanitation, Mopti Rice Office (ORM), Niger River Agency (ABFN), Institute of Rural Economic (IER), Regional Agriculture chamber (CRA), Regional Health Direction et NGOs[111]
Weak importance	**Category C:** Decentralized institutions, Coordination of women socio-professional groups (CAFO[112])	**Category D:** Pottery, dyers, fishery businesses, general public

In Mopti farmers, herders, fishers and boat owners have a high influence and importance for water resources management. The decentralized institutions and socio-professional women groups have a high influence but low importance. The government technical and NGO have high importance but weak influence. However, all these stakeholders should be considered key and consequently closely associated to the project and should regularly consult in decision making. The stakeholders of category D, having no importance and influence should not be involved in the process.

5. Analysis matrix of key stakeholders (Mopti) with the possible contributions they can make, challenges that need to be addressed and actions required to engage key stakeholders

The stakeholders have been characterized according to their degree of dependency of the Niger River water resources in terms of social, economic and cultural dependence, their efforts to safeguard and interests related to the River water. Also the impact of their activities, historical and cultural relationship, knowledge, and expertise for managing the water resources of the Niger River have been assessed. Ownership of the lands and other resources has been investigated. Strong, medium and weak have been utilized for characterizing the relationship between stakeholders and water resources in relation to each criterion.

Table A3-11 : Characterization of Mopti stakeholders

Stakeholders	**Degree of economic dependence**	**Degree of social and cultural dependence**	**Efforts provide and interests for management of water resources**	**Impact of activities on water resources**	**Historical and cultural relationship with the River**	**Knowledge or expertise for managing water resources**	**Land and other resources ownership**
Rice farmers	Strong	Strong	Strong	Strong	Medium	Medium	Weak
Cattle breeders	Strong	Weak	Weak	Strong	Strong	Weak	Strong
Fishers	Strong	Strong	Strong	Strong	Strong	Medium	Strong
Potter	Medium	Weak	Weak	Weak	Weak	Weak	Weak
Dyer	Medium	Weak	Weak	Strong	Weak	Weak	Weak
Domestic users	Medium	Medium	Weak	Medium	Weak	Weak	Weak
River food wholesaler	Medium	Weak	Weak	Medium	Weak	Weak	Weak

[110] the "master" decides if a group can or cannot use the land or water so he is very influential
[111] Wetlands International, IUCN, PROTOS, FODESA, PASAM
[112] CAFO is very efficient in the mobilization of the women groups – should therefore be considered category A! More should be explained about what they are doing (in what areas)

Stakeholders	Degree of economic dependence	Degree of social and cultural dependence	Efforts provide and interests for management of water resources	Impact of activities on water resources	Historical and cultural relationship with the River	Knowledge or expertise for managing water resources	Land and other resources ownership
Cars and motorcycle cleaners	Medium	Weak	Medium	Medium	Weak	Weak	Weak
Boat transport	Strong	Medium	Medium	Medium	Weak	Weak	Strong
Aggregate operators	Strong	Weak	Medium	Strong	Medium	Weak	Weak
Emptying sewage	Weak	Weak	Medium	Strong	Weak	Weak	Weak
Electricity company	Strong		Medium	Strong		Strong	Medium
Population	Strong	Medium	Medium	Medium	Medium	Weak	Weak

Famers, herders and fishers are the main stakeholders of any water resources management project as a result of their economic dependence on water resources. However herders and fishers have a strong right on lands and other resources in the area because of traditional law (herder manager of bourgou pastures (Foulani) and fishers masters of water). Because Mopti is an urban district there are many stakeholders with different specializations.

6. Overview of interrelationships (formal and informal platforms and networks, power relations, existing and/or potential conflicts of interests) between key actors/stakeholders (Mopti)

There is a complementary relationship between different stakeholders in this area. However, there are conflicts between groups using the same resources that become scarcer.

The types of conflicts in Mopti area are the following:
- Conflicts between cattle herders and farmers, often because of cattle ramblings, but also because of farmers who have converted livestock zones into farms or farms located near the drinking area of livestock.
- Conflicts between fishers and fishers which are caused by fishing for himself in a fishing area which belongs to the community or to a tribe.
- In some cases the same plot could be given to many beneficiaries, which is a source of conflict between famers.

Table A3-11: Conflict analysis (Mopti[113])

Type of conflicts	Cause of conflicts	Potential solutions
Cattle herders/farmers	-None respect exploitation calendar , Reduction of pastures areas, weakness of the representative of the Government	- Sharing ideas, Elaboration and implementation of local conventions, implementation of laws and regulation, information, education and communication
Fishers/fishers	None conventional protection, prohibit fishing, hidden fishing	Involvement of State technical institutions[114], creation of protection committees, elaboration of management plan and information, education and communication

[113] The type of conflicts seems more rural than urban: this is because Mopti exists out of an urban and a rural zone (Konna)
[114] Not specified

Farmers/farmers	None respect of traditional regulations, convention, judiciary decisions and weakness of State representatives	Sharing point of views, information, education and communication, apply laws and regulations, Respect of judiciary decisions, information, education and communication

7. Stakeholder engagement strategy (Mopti) indicating the different stages of the WETwin process and thereafter, the stakeholders to engage in each stage, in which category they should be placed, the (most functional) way of engagement and the required actions to engage each stakeholder meaningfully in that stage.

At Mopti, farmers, herders, fishers and transport boat owners, decentralized institutions, socio-professional women groups, state technical institutions and NGO are considered key stakeholders. They have agreed to be engaged in the different steps to the process according their expertise and availability.

Table A3-12: Engagement matrix of Mopti stakeholders

Steps	Key stakeholders	Categories (A, B or C)	Engagement	Missions
1. Characterization of wetlands	Regional Direction of Hydrology	B	Information and data supply	Monitoring of hydro-agriculture devices
	Regional Direction of Fishery	B	Information and data supply	Planning, management and exploitation of fishery resources
	Regional Direction of Sanitation	B	Information and data supply	Management of waste and control of pollution and nuisance
	Regional Direction of Agriculture	B	Information and data supply	Support and monitor farmers
	Regional Direction of Livestock	B	Information and data supply	Support and monitor herders
	Regional Direction of Forestry	B	Information and data supply	Planning, protect and exploit forest and fauna resources
	Regional Agency of the Niger River	B	Information and data supply	Protection of the Niger River
	Rice Office Mopti	B	Information and data supply	Planning and managing rice growing zones, support and monitoring rice growers
	Farmers	A	Information providing	Farming and production of food
	Herders	A	Information providing	Cattle breeding and meat, milk and other products production
	Fishermen	A	Information providing	Fishing
	Regional House of Agriculture	B	Consultation, Information providing	Organization of farmers, herders and fishermen
	Decentralized Institutions	C	Consultation, Information providing	Identification, planning, and implementation and monitoring of development activities
2. Determination of wetlands priorities	Regional Direction of Hydrology	B	Information and data supply	Monitoring of hydro-agriculture devices
	Regional Direction of Fishery	B	Information and data supply	Planning, management and exploitation of fishery resources

Steps	Key stakeholders	Categories (A, B or C)	Engagement	Missions
	Regional Direction of Sanitation and Control of Pollution	B	Information and data supply	Management of waste and control of pollution and nuisance
	Regional Direction of Agriculture	B	Information and data supply	Support and monitor farmers
	Regional Direction of Livestock	B	Information and data supply	Support and monitor herders
	Direction Regional of forestry	B	Information and data supply	Planning, protect and exploit forest and fauna resources
	Regional Agency of Niger River	B	Information and data supply	Protection of the Niger River
	Rice Office Mopti	B	Information and data supply	Planning and managing rice growing zones, support and monitoring rice growers
	Farmers	A	Information providing	Farming and production of food
	Herders	A	Information providing	Cattle breeding and meat, milk and other products production
	Fishermen	A	Information providing	Fishing
	Regional House of Agriculture	B	Consultation, Information providing	Organization of farmers, herders and fishermen
	Decentralized institutions	C	Consultation, Information providing	Identification, planning, and implementation and monitoring of development activities
3.Quantification of ecosystems services	Regional Direction of Hydrology	B	Data supply	Monitor management of hydrological devices
	Regional Direction of Forestry	B	Data supply	Planning, Protection and exploitation of forestry and fauna resources
	Regional Agency of Niger river	B	Data supply	Protection of Niger River
	Regional Direction of Sanitation and Control of Pollution	B	Data supply	Management of waste and control of pollution and nuisances
	Regional Direction of Fishery	B	Data supply	Planning, management and exploitation of fishery resources
	Meteorology Office	B	Data supply	Weather forecast and analysis of climatic data
	Rural Economic Institute	B	Data supply	Applied research
4. Determine quantitative objectives of wetlands	Regional Direction of Hydrology	B	Information and data supply	Monitor management of hydrological devices
	Regional Direction of Forestry	B	Information and data supply	Planning, Protection and exploitation of forestry and fauna resources
	Regional Agency of Niger river	B	Information and data supply	Protection of Niger River
	Regional Direction	B	Information and	Management of waste

Steps	Key stakeholders	Categories (A, B or C)	Engagement	Missions
	of Sanitation and Control of Pollution		data supply	and control of pollution and nuisances
	Regional Direction of Fishery	B	Information and data supply	Planning, management and exploitation of fishery resources
	Rural Economic Institute	B	Information and data supply	Applied research
	Decentralized Institutions	B	Consultation and awareness.	Identification, planning, implementation and monitoring of development programs
5. Collect and manage data	Regional Direction of Hydrology	B	Information and data supply	Monitor management of hydrological devices
	Regional Direction of Fishery	B	Information and data supply	Planning, management and exploitation of fishery resources
	Regional Direction of Sanitation and Control of Pollution	B	Information and data supply	Management of waste and control of pollution and nuisances
	Regional Office of Agriculture	B	Information and data supply	Support and monitor farmers
	Regional Direction of Livestock	B	Information and data supply	Support and monitor herders
	Regional Direction of Forestry	B	Information and data supply	Planning, Protection and exploitation of forestry and fauna resources
	Regional Agency of Niger Basin	B	Information and data supply	Protection of Niger River
	Regional House of Agriculture	B	Information and data supply	Organization of farmers, herders and fishermen
	NGOs[115]	B	Information and data supply	Financial support and strengthen partner capacities
	Rural Economic Institute	B	Information and data supply	Applied research
6. Strength of change	Regional Direction of Hydrology	B	Information and data supply	Monitor management of hydrological devices
	Regional Direction of Fishery	B	Information and data supply	Planning, management and exploitation of fishery resources
	Regional Direction of Sanitation and Control of Pollution	B	Information and data supply	Management of waste and control of pollution and nuisances
	Regional Direction of Forestry	B	Information and data supply	Planning, Protection and exploitation of forestry and fauna resources
	Rural Economic Institute	B	Information and data supply	Applied research
	Regional House of Agriculture	B	Consultation, Information supply and awareness.	Organization of farmers, herders and fishermen
	Socio-professional groups of women	B	Consultation, Information supply	Organization of women groups

[115] Wetlands International, IUCN, PROTOS, FODESA, PASAM

Steps	Key stakeholders	Categories (A, B or C)	Engagement	Missions
	(CAFO)		and awareness.	
7. Analysis of compromises (ecosystem services)	Farmers	A	Information supply and awareness	Agriculture production
	Herders	A	Information supply and awareness	Livestock production
	Fishers	A	Information supply and awareness	Exploitation and fishing
	Regional Direction of Hydrology	B	Information and data supply	Monitor management of hydrological devices
	Regional Direction of fishery	B	Information and data supply	Planning, management and exploitation of fishery resources
	Regional Direction of Sanitation and Control of Pollution	B	Information and data supply	Management of waste and control of pollution and nuisances
	Regional Direction of Agriculture	B	Information and data supply	Support and monitor farmers
	Regional Direction of Livestock	B	Information and data supply	Support and monitor herders
	Regional Direction of forestry	B	Information and data supply	Planning, Protection and exploitation of forestry
	Regional Agency of Niger River	B	Information and data supply	Protection of Niger River
	Rice Office Mopti	B	Information and data supply	Planning and managing rice growing zones, support and monitoring rice growers
	Regional House of Agriculture	B	Consultation, Information providing and awareness	Organization of farmers, herders and fishermen
	Decentralized institutions	C	Consultation, Information providing and awareness	Identification, planning, implementation and monitoring of development programs
	Socio-professional groups of women	C	Consultation and awareness	Organization of women groups
	EDM-sa (electricity company)	B	Information and data supply	Provision of clean drinking water
	Rural Economic Institute	B	Information and data supply	Applied research
8. Identification of best compromise solutions	Farmers	A	Active involvement	Agriculture production
	Herders	A	Active involvement	Livestock production
	Fishers	A	Active involvement	Fish production
	Regional Direction of Hydrology	B	Information supply	Monitor management of hydrological devices
	Regional Direction of Fishery	B	Information supply	Planning, management and exploitation of fishery resources
	Regional Direction of Agriculture	B	Information supply	Support and monitor farmers
	Regional Direction of Livestock	B	Information supply	Support and monitor herders
	Regional Direction of Forestry	B	Information supply	Planning, Protection and exploitation of forestry

Steps	Key stakeholders	Categories (A, B or C)	Engagement	Missions
	Regional Agency of Niger River	B	Information supply	Protection of Niger River
	Rice Office Mopti	B	Information supply	Planning and managing rice growing zones, support and monitoring rice growers
	Regional House of Agriculture	B	Consultation and awareness	Organization of farmers, herders and fishermen
	Decentralized institutions	C	Consultation and awareness	Identification, planning, implementation and monitoring of development programs
	Socio-professional groups of women	C	Consultation and awareness	Organization of women groups
	EDM-sa	B	Information supply	Provision of clean drinking water
	Rural Economic Institute		Information supply	Applied research
	NGOs	B	Information supply	Financial support and strengthen partner capacities
9. Sustainability after the project	Farmers	A	Active involvement	Agriculture production
	Herders	A	Active involvement	Livestock production
	Fishers	A	Active involvement	Fishing
	Regional Direction of Hydrology	B	Information supply	Monitor management of hydrological devices
	Regional Direction of fishery	B	Information supply	Planning, management and exploitation of fishery resources
	Regional Direction of Sanitation and Control of Pollution	B	Information supply	Management of waste and control of pollution and nuisances
	Regional Direction of Agriculture	B	Information supply	Support and monitor farmers
	Regional Direction of Livestock	B	Information supply	Support and monitor herders
	Regional Direction of Forestry	B	Information supply	Planning, Protection and exploitation of forestry
	Regional Agency of Niger River	B	Information supply	Protection of Niger River
	Rice Office Mopti	B	Information supply	Planning and managing rice growing zones, support and monitoring rice growers
	Regional House of Agriculture	B	Consultation and awareness	Organization of farmers, herders and fishermen
	Decentralized institutions	C	Consultation and awareness	Identification, planning, implementation and monitoring of development programs
	Socio-professional groups of women (CAFO)	C	Consultation and awareness	Organization of women groups
	EDM-sa	B	Information supply	Provision of clean drinking water

Steps	Key stakeholders	Categories (A, B or C)	Engagement	Missions
	Rural Economic Institute	B	Information supply	Applied research
	NGOs	B	Information supply	Financial support and strengthen partner capacities

At Mopti, farmers, herders, fishers of category A as well as government technical institutions and NGOs of category B or decentralized institutions and socio-professional women groups of category C key stakeholders have decided to be engaged in the process. Farmers, herders, fishers have been associated to steps 1, 2, 7, 8 and 9 for providing information, awareness while government technical institutions and decentralized have been associated to all steps either for data collection, awareness, advocacy, providing and diffusion of information or mediation.

C. Results of stakeholder analysis Youwarou site

3. List of all stakeholders with their characteristics and interest/stake in WETwin or its outcomes (Youwarou)

Identification of stakeholders: In Youwarou stakeholders or groups of interests and their activities have been identified and listed in table A3-13

Table A3-13: Stakeholders and their activities (Youwarou)

Stakeholders	Activities
Fishers	Fishing
Cattle herders	Cattle breeding and Bourgou restoration
Famers	Rice farming, vegetable farming and trees planting
Boat transport	Transport of goods and persons
Business (fisheries)	Fish marketing
Aggregate operators	Sand and gravel marketing
Bricks makers	Brick fabric
Aquaculture	Fish farming
Domestic uses	All domestic uses
Consumers of River water and resources	Fish, nymphea, bourgou seeds
Decentralized and Government institutions	Decentralized management of natural resources, awareness and support
NGOs, projects and programs[116]	Support for managing natural resources

Ranking of stakeholders has allowed classifying them in primary and secondary. Primary stakeholders are considered to be direct beneficiaries (livelihoods depend on water resources) or are those which are negatively affected worse management or scarcity of water resources of the River. Secondary stakeholders are groups of persons which are intermediate into the system. Table A3-14 gives the ranking of stakeholders of Mopti

Table A3-14: Ranking of stakeholders (Youwarou)

Primary stakeholders	Secondary stakeholders
Fisher, cattle herders, farmers, boat transport, domestic uses, consumers, aquaculture	Sand and gravel operator, business persons, decentralized and Government institutions, NGOs and programs

[116] Wetlands International, IUCN, PROTOS, FODESA, PASAM, PACY

4. Influence/importance matrix of all stakeholders (Youwarou) and identified key stakeholders (important, influential or both)

At Youwarou, the different stakeholders have been ranked in categories A, B, C and D in relation to their influence and importance in water resource management. The table below gives the ranking of these stakeholders.

Table A3-15: Importance and influence of Youwarou stakeholders

	High influence	**Weak influence**
High importance	**Category A:** - Government technical institutions (local offices of hydrology, fishery, forestry, sanitation, livestock, health center, Niger Basin Agency, agriculture - Socio-professional groups: (fishermen, cattle breeders and farmers)	**Category B:** - Boat owners for transporting people and goods - Fish businesses - NGOs (IUCN, PROTOS, AFAR) - Projects/Programs (FODESA, PASAM, PACY)[117]
Weak importance	**Category C:** - Decentralized institutions (Councils of Youwarou and Deboye rural districts) - Local office of agriculture chamber	**Category D:** - Sand exploitation - Aquaculture - General public

At Youwarou, governmental institutions, farmers, herders and fishers have classified in category A. Decentralized institutions and local office of agriculture chamber are category C. Because of the poor livelihood of the local population, NGO and projects/programs have been classified in category B with high importance and weak influence.

5. Analysis matrix of key stakeholders (Youwarou) with the possible contributions they can make, challenges that need to be addressed and actions required to engage key stakeholders

The stakeholders have been characterized according to their degree of dependency of the Niger River water resources in terms of social, economy and culture, their efforts to safeguard and interests related to the River water. Also the impact of their activities has been defined, the historical and cultural relationship, knowledge, and expertise for managing the water resources of the Niger River. Ownership of the land and other resources has been investigated. Grading strong medium and weak have been utilized for characterizing the relationship between stakeholders and water resources in relation to each criteria.

Table A3-16: Characterization of Youwarou stakeholders

Stakeholders	**Degree of economic dependence**	**Degree of social and cultural dependence**	**Efforts provide and interests for management of water resources**	**Impact of activities on water resources**	**Historical and cultural relationship with the River**	**Knowledge or expertise for managing water resources**	**Land and other resources ownership**
Fishers	Strong	Strong	Strong	Strong	Strong	Medium	Strong
Cattle herders	Strong	Weak	Weak	Strong	Strong	Weak	Strong
Famers	Strong	Strong	Strong	Strong	Medium	Medium	Weak
Boat transport	Strong	Medium	Medium	Medium	Medium	Weak	Weak
Business	Strong	Weak	Medium	Weak	Weak	Weak	Weak
Aggregate operators	Strong	Weak	Medium	Strong	Strong	Weak	Weak
Bricks makers	Medium	Weak	Weak	Weak	Weak	Weak	Weak
Aquaculture	Strong	Medium	Medium	Medium	Medium	Medium	Weak

[117] It would be useful to identify which NGOs/projects are also present at the other sites: these could be important to engage at each site to increase impact

Stakeholders	Degree of economic dependence	Degree of social and cultural dependence	Efforts provide and interests for management of water resources	Impact of activities on water resources	Historical and cultural relationship with the River	Knowledge or expertise for managing water resources	Land and other resources ownership
Domestic uses	Medium	Medium	weak	Medium	Weak	Weak	Weak
Consumers of River water and resources	Strong	Medium	Medium	Medium	Medium	Medium	Weak
Decentralized and Government institutions	Medium	Weak	Strong	Medium	Medium	Strong	Strong
NGOS, projects and program	Medium	Weak	Strong	Medium	medium	Strong	Weak

Youwarou, farmers, herders and fishers could be considered as the main beneficiaries of water resources management. They is a strong economic dependence vis-à-vis of water resource. However, herders and fishers also have a strong right on lands and other natural resources according to the traditional laws. The fishers and herders are the inhabitants of the area.

6. Overview of interrelationships (formal and informal platforms and networks, power relations, existing and/or potential conflicts of interests) between key actors/stakeholders (Youwarou)

There is a complementary relationship between different stakeholders in this area. However, it could be register conflicts between groups using the same resource which is becoming more and scarcer. The type of conflicts in Youwarou area the following:

- Conflicts between cattle herders and farmers which happen often because of cattle ramblings, but also farmers have converted livestock zone into farms or farms are located near the drinking of path of livestock.
- Conflicts between fishers and fishers which cause by fishing for him a fishing area which belong to the community or to a tribe.
-Conflicts between fishers and boat transport are caused destruction of fishing nets by boat engines. The fishers cross the River with nets without leaving any bypass for boats.

Since 1862, Dioro, a Fulani tribe has been manager of bourgou fields; at that regard their herds must the first to enter the bourgou pastures. Disturbing this order causes each year big conflicts and sometimes many persons are killed.

Table A3-17: Conflicts analysis (Youwarou)

Type of conflicts	Cause of conflicts	Potential solutions
Cattle herders/farmers	None respect of exploitation calendar , Reduction of pastures areas, weakness of the representative of the Government	Elaboration and implementation of local convention for managing natural resources
Fishers/fishers	None conventional protection, prohibited fishing, hidden fishing	Elaboration of local convention for managing fisheries
Fishers/Boat transport	Fishing net crossing the bed of the River	Respect of laws and regulations
Cattle breeders/ cattle breeders	Violation of traditional rules for accessing bourgou pastures	Respect of traditional regulations

7. Stakeholder engagement strategy indicating the different stages of the WETwin process and thereafter, the stakeholders to engage in each stage, in which category they should be placed, the (most functional) way of engagement and the required actions to engage each stakeholder meaningfully in that stage (Youwarou).

At Youwarou, state technical institutions, famers, herders, fishers, decentralized institutions, local House of Agriculture, NGO and projects/programs are identified as key stakeholders. They have been associated to the different steps of the process of water resources in relation of their expertise. The different engagement strategies of Youwarou stakeholders have been compiled in table A3-18 below.

Table A3-18: Engagement matrix of Youwarou stakeholders

Steps	Key stakeholders	Categories (A, B or C)	Engagement	Missions
1. Characterization of wetlands	**Government Technical Institutions**			
	Local Office of Hydrology	A	Information and data supply.	Monitor management of hydrological devices
	Local Office of Forestry	A	Information and data supply	Planning, Protection and exploitation of forestry
	Local Office of Sanitation, control of waste and nuisance	A	Information and data supply	Management of waste and control of pollution and nuisances
	Socio-professional groups			
	Farmers	A	Information supply	Agriculture production and marketing
	Fisher	A	Information supply	Fishing and marketing
	Herders	A	Information supply	Livestock production and pastures exploitation
	Decentralized Institutions			
	Province Councils	C	Consultation and information supply	Support/Advice and mobilization and elaboration of Local Socio-economic and cultural development plan (LSECDP)
	Rural districts of Youwarou and Deboye	C	Consultation and information supply	Support, mobilization and elaboration of LSECDP
	Local representative of agriculture house	C	Consultation and information supply	Organization of rural community
2.Determination of wetlands priorities	Government technical institutions	A	Information and data supply	Applying laws and regulations, Support to decentralized institutions
	Decentralized institutions	C	Consultation, awareness and information supply	Support/Advice and mobilization and elaboration of Local Socio-economic and cultural development plan (LSECDP)
	Socio-professional groups	C	Information supply	Production, marketing and

Steps	Key stakeholders	Categories (A, B or C)	Engagement	Missions
				pastures exploitation
	Local delegation Agriculture	C	Awareness and information supply	Organization of rural community
3.Quantification of ecosystems services	Government technical institutions	A	Information and data supply	Applying laws and regulations, Support to decentralized institutions
	NGOs/Programs	B	Data supply	Support of the communities, Strengthen their capacities
	Decentralized institutions	C	Consultation, awareness and information supply	Support/Advice and mobilization and elaboration of Local Socio-economic and cultural development plan (LSECDP)
4. Determine quantitative objectives of wetlands	Government technical institutions	A	Information and data supply	Applying laws and regulations, Support to decentralized institutions
	Socio-professional groups/Associations	C	Information supply	Support/Advice and mobilization and elaboration of Local Socio-economic and cultural development plan (LSECDP)
	Decentralized institutions		Consultation and awareness	
	Local delegation Agriculture	C	Awareness and information supply	Organization of rural community
5. Collect and manage data	Government technical institutions	A	Information and data supply	Applying laws and regulations, Support to decentralized institutions
	NGOs/Programs	B	Information and data supply	Support of the communities, Strengthen their capacities
	Decentralized institutions	C	Consultation and information supply	Support/Advice and mobilization and elaboration of Local Socio-economic and cultural development plan (LSECDP)
6. Strength of change	Government technical institutions	A	Information supply	Applying laws and regulations, Support to decentralized institutions
	NGOs/Programs	B	Information supply	Support of the communities, Strengthen their capacities
	Decentralized institutions	C	Consultation and awareness	Support/Advice and mobilization and

Steps	Key stakeholders	Categories (A, B or C)	Engagement	Missions
				elaboration of Local Socio-economic and cultural development plan (LSECDP)
7. Analysis of compromises (ecosystem services)	Government technical institutions	A	Information supply	Applying laws and regulations, Support to decentralized institutions
	NGOs/Programs	B	Information supply	Support of the communities, Strengthen their capacities
	Decentralized institutions	C	Consultation and awareness	Support/Advice and mobilization and elaboration of Local Socio-economic and cultural development plan (LSECDP)
8. Identification of best compromise solutions	Government technical institutions	A	Information supply	Applying laws and regulations, Support to decentralized institutions
	NGOs/Programs	B	Information supply	Support of the communities, Strengthen their capacities
	Decentralized institutions	C	Consultation, awareness and active involvement	Support/Advice and mobilization and elaboration of Local Socio-economic and cultural development plan (LSECDP)
9. Sustainability after the project	Government technical institutions	A	Information supply	Applying laws and regulations, Support to decentralized institutions
	Decentralized institutions	C	Consultation, awareness and active involvement	Support/Advice and mobilization and elaboration of Local Socio-economic and cultural development plan (LSECDP)

It could be reported of table A3-18, that all Youwarou stakeholders have decided to support the process. Famers, herders, fishers have not been associated to the steps 1 and 2, while they are stakeholders of high importance and influence[118]. Other stakeholders of high importance and influence such as state technical institutions have been associated to all steps as decentralized institutions. At Youwarou, NGO and projects/programs have been associated only to scientific steps. Also, here engagement of key stakeholders have been data collection, providing and analysis of information, awareness, consultation and mediation.

8. <u>Stakeholder engagement plan</u>, including required actions, intended outputs, responsibilities and the timing, the foreseen workshops, and how the plan will be monitored (all three sites)

[118] *Then why are they not associated? Or at least the "masters"?*

Table A3-19: Stakeholder engagement plan for all three sites (Macina, Mopti and Youwarou)

WETwin Stage	Activities	Timing	Responsible	Stakeholders	Intended outcomes
1. Wetlands Characterization (Macina, Mopti and Youwarou)	Literature review	May, June 2009	Staff WI	• WI, Rural and urban districts	• Report
	Stakeholder analysis Workshop	June-Jully 2009	Idrissa and abdoussalam	• Regional Direction of Hydrology, • Regional Direction of Fishery, • Regional Direction of Sanitation, • Regional Direction of Agriculture, • Regional Direction of Livestock, • Regional Direction of Forestry, • Regional Agency of the Niger River, • Rice office Mopti, • Farmers, Herders, Fishers, • Regional house of agriculture, • Office du Niger, • Rural and urban districts.	• Report
2. Setting relative priorities for wetlands	Workshop for setting priorities	Mars – April 2010	Mori Diallo	• Regional Direction of Hydrology, • Regional Direction of Fishery, • Regional Direction of Sanitation, • Regional Direction of Agriculture, • Regional Direction of Livestock, • Regional Direction of Forestry, • Regional Agency of the Niger River, • Rice office Mopti, • Farmers, Herders, Fishers, • Regional house of agriculture, • Office du Niger, • rural and urban districts.	• Report
3. Quantification of Ecosystem services	Literature review,	August 2009	Bakary Kone	• Regional Direction of Hydrology, • Regional Direction of Fishery, • Regional Direction of Sanitation, • Regional Direction of Agriculture, • Regional Direction of Livestock, • Regional Direction of Forestry, • Regional Agency of the Niger River, • Rice office Mopti, • Farmers, Herders, Fishers, • Meteorology office, • Rural economic institute, • Office du Niger	• Report
4. Setting quantitative targets for wetland	Workshop	Mars – April 2010	Mori Diallo	• Regional Direction of Hydrology, • Regional Direction of Fishery, • Regional Direction of Sanitation, • Regional Direction of Agriculture, • Regional Direction of Livestock, • Regional Direction of Forestry, • Regional Agency of the Niger River, • Rice office Mopti, • Farmrs, Herders, Fishers, • Regional house of agriculture, • Office du Niger, • rural and urban districts	• Report

WETwin Stage	Activities	Timing	Responsible	Stakeholders	Intended outcomes
5. Data collection and management	Consultancy	June to December 2009	Bakary Kone	• University of Bamako, • National Hydrology Direction and • National Research Institute on Public Health, • Wetlands International, • National Water Quality Laboratory	• Report
6. Drivers of change (vulnerability and management options)	Literature review,	August 2009	Bakary Kone	• Regional Direction of Hydrology, • Regional Direction of Fishery, • Regional Direction of Sanitation, • Regional Direction of Agriculture, • Regional Direction of Livestock, • Regional Direction of Forestry, • Regional Agency of the Niger River, • Rice office Mopti, • Farmrs, Herders, Fishers, • Meteorology office, • Rural economic institute, • Office du Niger	• Report
7. Trade-off analysis of ecosystem services	Literature review	August-September 2009	Bakary Kone	• Regional Direction of Hydrology, • Regional Direction of Fishery, • Regional Direction of Sanitation, • Regional Direction of Agriculture, • Regional Direction of Livestock, • Regional Direction of Forestry, • Regional Agency of the Niger River, • Rice office Mopti, • Farmers, Herders, Fishers, • Meteorology office, • Rural economic institute, • Office du Niger, • Rural and urban districts.	• Report
8. Identification of best compromise solutions	Modelling	June 2011	Staff WI	• University of Bamako, • National Hydrology Direction • National Research Institute on Public Health, • National Water Quality Laboratory, • Farmers, Herders, Fishers, • Rural and urban districts.	• Model
	Workshop	October 2011	Case study team Facilitator Modelling team.	• Regional Direction of Hydrology, • Regional Direction of Fishery, • Regional Direction of Sanitation, • Regional Direction of Agriculture, • Regional Direction of Livestock, • Regional Direction of Forestry, • Regional Agency of the Niger River, • Rice office Mopti, • Farmers, Herders, Fishers, • Meteorology office, • Rural economic institute, • Office du Niger, • Rural and urban districts. • University of Bamako, • National Hydrology Direction • National Research Institute on Public Health, • National Water Quality Laboratory	• Model use directives
	Final	November	Case study	• All stakeholders	Final report

WETwin Stage	Activities	Timing	Responsible	Stakeholders	Intended outcomes
	Dissemination workshop	2011	team Facilitator		

Annex 4: Summary of Ecuador case study

River Basin: Guayas River
Wetland(s): Abras de Mantequilla

1. Context: geographic scope and key issues that will be addressed

Scope:

Abras de Mantequilla is located at the central-western part of the province of Los Ríos. Its location is enclosed in the geographic coordinates 9815342 N – 638776 E and 9842621 N – 666610 E. This large wetland is formed by a natural and permanent system of swamps and lakes, influenced by the existence of small streams and seasonal winter lakes. This system discharges into a large lake with a dendritic pattern. It receives surface and underground flows in the highest flood season.

The wetland is an important water source for residents of surrounding areas, as well as a key driver of natural flooding. In the vicinity of the wetland there are remnants of lowland dry forest, including some forests that are flooded at the time of greatest rainfall. From a biotic point of view, there might be found characteristic species such as Ludwigia hidrofíticas Eichornia bow and crassipens; and remaining trees as Prosopis juliflora, and Mutingia Capparis angulata calabura. There could also be found paddy fields and agricultural areas.

The whole area is included in the national inventory of wetlands performed by ECOCIENCIA for the Ministry of the Environment and the RAMSAR Convention. Additionally, there are around 80 small villages surrounding the wetland. The population living in these small villages represents around 7816 inhabitants, from which the male group is 60 % and the female group is 40 % (National Census, 2001).

Some indicators about water access at wetland level are:

Table A4-1: Water access at wetland level[119]

Database Code	Description	Value
Access to drinking water	Households with eventual access to drinking water supply (% pop.)	44,27
Access to low quality water supply	Households with access to well/river branch/other water supply (% pop.)	55,72
Pays for water supply	Population paying for domestic water supply (%)	19,14
Permanent drinking water	Households with permanent access to drinking water supply (% pop.)	5,75
Water self treatment	Households applying treatment (boiling/chlorine/filter/bottled water) to consumption water (% pop.)	66,69
Water supply price	Annual domestic water supply price ($)[120]	2,02

Focus:

At the moment (December 2009) the identified wetland issues are based on discussions at stakeholder workshops (Workshop document, 2009). The majority of the issues are in the process of being confirmed by monitoring and more information gathering. The increase in agriculture use for food production is the primary issue that puts a lot of pressure in the wetland management. Therefore, based on stakeholder perception, the main concerns at the Ecuadorian wetland are:

- **Water quality:** It is perceived that more agrichemicals are being used in the surrounding agriculture areas such as rice fields and banana plantations in the upper basins. The use of more agrichemicals is related to the lack of ecological training to farmers in the wetland. Other perceived problem is the discharge of urban wastewater and solid wastes because of the population increase in the area. According to the official Census Office (INEC, 2001), around 27% of the population throw wastes in open areas and 67% of the population does not have a sewage system to dispose wastewater; and population grows around 2%

[119] Data of Vinces, Pueblo Viejo and Baba Parishes that are around the wetland.
[120] Dollar per water consumer paid to INEC per household

annually. However, a study performed by the National Institute of Fishery (INP) showed that the water at Abras de Mantequilla was of good quality in 2004. So far, this is the only study performed in the area before WETWIN.

- **Water quantity:** People in the wetland are concerned about the potential dam construction upstream in the wetland which may put less water in the system. CEDEGE is the authority that manages the water in the area. Based on its strategic plan, there are some waterworks planned to be built in the next 10 years, located in the surrounding area (upstream and downstream). Additionally, some people in the wetland perceive more sedimentation in the hydrological system. They do not know exactly why, but it is a concern for their activities (fishing, transportation, and so). Finally, they also perceive that in the last years less rain is falling in the area.

- **Ecosystem health:** From the workshops it is clear that people living in the wetland know what an ecosystem is. Although their definition is not a technical one, they could identify the interactions between biological and human presence in the wetland. They could identify that some species are actually missing in the wetland based on what they could find some years ago, such as native fishes, plants, trees and birds. Apparently, the majority of this decreasing biodiversity is related directly to activities performed by people living in the wetland.

- **Sustainability of the wetland ecological services:** Finally, people living in the wetland recognize that there is a lack of wetland management at all levels: governmental, local and communal. They see the need to organize themselves to perform certain activities to cope with environmental sustainability in the wetland, such as cleaning rivers, repopulation of native species, environmental training, waste management, entrance regulation of invasive species. However, there is a lack of decision-making procedures which does not contribute to accomplish these activities. There are official institutions which are responsible for these activities. However, there are only small and isolated activities. There is not a general plan that includes activities that the people perceive as necessary for the wetland sustainability.

- According to workshop participants, economic needs prevail upon ecological needs.

Other important contextual information

The wetland Abras de Mantequilla is a natural environment that so far has not gotten the interest of many research institutions. So far it is know that there is little information about the ecosystem.
There are some publications in the areas of tourism and biology:

- Diagnosis and ecotourism development strategy for the patches of forest and its surroundings in Abras de Mantequilla – A baseline study-. This is an undergraduate thesis work focused on tourism for using alternatives for the area, especially for its forests through ecotourism as a tool for sustainable development, 2003.
- Information gathered from the Abras de Mantequilla Commonwealth.
- National Fisheries Institute: study on fisheries in the basin area and the Abras de Mantequilla wetland.
- Three patches of tree cover in the wetland. Abras de Mantequilla and guidelines for ecoturism management, 2003- 2004

2. Process followed for the stakeholder analysis and developing an engagement strategy

The first step for the stakeholder analysis was to review existing literature of the study area. Data was mainly collected from two sources:

- A M.Sc. Thesis written by Belen Noroña: **Analysis of the decision making process in wetland management and the role of guidelines Case Study: Abras de Mantequilla – Prov. Los Ríos, Ecuador. 2009**

- RAMSAR Update Sheet of Abras de Mantequilla Wetland - Ecuador 2008.

Those sources of information were complemented by additional information available on the web and by visiting the study area.

As a field work, a total of three Institutional and community workshops were developed. In the Institutional workshop participated: representatives of the undersecretary of Environmental Coastal Management, CEDEGE and the National Institute of Meteorology (INAHMI). Participants were defined in function of their previous knowledge about the wetland and its problems. The institutional workshop was realized at ESPOL facilities during June 2009.

At local level participated: representatives from Municipalities of Baba, Vinces and Pueblo Viejo, local users, local leadership and local ONG representatives. The list of participants was developed in a previous meeting together with Jorge Carriel, Director of the Environmental Office of Vinces Municipality, and Raúl Villasagua, Community facilitator of Vinces Municipality. The local workshop was carried out at San Juan de Abajo town at the southern part of Abras de Mantequilla during October 2009

On November 2009, a third workshop was carried out at each Municipality to deliver the results of previous workshops. These results were analyzed together with the Municipalities team.

Local workshops were useful to collect information about wetland extension, stakeholder recognition of the ecological system called wetland, identification of ecological services from the point of view of stakeholders, problem identification and strategies of solutions from a local perspective. In addition, these workshops were an opportunity to explain the WETWIN project and its objectives.

The participants at local workshops helped to expand the stakeholders' list and to define their perceptions about it. This was the opportunity to identify conflicts among stakeholders.

3. List of all stakeholders with their characteristics and interest/stake in WETwin or its outcomes

Table A4-2: List of all stakeholders with their characteristics and interest/stake in WETwin or its outcomes

Categories	Stakeholders	Interests in WETwin or outcomes	Characteristics
1a. Water managers at wetland level	• Baba, Pueblo Viejo y Vinces "Commonwealth" [121]	• Adequate determination of wetland problems. • Improvement of wetland management.	Based on municipalities' autonomy, the commune is the only institution legally recognized. It can take control of the basin management and the conservation of natural and ecological resources. This institute is in charge of the development plan of the wetland. The municipalities involved are: Vinces, Baba and Pueblo Viejo. The objectives of the Abras de Mantequilla Commonwealth are: a. To reach the sectional government coordination in order to work together for the sustainable development of wetlands, with emphasis on the integrated action for water resources. b. To manage the internal and external cooperation through agreements, contributions or loans in order to achieve its objectives. c. To establish political and common strategies for the harmonic development of the wetland Abras de Mantequilla and its area of influence, in the environmental, economic, social and

[121] "Commonwealth" is the translation for "Mancomunidad" which is the Ecuadorian legal context of the community associations. Then, it is established by legislative publication as legal person association under Article 118 No. 6 of the Ecuadorian Constitution, and it is ratified by General Government Control Office's official letter No. 030,869 on January 17th, 2007. As a result, autonomous regional governments do not require external approval to create Commonwealths.

Categories	Stakeholders	Interests in WETwin or outcomes	Characteristics
			cultural fields.
1b. Water managers at RB level	• CEDEGE	• Information. However, it is not clear how committed they are to accept the outcomes of the project[122]	• It is the only administrative water authority that implements integrated resources management of the basin. The community does not have a good perception of the management of this institution. The people only recognize this institution because of the training that CEDEGE has given to the community[123]
	• Sub secretary of fishing of Los Ríos Province (SRP)	• Manage, regulate, control, develop and disseminate the work of the industrial and artisanal fisheries, through basic and applied research, technological innovation, training of highly qualified human resources, promotion of products in domestic and foreign markets for conservation and sustainable management of fisheries resources throughout the national territory	• The creation of productive units (micro companies) in fishing communities is the new target of the SRP in order to face to the crisis which, for several factors, suffers the province of Los Rios.
2. Direct users	• All inhabitants at the banks at the wetlands.	• Water Quality • Water Quantity • Ecological/Productive services.	• They live in the wetland, are directly dependant and produce using directly the wetland services.
3. Landowners	• Farmers • Inhabitants **(**direct users and landowner are the same)**.**	• Water quality • Water quantity • Maintain ecological and productive service of wetland.	• Same as 2
4a. Govt/public sector local (W) level	Municipal Environmental Management Bureau of Baba, Pueblo Viejo and Vinces.	Wetland health	• Technical and social support actions that each municipality and the commonwealth developed for the wetland.
4b. Govt/ public sector RB level	• Provincial Council	• Integrated Management of river basin.	• It's a political instance. For the new law of regionalization it has competence about management of river basin.
4c. Govt/public sector national	• Environmental Ministry	• Wetland and River basin Management	• The focus of this Ministry is to reach a sustainable use of natural resources, promoting the social participation and coordinating the contribution of NGOs, Universities, research institutions and

[122] It is clear that this is a key stakeholder that should be involved in all stages of the process (analysis, planning, implementation, monitoring) and that from the side of the WETwin team all possible actions should be undertaken to get this institute committed (even when its institutional future is uncertain)!
[123] The people do not decide the kind of training received by CEDEGE.

Categories	Stakeholders	Interests in WETwin or outcomes	Characteristics
			international organisms. • Created in December 2003, as the highest political instance for advice on matters of planning and coordination of activities related to the application of the RAMSAR Convention in Ecuador.
	• National RAMSAR Committee	• RAMSAR Convention application.	• According to the Decentralization System of Environmental Management, it is formed by: Ministry of Environment, Ministry of Foreign Relations, Secretary of Water, National Chamber of Aquaculture, National Coordinator for the Defence of Mangrove, National Counsel of Superior Education, Ecuadorian Committee for the Defence of Nature and the Environment, National Coordinators for the Scientific and Technical Group for Communication, Education and Awareness of Ramsar and all national delegates from the Counsel of Wetlands International (Echeverría, 2008) cited in Noroña, Ma. Isabel, 2009. Water Resources. • Its functions are: - To check and to evaluate proposals on wetland projects. - Other issues on wetland management in the country, requested by members of the national committee or regional committees.
5a. Private sector (WATSAN[124])	None		
5b. Private sector (other)	• *Fisheries sector?*	•	
6. NGOs/ CSOs RB & national level	• Acción Ecológica (NGO)	• Environmental health	• They inform the communities about the negative impact on the wetland for the construction of dams and other actions.
7. CSOs/ CBOs local level[125]	• FUNDAR	• To protect the environment. • To improve the productivity in the crops. • Minimize the agriculture risk.	• Managing projects with international and national agencies for the benefit of its members.
	• La Amalia	• Environment health	• It is part of the FEDETACV
	• Federación de Trabajadores Agrícolas del Cantón Vinces (FEDETACV)	• Develop Agro ecology; Eco tourism (diversification of activities); reforestation; environmental education	• It is a second-tier organization. Comprised of at least fifteen local organizations including new see foundation, Amalia, etc.
	• Coordenagua	• Water quality; Water	• Civil society organization that was active in

[124] Water and sanitation sector.
[125] How influential are they and how much support do they have? These could be important allies in engaging stakeholders!

Categories	Stakeholders	Interests in WETwin or outcomes	Characteristics
		quantity; Health ecosystem	conjunction with other organizations in the proposal of articles on water contained in the constitution.
	• Asociación de propietarios del humedal.	• Improve their methods of production. Diversify the use of the wetland towards eco-tourism for example.	??
	• New seed Fundation	• Enhance the capabilities of its partners to improve their crop production.	??
8. Research/ educative institutes	• ESPOL • ITAV • Quevedo University • INP • Colegio técnico agropecuario de la Isla de Bejucal (Baba)	• Research and educative interest	• Students of ESPOL and Quevedo universities have been researching for their thesis. They always received the support from local communities by the interest that the themes of the thesis. • ITAV has conducted trainings on environmental issues relating to activities taking place in the wetland. • National Fisheries Institute (INP) has been performing since 2008 at both the monitoring of rivers of the watershed as the wetland.
9. International RB Authority	Abras de Mantequilla is entirely in Ecuador. Therefore, there is no international authority		
10. Donors	• European Union • PPD/United Nations	• To support local initiatives for sustainability.	
11. Other[126]	• Communications media	• To inform about the wetland, its problems and services	Newspapers have reported about the wetland and its services. This helps the general public to become aware of this environment and about its services and the potential dangers that may result bad policies or actions of various types in this environment.
Gender specifics[127]			

4. <u>Influence/importance matrix of all stakeholders and identified key stakeholders</u> (important, influential or both)

[126] E.g. religious leaders, teachers, churches
[127] Gender specifics are probably most relevant at local user level and for the Southern cases, because of differences in use, access, ownership or perceptions or other differences between men and women in relation to wetlands.

Table A4-3: List of all stakeholders with their characteristics and interest/stake in WETwin or its outcomes

Stakeholders	Level of influence	Level of importance.
Baba, Pueblo Viejo y Vinces Commonwealth	high	high
Sub secretary of fishing of Los Ríos province	low	high
All inhabitants at the banks at the wetlands.	high	high
Farmers	high	Low
Inhabitants	high	high
Provincial Council	High	High
Environmental Ministry	high	high
National Committee RAMSAR	High	high
Communications media	high	moderate
FUNDAR	high	Moderate.
La Amalia	low	high
Federación de Trabajadores Agrícolas del Cantón Vinces (FEDETACV)	Low	high
Coordenagua	low	high
Asociación de propietarios del humedal	low	high
Nueva Semilla Fundation	low	high
ESPOL	Low	moderate
ITAV	Low	moderate
Quevedo University	Low	moderate
INP	Low	moderate
Acción Ecológica	high	Low
Colegio técnico agropecuario de la Isla de Bejucal (Baba)	low	low
European Union	low	High
PPD/United Nations	low	high

5. Analysis matrix of key stakeholders with the possible contributions they can make, challenges that need to be addressed and actions required to engage key stakeholders

Table A4-4: challenges and possible contributions of key stakeholders

Categories	Stakeholders	Possible contributions[128]	Challenges[129]	Actions[130]
1a. Water managers at wetland level	• Baba, Pueblo Viejo y Vinces Commonwealth	Enactment of legislation joint agreements between municipalities. Strengthening management at national an regional bodies	Achieve its proper conformation and active involvement of mayors and councils of each municipality.	Organizational strengthening exercise (build capacity) and understanding of the ecosystem managed by the Commonwealth.
1b. Water managers at RB level	• CEDEGE • Sub secretary of fishing of Los Ríos province (SRP)	Provide data and information	To build a system of compromise and understanding between institutions.	Making inter-agency meetings to explain the objectives of the project and agreeing common objectives of understanding (raise more interest)

[128] The way the (key) stakeholder can contribute to WETwin activities. It could be all kind of things: provide data or information, human resources (personnel, expertise), a network, financial resources, material resources, facilities or equipment, a mandate, change of policy, etc.
[129] Challenges faced by (key) stakeholders that is hindering their engagement in the WETwin project, e.g. lack of involvement in planning, lack of funds or material, lack of capacity, lack of information about the project or lack of interest, etc.
[130] What you need to do or what is required to engage the key stakeholders, e.g. to involve them in analysis and planning, build capacity, provide means, provide information, raise more interest, etc.

Categories	Stakeholders	Possible contributions[128]	Challenges[129]	Actions[130]
2. Direct users	• All inhabitants at the banks at the wetlands.	Participate actively in the search and adoption of appropriate forms of life by making wise use of wetland resources and services.	Little involvement in planning processes. no clear understanding on how the project will help to improve the wetland and its services.	Meetings with the people and local authorities To provide information.
3. Landowners	• Farmers • Inhabitants **(**direct users and landowner are the same)**.**	Adopt new forms of aggressive non-production environment.	inadequate income lack of knowledge about technologies for new forms of production	To build capacity To provide means for local initiatives.
4a. Govt/public sector local (W) level	• Municipal Environmental Management Bureau of Baba, Pueblo Viejo and Vinces.	Draft policies for the conservation and wise use of wetland. Working with the villagers to search for actions that benefit the health of the wetland. To make operative policies from the Commonwealth	no clear understanding of how the project will help improve the wetland and its services.	To involve them in analysis and planning. To build capacity. Provide means
4b. Govt/ public sector RB level	• Provincial Council	To support local initiative.	To understand their role in the wetland and river basin management	To build capacity To provide information.
4c. Govt/public sector national	• Environmental Ministry • National RAMSAR Committee	To support the activities. To promote the Ramsar Convention	To change the degree of confidence of population in governmental actions. To get the proper means to achieve proposed actions	To raise awareness
5a. Private sector (WATSAN)	There is no private sector managing water in the basin			
5b. Private sector (other)	• Communications media	Space to inform of the wetland and its ecological importance.	To change the lack of interest from this sector To overcome the lack of information about the project.	To rise awareness To provide information
6. NGOs/ CSOs RB & national level	• Acción Ecológica	Human resource	To change the degree of confidence of population in sector actions	To provide information about project
7. CSOs/ CBOs local level	• FUNDAR • La Amalia • Federación de Trabajadores Agrícolas del Cantón Vinces (FEDETACV) • Coordenagua • Asociación de	Human resource Local and cultural information	To get adequate funding. To change the lack of interest from this sector	To involve them in analysis and planning To build capacity To raise awareness.

Categories	Stakeholders	Possible contributions[128]	Challenges[129]	Actions[130]
	propietarios del humedal. • New seed Foundation			
8. Research institutes	• ESPOL • ITAV • Quevedo University • INP • Colegio técnico agropecuario de la Isla de Bejucal (Baba)	Human Resources Information	To get the proper means to achieve proposed actions Excluding ESPOL, To overcome the lack of information about the project.	Provide information Raise more interest.
9. International RB Authority	None			
10. Donors	• European Union • PPD/United Nations	Funding Projects Frameworks	To involve governmental agencies, private sector and NGOS in the process	To call for proposals
11. Other				
Gender specifics				

6. Overview of interrelationships (formal and informal platforms and networks, power relations, existing and/or potential conflicts of interests) between key actors/stakeholders

Abras de Mantequilla does not have a management department by itself. There are several entities (governmental and private) which are involved in this area for several and diverse reasons. There are three more evident institutions that influence the management of the wetland in their own field:

- The Ministry of Environment for environmental issues
- CEDEGE for hydrological reasons
- The Commonwealth for cross cutting issues.

In the absence of a clear and trusted formal management body in the wetland, the population felt the need to organize themselves as informal management. In other words, people are grouped according to a special activity, problem or issue[131]/[132].

In field visits, we could see evidence of some conflict between inhabitants from El Recuerdo and Dr. Miguel Peñafiel. Moreover the perception from people about institutions as CEDEGE and Ministry of Environment were not favourable. They tell that the Ministry of Environment does not fulfil what they promise.[133]

Existing and potential conflicts (especially related to resource use, and access to and ownership of resources and ecosystem services):

- The remnants of forest are privately owned
- The construction of a dam could generate upstream wetland damage and even affect the potential tourism.
- The undertaken initiatives have been planned but the have unrealistic goals because of lack of funds and operations.

[131] These are exactly the kind of (informal) platforms and networks that could and should be involved!
[132] Noroña, B.MSc. Thesis. Analysis of the decision making process in wetland management and the role of guidelines. Case Study: Abras de Mantequilla – Prov. Los Ríos, Ecuador. 2009.
[133] So there is mistrust between the informal local organisations and the higher level "official" government institutes. This is important to realise and need to be addressed!

7. **Stakeholder engagement strategy indicating the different stages of the WETwin process and thereafter, the stakeholders to engage in each stage, in which category they should be placed, the (most functional) way of engagement and the required actions to engage each stakeholder meaningfully in that stage.**

The outcomes of the previous steps are processed in a stakeholder engagement strategy (stakeholder engagement matrix, see table A4-5), including how to engage the different key stakeholders in the different stages, and the required actions to engage them meaningfully.

Table A4-5: stakeholder engagement matrix

Stage	Key stakeholders[134]	Category (A,B or C)[135]	Way of engaging	Required actions
1. Wetland characterisation	• ESPOL • CEDEGE • INP	A A A	• Adequate and ongoing communication	• To have periodical meetings • To exchange Information and to have training workshops.
2. Setting relative priorities for wetland	• Commonwealth • RAMSAR National committee • Environmental Ministry	A A	• Building capacity • Improve its image among the people.	• To encourage involvement in activities of the wetland and the surrounding population.
3. Quantification of ecosystem services	Environmental Ministry	B	• Sharing information	• To have workshops
4. Setting quantitative targets for wetland	• Municipalities • Universities • RAMSAR National Committee	A B B	• Raising awareness • Sharing information • Building trust	• To Share and to make agreements on goals. • To have frequent meetings
5. Data collection and management	• INP • Universities	C C	• Sharing methodologies • Improve field methodologies • Joint publications	• To have operational inter-agency agreements • To raise awareness
6 Drivers of change (vulnerability and management options)	• Commonwealth • Municipalities' technical departments. • Environmental Ministry	A A B	• Capacity building • Create / enhance inter-institutional confidence.	• To perform education and information campaigns
7. Trade-off analysis of ecosystem services	• Environmental Ministry • Commonwealth	A A	• Share information	• Workshop analysis
8. Identification of best compromise solutions	• Environmental Ministry • Commonwealth • Municipalities technical departments	B A A	• Sharing information • Capacity building • Joint involvement action plan for the wetland	• Generate joint planning process
9. Post project sustainability plan	• Commonwealth • Environment	A B	• Sustainability of the built capacity	• To design monitoring and evaluation plans

[134] Key stakeholders are all the stakeholders rated A, B, or C (see table A4-2, table A4-3 and below). So there are more key stakeholders than mentioned here that should engaged. Especially think about the local NGOs and Associations!

[135] Category A stakeholders - Stakeholders who stand to lose or gain significantly from the project and whose actions can affect the project's ability to meet its objectives. The project needs to ensure that their interests are fully represented in the coalition. Overall impact of the project will require good relationships to be developed with these stakeholders.
Category B - Stakeholders who stand to lose or gain significantly from the project but whose actions cannot affect the project's ability to meet its objectives. The project needs to ensure that their interests and values are fully represented in the coalition.
Category C - Stakeholders whose actions can affect the project's ability to meet its objectives but who do not stand to lose or gain much from the project. They may be a source of risk; and you will need to explore means of monitoring and managing that risk.

Stage	Key stakeholders[134]	Category (A,B or C)[135]	Way of engaging	Required actions
	Ministry			• To provide means to develop the designed actions

8. <u>Stakeholder engagement plan</u>, including required actions, intended outputs, responsibilities and the timing, the foreseen workshops, and how the plan will be monitored

Table A4-6: stakeholder engagement matrix

WETwin Stage	Activities	Timing	Responsible	Stakeholders	Intended outcomes
1. Wetland characterisation	• Workshop to identify institutional knowledge and perception of the wetland • Interviews to stakeholders • Documental review	2009-2010	• ESPOL	• INP • Universities • Environment Ministry • CEDEGE • Municipalities • Local organizations.	• Wetland characterization
2. Setting relative priorities for wetland	• Analysis Workshop	First quarter 2010	• ESPOL	• Municipalities • Environment Ministry • INP • Wetland users • NGOs • CEDEGE • Universities	• Relative priorities for wetland.
3. Quantification of ecosystem services	• Define methodology • Exercise/ modelling quantification	2010/2011	• ESPOL • Universities	• ESPOL Universities	• Ecosystem service quantification
4. Setting quantitative targets for wetland	• Analysis Workshop	2010/2011	• Environment Ministry • INP • ESPOL	• Municipalities • Environment Ministry • INP • Wetland users • NGOs • CEDEGE • Universities	
5. Data collection and management	• Water quality sampling • Sampling to determinate fish production • Workshop to identify institutional	Every two months 2010-2011[136]	• INP - ESPOL	• INP • Other Universities • ESPOL	• Database/ publications

[136] Depending on fund availability (to be defined in future ESPOL meetings and depending on agreement with INP)

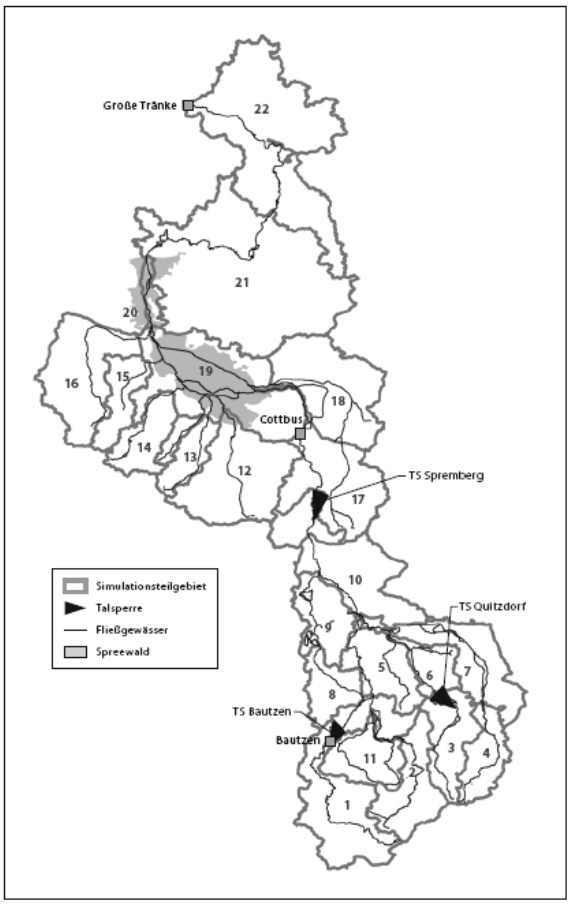
WETwin Stage	Activities	Timing	Responsible	Stakeholders	Intended outcomes
	knowledge and perception of the wetland				
6 Drivers of change (vulnerability and management options)	• Information and educational campaigns. • Planning and feed back Workshops	2010-2011	• ESPOL	• Users • Universities • INP	• People and institutions awareness about the wetland and its importance.
7. Trade-off analysis of ecosystem services	• Analysis Workshop	2010-2011	• ESPOL	• Environmental Ministry. • CEDEGE • Municipalities • Local NGOs • Universities • Commonwealth	• Trade-off defined
8. Identification of best compromise solutions	• Workshops	2011	• Environmental Ministry • Municipalities • ESPOL	• Local Organizations • Regional Organizations • NGOs • Universities	• Best management solutions identified
9. Post project sustainability plan	• Monitoring and evaluation	2012 onwards	• Municipalities • Commonwealth • Environmental Ministry		• Monitoring and reviewing implementation of commitments

Annex 5: Summary of Germany case study

River Basin: Elbe-Havel-Spree river basin
Wetland(s): Spreewald

1. Context: geographic scope and key issues that will be addressed

Scope:
Characteristics of the Spreewald: The Spreewald wetland is one of the most important wetlands in Germany. Its landscape was shaped during the ice-age. The Spreewald is a riverine wetland of the Spree river (10,100 km^2) which is a tributary to the Havel river (24,100 km^2), which in turn contributes to the Elbe river (149,000 km^2). The Spreewald wetland is about 320 km² in extent, and is situated 70 km south-east of Berlin. Its mean annual precipitation level is 540 mm/a – one of the lowest in Germany. The Spreewald is composed of a network of alluvial meadows and peat-covered areas, where groundwater influenced sands (49 %) predominate over peat soils (33 %) and loamy soils (18 %). Land use is adapted to the particular conditions of locations very close to the groundwater. Grassland (44 %) for hay production and grazing is the largest land use class, but arable farming (23 %) on higher areas and forestry (20 %) also play an important role in the region. Tourism based on boat tours through the extensive network of rivers and canals is an extremely important economic factor.



Water management in the Spreewald wetland: The present-day structure and water regime of the region are characterised by a dense network of largely canalised rivers and streams (1,600 km), regulated by a system of about 600 weirs which control both the flow of the rivers and the groundwater levels. The aim is to save the wetland conditions in the area while ensuring the minimum water flow to Berlin. Inflows to the Spreewald have decreased due to reduced water yield from the region of Lusatia following the

collapse of the mining industry.[137] Complex water management measures in the basin upstream of the Spreewald have helped to reduce the negative consequences of this on river flows, but the Spreewald wetland is only one of many water "users". The result is a conflict in relation to water availability and use and the requirements of different sectors, e.g. for conservation of wetlands, agricultural use or tourism which will continue to sharpen in the future.

The Spreewald was designated as biosphere reserve by UNESCO in 1991. The area of the reserve is 575 km^2. Nutrients of the Spree River and its tributaries are trapped and removed on the floodplain thus contributing to the reduction of nutrient loads of the river. The fertile conditions are utilized by forestry and agriculture in an extensive way. Commercial fisheries are taking place in the water bodies. The Spreewald is a main tourist resort for Berlin and is inhabited by approximately 50,000 people. It is the home of the Sorbs, a German minority which settles in the area.

The ecological condition and the use of wetlands depend on the prevailing water balance, especially on the depth of the ground water level. Stakeholders involved in nature conservation, agriculture, forestry or tourism can influence the current water balance through water resources management options, or the region's future water balance through their participation in regional development planning processes. Different users have different interests in regard to the water balance in wetlands, which often diverge widely, yet they reciprocally influence one another due to basic natural processes or through competing for limited resources.

Ecosystem services provided by the wetland:

- Nutrient retention
- Water retention
- Nature conservation
- Agriculture, mainly eco-farming
- Fishery
- Forestry
- Tourism resort / recreation area
- Home of the Sorbs

Characteristics of the Elbe basin:

- The Elbe Basin is one of Germany's largest river basins with a total area of ~149 km².
- The climate is moderate with average annual temperatures of ~9 °C and 715 mm annual total precipitation.
- Elbe basin has second lowest per capita water supply in Europe (~680 – 900 m³), the Spree basin even lower (~250 m³).
- The length of the river is 1,094 km, and its max. width is 1 km
- The basin is inhabited by 24.5 million people.
- The river channel is highly regulated with river training structures and barrages.
- A decrease in precipitation and water supply could be observed over the last decades, and scenario projections show that the water conflicts will increase.

<u>Other contextual information</u>

The uniqueness of the Spreewald wetland was accounted for in 1991 as it was designated as a UNESCO Biosphere reserve. In the frame of this declaration several guidelines were developed with the following (selected) objectives:

- Protection of the wetland area (dense network of canalised rivers and streams, meadows, and alluvial forests)
- Maintenance, usage, and protection of meadows as important habitats for native species
- Facilitation, preservation, and stabilisation of traditional, sustainable, and small scale cultivation practices
- Eco-tourism with the objective of environmental education
- Maintenance, preservation, and protection of typical settlement structures

[137] Because of reduced contribution of pumping directly to the Spree river; a heavily modified groundwater regime (permanently reduced level) and upstream water demand of (mining induced) lakes.

The Biosphere Reserve Unit Spreewald is divided into four protection zones:[138]

1. Core zone, 1.8% of the area. No usage, no settlements, and no trespassing allowed.
2. Maintenance zone, 16.6% of the area. Characteristic ecosystems. Usage only allowed if in line with nature protection objectives (maintenance and preservation of cultural landscape).
3. Development zone, 49.7% of the area. Landscape protection area. Sustainable and traditional land use practices.
4. Regeneration zone, 29.9% of the area. Area that was intensively used in the past and was heavily modified. Objectives are agricultural intensification, to reestablish natural biodiversity, and to convert this area in the long term into protection zone 3.

With the designation of the Spreewald region as UNESCO Biosphere reserve (1990/91) and the introduction of natural preservation targets and corresponding directives, many conflicting interests became obvious. Moreover, the Spreewald is located in the former DDR and with the political changes in Germany in the year 1989 a big political and socio-economic restructuring process has just started during this time. In the following years public platforms, such as FÖNAS e.v. association and intensive public participation processes facilitated the communication and discussions about problems mainly related to trade-offs between cultivation practices and natural preservation objectives. Nowadays, the conflict potential within the Spreewald region is rather low, because natural preservation objectives have been widely accepted; cultivation practices adapted, and European and national financial support programs were implemented[139]. Furthermore, the objectives of various interest groups are similar, i.e. “enough water in the wetland”. This holds for the tourism sector, the cucumber farmers as well as for the fishery sector. Although not all problems have been solved within the Spreewald region, the most dominant problems are externally caused: upstream – downstream conflicts related to water quantity. On one hand the groundwater regime in the upstream catchment area is heavily modified due to the mining in Lusatia, flood protection measures influencing the flow regime, and climate change is an additional external pressure on the water input to the wetland. On the other hand, the city of Berlin with three to four million inhabitants is located downstream of the wetland, expecting enough water flowing in the Spree river.
In other words, the wetland area is facing the following problems:

(4) reduced inflow due to climate change and changed upstream groundwater regime
(5) the wetland is expected to provide several ecosystem functions for
    1. people in the wetland area
    2. downstream area
(6) it must deliver a minimal flow rate at the outlet in order to ensure the water supply of Berlin.

The Spreewald wetland was also a sub-project in the GLOWA-Elbe BMBF project: Integrated Analysis of the Impacts of Global Change on Environment and Society in the Elbe Basin (http://www.glowa-elbe.de/german/index-en.htm). The aim of the Spreewald sub-project was to determine the effects of global change (reflected in changes in basic hydrological conditions such as altered climatic conditions and reduced inflows) on the Spreewald wetland. For this purpose, the water balance model WBalMo Spreewald was developed and applied for scenario calculations. It is based on the long-term management model WBalMo and the areal water balance model for drained / sub-irrigated wetlands WABI. Scenario results for global change indicate simultaneously increasing water demand and decreasing water availability for the wetland in the future. Results of this will be that groundwater levels will more frequently fall significantly during the summer months, having considerable effects on the ecology and economic use of the region, but affecting different areas with differing severity. Water management measures in the river basin and in the wetland itself can help to reduce undesired impacts.

Policy programs in force to Spreewald

- European programs
    - EU Water Framework Directive
    - EU FFH Directive
    - EU Bird protection directive
- National programs

[138] It would be interesting to assess how this idea of zonation works out in Spreewald (does it work? Why or why not?) and if it is a useful idea for other project sites
[139] It would be interesting to see what WETwin can learn from this stakeholder engagement process because apparently they have managed to come to a compromise solution: what were the key factors for success in the stakeholder engagement process? Why?

- Brandenburg nature conservation act

Supporting programs

- CAP (Common Agricultural Policy of the EU), subsidies related to specific agricultural management practices, natural protection and preservation practices
- Regional landscape development programs
- EU co-financed measures of the "development plan of rural areas in Brandenburg"
- LEADER+ (EU) program
- other local supporting programs, such as
  - "Spreewald specific cultivation program",
  - "Spreewald meadow program",
  - "Riparian zone protection program" etc.

Issues:

Pressures, conflicts, and trade-offs

- Pollution
- Land use and melioration vs. nature protection
  - (intensive) agriculture vs. nature protection
  - cattle farming (melioration) vs. nature protection
- Opencast mining
  - Pumping rates of mine discharges decreased from 30 m³/s (1990) to 10 m³/s (2000) and will be reduced to 0 m³/s in 2040
  - Refilling of residual mining pits
- Climate variability and change with decreasing summer precipitation
- Consequences: high water demand of different water users (increasing) and low water yield (decreasing) in basin and wetland

Summary: three main pressures

1. Water management / mining in upstream catchment
2. Climate change and variability
3. Minimal outflow out of the wetland to ensure drinking water supply for Berlin

Adapted and integrated management to cope with the inherent uncertainty of future developments is important.

2. Process followed for the stakeholder analysis and developing an engagement strategy

As discussed in the previous section, there are still conflicts between nature conservation objectives and different (land) uses within the Spreewald wetland. We call these conflicts wetland internal conflicts. Over the last years a progress towards harmonized wetland uses and nature conservation has been achieved due to active public participation initiatives. But these conflicts are not the scope of the WETwin project. More interesting for WETwin are the conflicts related to upstream – downstream problems in relation to the wetland. The focus will be on the upstream external drivers (e.g. climate change, upstream management) and their impacts on the wetland on one hand, and the role and impacts of the wetland's ecosystem functions on downstream parts of the wetland on the other hand.

The local wetland stakeholders in the Spreewald (agriculture, fishery, forestry, tourism etc.) are affected by external drivers and conditions and their behaviour/management has an impact on downstream parts of the river basin, but they will not be actively involved in WETwin because these stakeholders are already engaged in ongoing projects and the focus in the framework of WETwin will be research oriented.

Therefore, because of the upstream-downstream relationship focus the key stakeholders to engage in the WETwin process will be the:

- Brandenburg State Ministry for Environment, Health, and Consumer Protection (Top level)
- Brandenburg State Agency for Environment (Secondary level)

- Biosphere Reserve Unit Spreewald (concerned with the compliance of natural protection objectives in the Biosphere Reserve area)

The contact between the leading institute (PIK) and the three selected stakeholders was already established before the WETwin project. The key stakeholders are political "powerful" and signed a letter of support for the WETwin project. The collaboration is mainly on the level of information and consultation but the intention is to involve them more actively to increase their interest in the WETwin project and its outcomes.

3. List of all stakeholders with their characteristics and interest/stake in WETwin or its outcomes

Table A5-1: List of all stakeholders with their characteristics and interest/stake in WETwin or its outcomes for Spreewald

Categories	Stakeholders	Interests in WETwin or its outcomes	Characteristics
1a. Water managers at wetland level	**1. Biosphere Reserve Unit Spreewald**	1. Research on importance of wetlands for the river basin	1. The Biosphere Reserve Unit Spreewald is concerned with the management, environment protection and ecosystem monitoring of the Biosphere reserve area.
1b. Water managers at RB level	**1. Brandenburg State Ministry for Environment, Health, and Consumer Protection (MUGV)** **2. Brandenburg State Agency for Environment (LUA)**	1. Research on importance of wetlands for the river basin 2. Research on importance of wetlands for the river basin; Options/strategies to emphasise this importance	1. Controls the lower environmental agencies and is the interface between policy and the executive authorities 2. The LUA are decision makers. It is concerned with water and wetland management and the implementation of the Water Framework Directive; Responsible for authorisation and permit procedures, as well as for implementing, enforcing and monitoring their remit in matters of technology-related protection of the environment and of nature conservation.
2. Direct users (wetland)	1. Private farmers 2. Forestry companies 3. Fishery cooperatives 4. Local inhabitants 5. Tourists (German and foreign)	1. Extensive farming/agroforestry 2. Agroforestry ??? 3. Commercial fishing 4. Leisure??? 5. Angling? Hiking? Water sports?	???
3. Landowners	1. Sorb tribe ???	1. Preserve cultural heritage (&/or traditional water use (rights)?)???	1. German minority which settles in the area

Categories	Stakeholders	Interests in WETwin or its outcomes	Characteristics
4a. Govt/public sector local (W) level	**1. Biosphere Reserve Unit Spreewald** **2. Berlin water works**	1. Biodiversity, harmonizing all activities (agriculture, forestry, fishery, tourism) with nature preservation 2. Ensure minimum flows out of the Spreewald[140]	1. Concerned with the compliance of natural protection objectives in the Biosphere Reserve area; Acts on behalf of the State Agency; 2. Govt / private sector (Veolia Wasser and RWE) (watsan)
4b. Govt/ public sector RB level	**1. Brandenburg State Ministry for Environment, Health, and Consumer Protection (MUGV)** **2. Brandenburg State Agency for Environment (LUA)**	1. see 1b	see 1b
4c. Govt/public sector national	???	???	???
5a. Private sector (WATSAN[141])	**1. Berlin Water Works**	1. See 4a(2)	1. See 4a(2)
5b. Private sector (other)	1. Private farmers 2. Forestry companies 3. Fishery cooperatives 4. The tourist industry	1. Extensive farming/agroforestry 2. Agroforestry ??? 3. Commercial fishing 4. Biodiversity, no pollution, healthy ecosystem	???
6. NGOs/ CSOs RB & national level	???	???	???
7. CSOs/ CBOs local level	*1.* Biosphere Reserve Unit Spreewald *2. Sorbian Cultural Information (SKI) Agency?*[142] *3. FÖNAS e.v.*[143]	1. see 1a *2. Preserve cultural heritage (& traditional water use rights?)?*	1. see 1a 2. *NGO or State agency?* 3. *Society/association for natural protection in the Spreewald region; acts as a platform for different stakeholders to discuss and solve conflicts*
8. Research institutes	1. PIK (=??) 2. Leibniz-Centre for Agricultural Landscape Research (ZALF) 3. Humboldt University Berlin 4. etc.	???	???
9. International RB Authority	???	???	???
10. Donors	1. EU 2. National and local donors	???	See section 5.1

[140] Are they not also interested in a low nutrient level?
[141] Water and sanitation sector
[142] NGO or State Agency??
[143] This could be an important stakeholder to learn from about how to discuss and solve conflicts between stakeholders. Ask them about documentation about that!

Categories	Stakeholders	Interests in WETwin or its outcomes	Characteristics
11. Other[144]	???[145]		

4. <u>Influence/importance matrix of all stakeholders and identified key stakeholders</u> (important, influential or both)[146]

The identified stakeholders are put in the matrix below.

Table A5-2: DFID Influence and importance matrix for Spreewald.

	High influence	*Low influence*
High Importance	**A** • **Brandenburg State Agency for Environment (LUA)** ***(can probably gain something from WETwin)*** • **Biosphere Reserve Unit Spreewald** ***(can probably gain something from WETwin)***	**B** • **Private farmers** • **Forestry companies** • **Fishery sector** • **Tourist sector** • **Berlin Water works**
Low Importance	**C** • **Brandenburg State Ministry for Environment, Health, and Consumer Protection (MUGV)**	**D** • **Sorb tribe**[147]

As mentioned before because of the research focus the key stakeholders will be:

- MUGV - Brandenburg State Ministry for Environment, Health, and Consumer Protection (Top level)
- LUA - Brandenburg State Agency for Environment (Secondary level)
  - Responsible for authorisation and permit procedures, as well as for implementing, enforcing and monitoring their official subject-related remit in matters of technology-related protection of the environment and of nature conservation.
- Biosphere Reserve Unit Spreewald
  - Concerned with the compliance of natural protection objectives in the Biosphere Reserve area, acts as a branch of the State Agency
- Berlin Water works (not involved)

Concerning the hierarchical order of these stakeholders: the Ministry (a) is the top-level decision maker (probably most powerful), the State agency (b) is in the hierarchy below the Ministry but is concerned with the practical tasks such as implementation of directives etc. Moreover, they are also involved in research and this might have an interest in WETwin results. The Biosphere Reserve (c) is a kind of branch of the State Agency and is concerned with the management of the Biosphere Reserve area and strongly involved in public participation processes. The level of interest in the WETwin projects work and results is in the following order: (c), (b), (a). The Ministry seems to fit best in category "C", because they don't stand to lose anything from the project. The State Agency and the Biosphere Reserve fit best into category "A". Their actions can affect the projects ability (in this case study, not overall project goals) to meet its objectives, but they do not stand to lose anything but could gain something from the project, because they are also involved in research and public participation.

[144] E.g. religious leaders, teachers, churches
[145] Any "traditional" water use by the Sorbs or traditional "water managers"?
[146] To keep it simple there are only 4 categories although there will be graduations in importance and influence.
[147] The Sorbs live traditionally in the area so they are important stakeholders (all decisions taken upstream will influence their home area one way or another.

Local Spreewald stakeholders that will not directly be involved in WETwin:

- FÖNAS e.v. (Society/association for natural protection in the Spreewald region) acts as a platform for different stakeholders to discuss and solve conflicts
  - Fishery
  - Forestry
  - Agriculture
  - Tourism
  - Sorb tribe

5. Analysis matrix of key stakeholders with the possible contributions they can make, challenges that need to be addressed and actions required to engage key stakeholders

Information not available

6. Overview of interrelationships (formal and informal platforms and networks), power relations, existing and/or potential conflicts of interests) between key actors/stakeholders

Information not available

Annex 6: Summary of Hungary case study

River Basin: Danube River Basin
Wetland(s): Gemenc floodplain

1. Context: geographic scope and key issues that will be addressed

The Gemenc and Béda-Karapancsa floodplain systems can be found along the lower reach of the Hungarian Danube. The river is alluvial on this reach, which means that it has cut its bed into the alluvial sediment deposited by the river throughout geo-historical times. Due to former meandering processes, the surface of the floodplain is varying and uneven. The highest areas are the natural levees that can be found along the concave banks of the actual and former river channels. (Thus, natural levees can be found on the banks of oxbows too.) These levees have been formed by deposition of coarse suspended sediment (silt) during floods. The convex banks are covered by point bars that had been built by the laterally moving river channel. Point bars thus consist mainly of sand and gravel. The deepest parts of the floodplain are the remnants of former meanders of the Danube. Depending on the degree of aggradation, side channels, oxbow lakes or aggraded flat depressions can be found at these places. The degree of aggradation depends on the time of shortcut.

The entire floodplain surface is subjected to continuous clay sedimentation that takes place during floods. As a consequence a thick clay layer has been built up on the surface of the floodplain. This layer isolates the surface water system of the floodplain from the groundwater to a great extend.

The oxbow lakes are often connected to river channels or to other oxbows by means of small channels. The traditional Hungarian name of these channels is 'fok'. During floods the system of oxbow lakes are filled and drained through these fok-channels.

The natural topography of the Gemenc and Béda-Karapancsa floodplain systems has been modified by anthropogenic impacts as well. These impacts are related to the different floodplain management, flood control and river training activities implemented throughout historical times. Anthropogenic factors have been impacting the floodplain systems since the Middle-Age. At the beginning, local people introduced an essentially passive floodplain management practice, where human activities were fully adapted to the flood regime of the river. The key of this management was the system of fok-channels, which enabled productive fisheries as well as extensive agricultural activities [Andrásfalvy, 1973]. The fok-channels were therefore continuously maintained and wherever it was necessary new channels were dug. Due to the increasing population, the pressure to replace passive floodplain management with intensive agriculture increased. Intensive agriculture on the other hand required flood control dikes that eliminate inundations. Construction of the river-wide comprehensive dike system was implemented at the turn of the 19th and 20th centuries simultaneously with the river regulation works. In general, dikes were built close to the straightened river channel in order to gain as much area as possible. There was however a landlord having huge domains on the floodplain, who did not join the Water Management Association (the board financing and managing the works), so his lands were not defended by the dikes [PMMF et al., 1993]. This is the reason why an about 5-6 km wide and 40 km long floodplain remained between the new dike and the left bank of the Danube which is now the Gemenc floodplain.

River training and dike construction marked the end of floodplain management, and people definitely moved out of the remaining floodplains. The abandoned floodplain soon became habitat for typical, rich alluvial ecosystems and today the Gemenc is one of the few valuable nature reserve areas along the Danube.

Issues:
As far as the floodplain ecosystems are concerned the major problem is desiccation caused by the degradation of the Danube river bed. Desiccation has resulted in serious loss of wet alluvial habitats; the characteristic alluvial biodiversity has also been decreased. Life conditions for fish, amphibians and waders (like the famous black storks) have also been deteriorated. The reproduction conditions for fish (and thus indirectly the feeding conditions of the waders) have further been degraded by the intensified water level fluctuation of the Danube.
The decreased depth as well as the increased nutrient contents of the inflowing waters has resulted in serious eutrophication problems in the floodplain water bodies.The continuous aggradation of the entire floodplain enhances further the desiccation problem caused by the degrading river bed. The perspective is that all the side arms and oxbow lakes will be isolated and fully aggraded, and the floodplain will become a flat and dry

land with poor biodiversity. This is not a scenario for the far future, this will happen within few decades, unless we do intervene into the processes.

Above problems pressures caused by changes in the hydrological and water quality regimes, the direct anthropogenic impacts should also be taken into consideration. This concerns first of all the disturbance caused by human activities on the floodplain. Certain typical valuable species, like the black stork, or the white tailed eagle are very sensitive to human disturbance. Thus, the restoration of their habitats is not just a hydrological question. Human disturbance must be eliminated from the neighbourhood of these places.

Drinking water and sanitation is not an issue at Gemenc. No domestic wastewaters are discharged into the water bodies of Gemenc. No drinking water is extracted from the area of Gemenc. There is a plan however which envisages the installation of bank-filtration wells (for drinking water) in the territory of Gemenc. Such a plan requires the authorization of many institutions: the National Park, the Environmental and Water Authority in Charge etc.

Other contextual information

Plans of interventions are under development. The proposed interventions may include:

1. Construction of water engineering works (locks, culverts, bottom sills, sediment traps) and bridges
2. Reconstruction or maintenance of existing works
3. Channel control (channel bed correction, short cutting)
4. Dredging, disposal of dredged sediment

There are 10 planning units on the Gemenc floodplain:
Veránka-Rezéti Duna
Buvat
Sió unit
Gemenc
Báta-Duna
Fekete erdő, Grébeci Duna
Kerülő-Duna
Báli
Móric-Duna
Nagy Pandúr

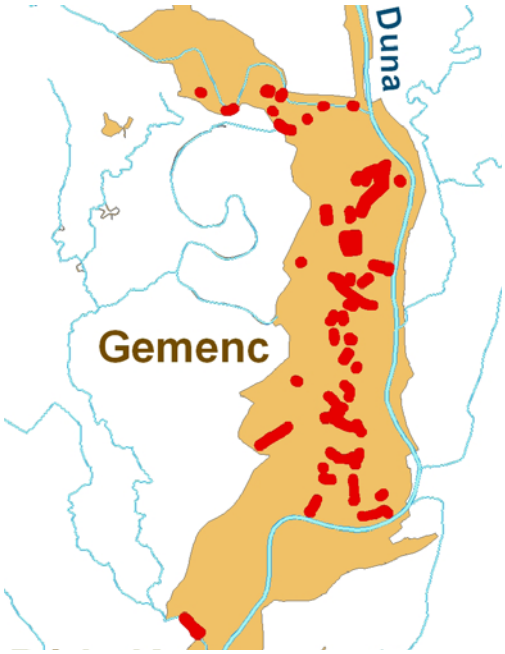


Figure A6-1: The locations of interventions (red) (source GEFNutrient Reduction Project)

There is a strong interrelationship between WETwin Project and Reduction of Nutrient Discharges Project founded by the World Bank. The stakeholder analysis report prepared for WETwin WP2 D2.1 is based on the results of **Reduction of Nutrient Discharges Project Danube-Drava National Park, GEF # TF 051 289 and TF 055 978**.

The main objective of the GEF Project is to decrease nutrients discharges into the Danube river and loads to the Black Sea, by improving the reduction of nutrients in effluent from wastewater treatment plants at Budapest and Dunaújváros and increasing the nutrient retention capacity at the Danube-Dráva National Park's Gemenc and Béda-Karapancsa Region. The Project complements the Government of Hungary in its efforts to reduce transboundary pollution in the Danube, and leads also to necessary policy, institutional and legal reforms related to regional nutrient reduction and improved water quality management.

The specific objective in case of Gemenc and Béda-Karapancsa region was formulated as follows:

*"Through the increase of the nutrient reduction capacity of floodland areas the overall objective of the project could be accomplished. Hence, **the project has an environmental primary focus** (i), but because nutrient removal can be done only by directing water together with the nutrients from the main bed out onto the floodland, in such respect, the project is also: water utilisation with a particular scope (ii). Water utilisation does not serve traditional agricultural or recreational objectives, but instead an ecological one, as nutrients in the water bodies are used in a biological way: by enriching the wildlife of water bodies, **increasing their biodiversity** in zoological, ichtyofaunal, botanical and dendrological sense."*

*'As a prerequisite, it has to be reserved that, in the **environmental analyses to be performed, the aim of removing and absorbing nutrients** should be considered as a special water purification treatment (iv), done for the benefit of the Black Sea, operating as a special biological reactor"*

There is also an ongoing ***wetland revitalization process*** going on in the Gemenc wetland system, in which the plans are prepared by **Eötvös József College, Baja** and the environmental impact assessment of the proposed plans is carried out by **VITUKI** in close co-operation with **DDNP Directorate**, and the most active interested stakeholder (**Gemenc Forest and Game Co. Ltd.**. and **Baja Youth Nature Protection Society BITE**).

2. Process followed for the stakeholder analysis and developing an engagement strategy

In the *first stage* of the Reduction of Nutrient Discharges Project, GEF # TF 051 289 Gemenc Component a **feasibility study** was elaborated in 2005. The report, which was written by VITUKI Plc. VKI Innosystem Ltd. consisted of two main part:

- Environmental Status Report (Environmental Assessment), and
- Social Impact Assessment (Public Consultation)

The *second stage* carried out in 2005 included land surveys and studies by Geo-CAD Bt. and Hydroterv Bt. concluding in a proposal on the type and location of the set of technical constructions necessary for achieving the aims of the program.

In the present, *third stage of the program*, in 2008-2009, three different projects are under way and working parallel on:

1. Planning component [Consortium of KEVITERV AKVA Ltd. and Eötvös József College – Gemenc Consortium]: Preparation of the conceptual and final technical design of the interventions, bidding specifications, additional surveys (land-survey, soil and soil mechanical surveys), and in the next stage, supervision of the construction works.
2. Monitoring component [BUTE Budapest and Bioaquapro Consortium]: Design and development of a monitoring system an development of an impact evaluation methodology including analyses and capacity building, and proposed adaptations for the nature protection management plan of the Danube-Drava National Park Directorate (DDNPD).

3. Baseline Study and Licensing Support component (in Preliminary Environmental Assessment Phase) TF 055 978 [VTK Innosystem Ltd. and VITUKI Ltd. Consortium]: Carrying out of the preliminary and detailed impact assessment of the planned technical interventions according to directives of the 314/2005 (XII.25.) Government Decree.

Gemenc wetland system is 100% state owned nature conservation area, furthermore it is in 100% Natura 2000 SCI and SPA area and a large part of it Ramsar site. The initial principal is that nature conservation has the highest priority in the Gemenc wetland among wetland uses.

3. List of all stakeholders with their characteristics and interest/stake in WETwin or its outcomes

- Ministry for Environment and Water (KvVM).
- Ministry of Agriculture and Rural Development
- Ministry of Local Governments (ÖM).
- State Secretariat for Nature and Environment Protection
- National Inspectorate for Environment, Nature and Water
- National Water and Environment Directorate
- Central Agricultural Office
- Lower Tisza Valley Environment and Water Authority (headquarters in Szeged)
- South-Trans-Danubian Environment and Water Authority (headquarters in Pécs)
- Central-Trans-Danubian Environment and Water Authority (headquarters in Székesfehérvár)
- Lower Danube Valley Environment and Water Directorate (headquarters in Baja)
- South-Trans-Danubian Environment and Water Directorate (headquarters in Pécs)
- Central-Trans-Danubian Environment and Water Directorate (headquarters in Székesfehérvár)
- Danube Environmental Protection Forum
- Independent Environmental Protection Society
- Danube-Drava National Park Directorate (Pécs)
- Baja Youth Nature Protection Society
- Tolna County Nature Conservation Foundation
- Tolna County Group of Hungarian Ornithological and Nature Conservation Society
- Lower-Danubian Nature Conservation Foundation
- Baranya County Group of Hungarian Ornithological and Nature Conservation Society
- Hungarian Ornithological Society Local Group No.7, workgroup of Baja
- Foundation for Natural Values of Baranya
- Association for Báta
- WWF Hungary
- Baja local government
- Báta local government
- Bogyiszló local government
- Decs local government
- Érsekcsanád local government
- Homorúd local government
- Kölked local government
- Mohács local government
- Őcsény local government
- Pörböly local government
- Szekszárd local government
- Szeremle local government
- Hungarian Regional Development Office
- Baranya County Region-Developing Council
- Bács-Kiskun County Region-Developing Council
- Tolna County Region-Developing Council
- Gemenc Forest and Game Co. Ltd.

Table A6-1: Cross reference table of the stakeholders in the project area

Stakeholders	Name of the Stakeholders
Gov. Org.	Lower Danube Valley EPWMD
	South-Trans-Danubian EPWMD
	Central-Trans-Danubian EPWMD
	Duna-Dráva National Park Directorate
Local government	Baja
	Báta
	Bogyiszló
	Decs
	Érsekcsanád
	Homorúd
	Kölked
	Mohács
	Őcsény
	Pörböly
	Szekszárd
	Szeremle
	Tolna
NGOs	Danube Environmental Protection Forum
	Independent Environmental Protection Society
	Tolna County Nature Conservation Foundation
	Tolna County Group of Hungarian Ornithological and Nature Conservation Society
	Lower-Danubian Nature Conservation Foundation
	Baranya County Group of Hungarian Ornithological and Nature Conservation Society
	Hungarian Ornithological Society Local Group No.7, workgroup of Baja
	Baja Youth Nature Protection Society
	Foundation for Natural Values of Baranya
	Association for Báta
	WWF Hungary
Company	Gemenc Forest and Game Co. Ltd
	Tolna Fish Trading Co-operative
	Baja Hal Fishery, Trade and Service Ltd
	Petőfi Fishery Co-operative Mohács
	Gemenc Fish Ltd (Érsekcsanád)
	Báta Agricultural Co-operative (Báta)
Angling Union	Association of Angler Unions of Baranya County
	Association of Angler Unions of Tolna County
	Association of Sport Anglers of Bács-Kiskun County
	Baja Sport Angler Union
	Angler Union of Workers of Mohács
	Angler Union of Szeremle
	Anglers Union of Szekszárd
	Anglers Union of Báta
	Anglers Union of Homorúd
	Botond Anglers Union of Kölked

4. Influence/importance matrix of all stakeholders and identified key stakeholders (important, influential or both)

Key stakeholders

- Danube-Drava National Park Directorate (Pécs)
- Lower Danube Valley Environment and Water Authority (headquarters in Baja)
- South-Trans-Danubian Environment and Water Authority (headquarters in Pécs)
- Central-Trans-Danubian Environment and Water Authority (headquarters in Székesfehérvár)
- Lower Danube Valley Environment and Water Directorate (headquarters in Baja)
- South-Trans-Danubian Environment and Water Directorate (headquarters in Pécs)
- Central-Trans-Danubian Environment and Water Directorate (headquarters in Székesfehérvár)
- Gemenc Forest and Game Co. Ltd.
- Local governments
- Baja Youth Nature Protection Society
- WWF
- Fishing Companies and Anglers Unions
- Other smaller civil forest and game management companies
- Planners and researchers

The **Danube-Drava National Park Directorate**, as the highest priority wetland manager, has the largest influence on all of the stakeholders, their activities and interventions on Gemenc wetland system. The DDNP Directorate is the most important stakeholder of the territory.

As the three **Environment and Water Authorities** are the "Green Authorities" responsible for the permission and control of proposed interventions, their importance is very high in enforcing the laws in relation to water management, environmental protection and nature conservation.

The three **Environment and Water Directorates** manage the waters (and mostly the riverbank-defence forests) and maintain the water management works and carry out environmental protection and (together with DDNP) nature conservation tasks.

The 100% state owned **Gemenc Forest and Game Co. Ltd.** manages almost 90% of the Gemenc floodplain. It is the most important manager / user of the wetland services as forest and game.

Local governments are responsible for the planning, permission, maintenance and control of infrastructural investments and recreation.

Important NGOs as **Baja Youth Nature Protection Society (BITE)** work together in close relationship with researchers, planners, the local green authority and the DDNP to improve the water supply of the wetlands, maintain or conserve the natural values, but not only in theoretical ways (e.g. BITE observes black stork and other protected species, the quality of water management works and tools). **WWF** also contributes to these tasks – mainly in theoretical ways.

Fishing companies, **anglers unions** and the **small civil forest and game management companies** take the advantages of Gemenc wetland services. They have influence on the proposed interventions, but their interests have less importance than the nature conservation aspects.

There is an ongoing **wetland revitalization process** going on in the Gemenc wetland system, in which the plans are prepared by ***Eötvös József College, Baja*** and the environmental impact assessment of the proposed plans is carried out by ***VITUKI*** in close co-operation with ***DDNP Directorate***, and the most active interested stakeholder (***Gemenc Forest and Game Co. Ltd.***. and ***Baja Youth Nature Protection Society BITE***).

5. Analysis matrix of key stakeholders with the possible contributions they can make, challenges that need to be addressed and actions required to engage key stakeholders

Table A6-2: Characteristics, interests, challenges and possible contributions of key stakeholders

Key stakeholders	Size	Degree of influence on Gemenc area	Organization	Scale/ scope	Interest in WETwin	Possible contribution to WETwin
Danube-Drava National Park Directorate	68 employees (Central Directorate – 28 persons , Gemenc Region – 4 persons)	100% **very high**	Governmental organization	Regional	☺	☺
Lower Tisza Valley Environment and Water Authority	135 employess	100% on its acting area **medium**	Governmental organization	Regional		
South-Trans-Danubian Environment and Water Authority	149 employees	100% on its acting area **medium**	Governmental organization	Regional		
Central-Trans-Danubian Environment and Water Authority	344 employees	100% on its acting area **medium**	Governmental organization	Regional		
Lower Danube Valley Environment and Water Directorate	250 employees	100% on its acting are **medium** a	Governmental organization	Regional		
South-Trans-Danubian Environment and Water Directorate	185 employees	100% on its acting area **medium**	Governmental organization	Regional		
Central-Trans-Danubian Environment and Water Directorate	198 employees	100% on its acting area **medium**	Governmental organization	Regional		
Gemenc Forest and Game Co. Ltd.	more than 250 employees (no details)	100% on its acting area **high**	Ltd. – Governmental control	Gemenc		☺
Local governments	120,000 inhabitants	**low - medium**	Governmental organization	Local		
BITE	50 persons	**medium – high**	NGO	Gemenc	☺	☺
WWF (Hungary)	19 employees	**low**	NGO	National/ international	☺	
Fishing Companies and Anglers Unions	appr. 100 employees (estimated)	**low – medium**	Civil organization	Gemenc		
Civil forest and game management companies	appr. 100 employees (estimated)	**low – medium**	Civil organization	Gemenc		
Eötvös József College, Baja	307 employees (interested – 5 persons)	**medium**	Governmental organization	Gemenc	☺	☺
VITUKI	228 employees	**low**	Non-profit Ltd.	National	☺	☻
World Bank GEF # TF 051 289 Project DDNP Component	10 persons interested/working in Gemenc	**medium**	Special agency of United Nations	International	☺	☺
ICPDR	Secretariat: 15 employees Head of delegations: 15 persons 7 Expert groups: 110 persons	**low**	International cooperation based on Danube River Protection Convention	River basin	☺	☺

6. Overview of interrelationships (formal and informal platforms and networks, power relations, existing and/or potential conflicts of interests) between key actors/stakeholders

Existing platforms and networks

There are official or formal and private or informal platforms and networks of information exchange and cooperation in the Gemenc. The common characteristic of these platforms and networks is that these are mostly connected to ongoing intervention planning processes or other researches. During intervention planning processes public participation and consultation is a strategically important approach and it is required by law. Information supply of and consultation of stakeholders shall be ensured and active involvement of them shall be encouraged.

The **GEF Project – DDNP Component** founded by the World Bank and the ongoing **Environmental Impact Assessment** of the proposed interventions provide proper basis or platforms for communication and information exchange with stakeholders.

Power relations

Any management or development action, planned to be taken by the various stakeholders in the Gemenc, requires permissions, authorizations and approbations from the relevant authorities and land users according to the referable laws. *Figure A6-2* gives the mapping of these relationships. It also provides information about power relationships between authorities and stakeholders being interested in the Gemenc on local, regional, national and international (basin) scales.

On the "intervention planning level" more stakeholders are involved into the processes, which have power on the interventions itself, as shown in *Figure A6-3*.

The lowest level is the "wetland service utilization"– as economical utilization of wetland service has the lowest priority. The interrelation and power relations are shown in *Figure A6-4*.

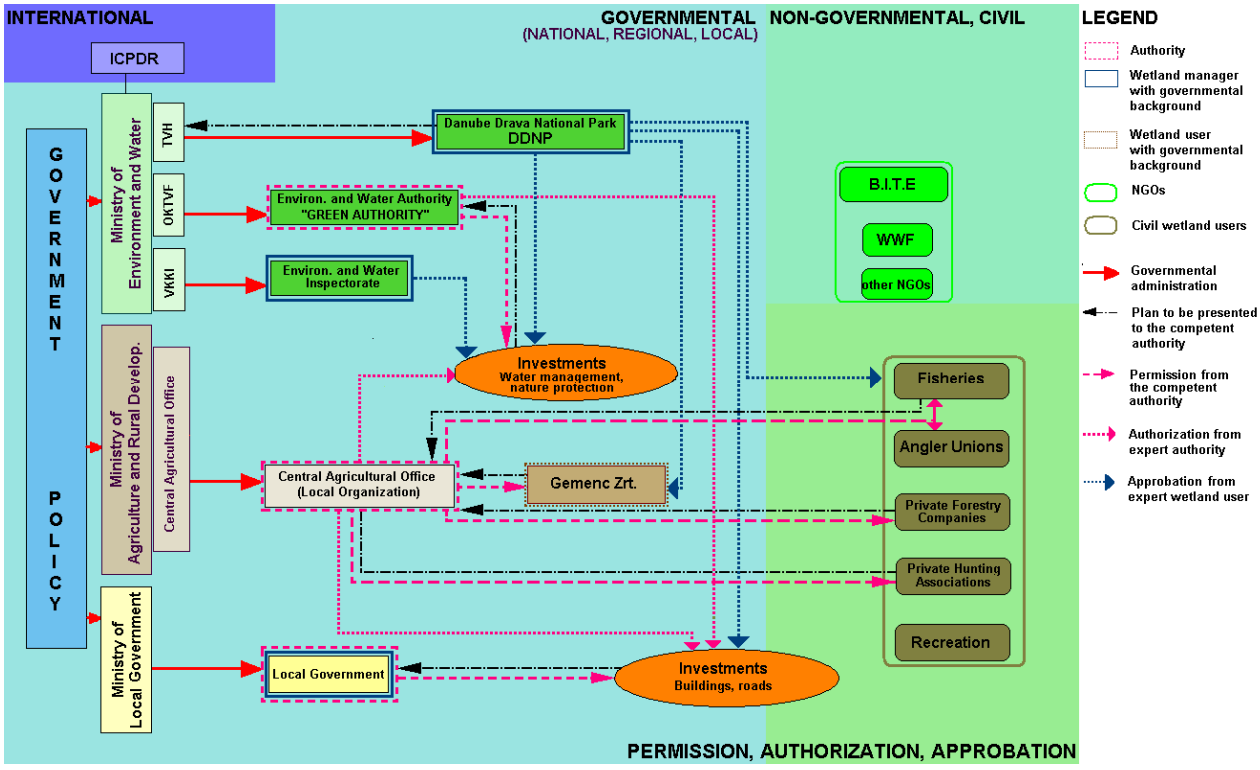


Figure A6-2: Power relationships in the Gemenc wetland ("official governmental level")

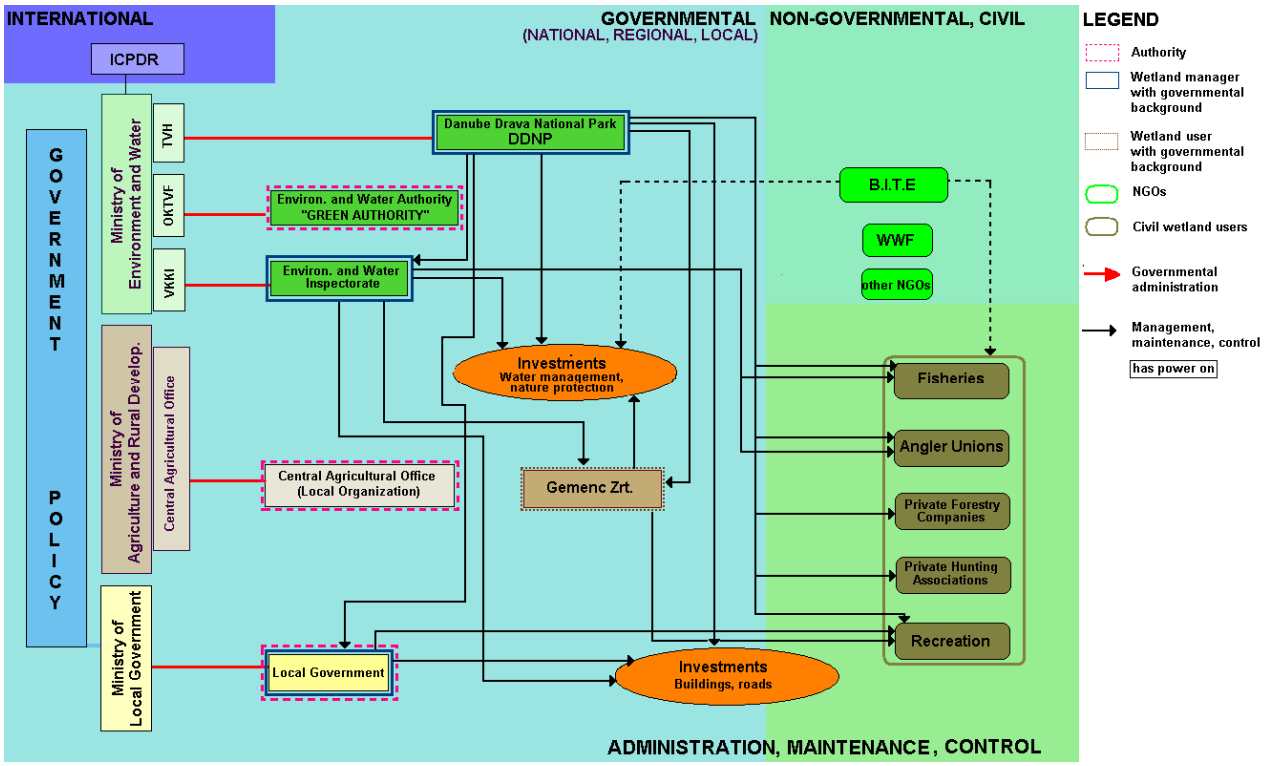


Figure A6-3: Power relationships in the Gemenc wetland ("intervention planning level")

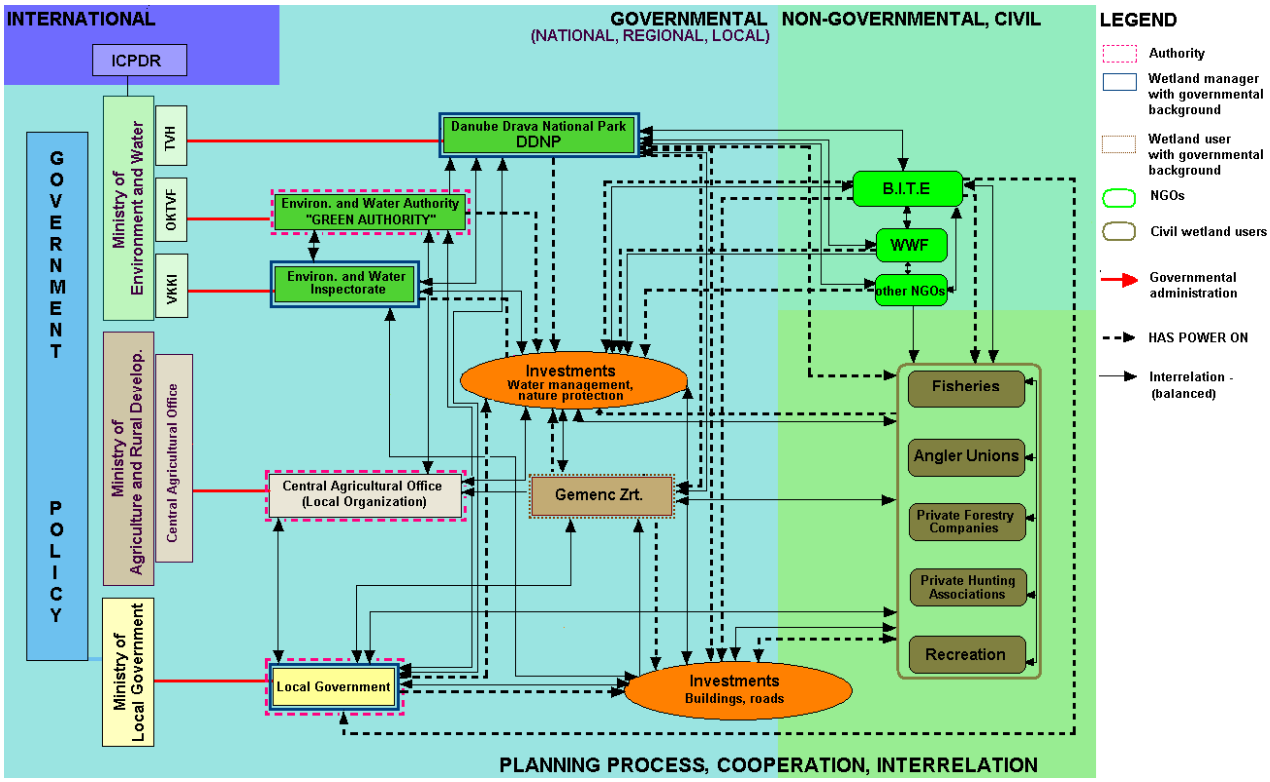


Figure A6-4: Power relationships in the Gemenc wetland ("wetland service utilization level")

Existing and potential conflicts

The most important existing conflicts are between:
- Wood production and Ecological health
- Nutrient reduction and Ecological health
- Navigation, Flood control and Ecological health
- Recreation and Ecological health

The interventions listed in the introduction (1. context) are going to change the natural circumstances of the area to a certain extent and therefore may have impacts on the human activities related either to economy or recreation and tourism. The possible changes that can cause new conflicts are the followings:
- Increase or decrease of water level or depth of water bodies (temporary or permanent)
- Increase of surface area of water bodies, flooding areas (temporary or permanent)
- Increase or decrease of average level of groundwater
- Changing in tree species, forest area, and forest yield.
- Changing in size of game stock due to the change in the in game feeding capacity of the area
- Changing in fish species, in size of fish stock due to change in the habitat conditions of the water body
- Changing in accessibility of certain areas in positive or negative manner.
- Changing in navigation conditions
- Changing in nature protection status of an area (e.g. becomes more restricted)

Possible conflicts can be foreseen between:
- Wetland revitalization intervention and Forest management, wood production
- Wetland revitalization intervention and Game management
- Wetland revitalization intervention and Fishing, angling activity
- Wetland revitalization intervention and Recreation, tourism
- Wetland revitalization intervention and Navigation

Annex 7: Summary of Austria case study

River Basin: Danube River Basin
Wetland(s): Lobau floodplain

1. Context: geographic scope and key issues that will be addressed

Scope:
Danube River Basin:
- Europe's second largest river basin - area of 801,463 km²
- 81 million people (more than 100 inhab./ km²)
- Danube River length 2,780 km, max. 1.5km wide
- World's most international river basin - 19 countries

Urban wetland Lobau
- Size: 1,039 ha (280 ha Lower Lobau area)
- Length: 10 km in total
- Connectivity: only at downstream end, above mean water

With an area of 801,463 km², the ***Danube River Basin (DRB)*** is Europe's second largest river basin. The Danube River has a length of about 2,780 km and flows through 19 countries with app. 81 million people in total (more than 100 inhabitants/ km²). By this, the DRB is the world's most international river basin. It forms an important east-west orientated bio-geographical corridor connecting the biological diverse Potocaspian region with Central Europe. The Danube was once famous for its extended floodplains. However, during the industrialization in the last 150 years, human impacts have fundamentally modified the river; it was channelized, polluted and impounded. About 90% of the former extended floodplains have been lost due to river engineering, leaving a chain of isolated floodplain remnants along the river. International organizations like the ICPDR or the IAD agitate for an integrated River Basin Management and the construction of a "Green corridor", a continuous belt of floodplains along the Danube River. However, as the management of the remaining floodplains is of national concern, concerted actions for an integrated River Basin Management are problematic and scarce.

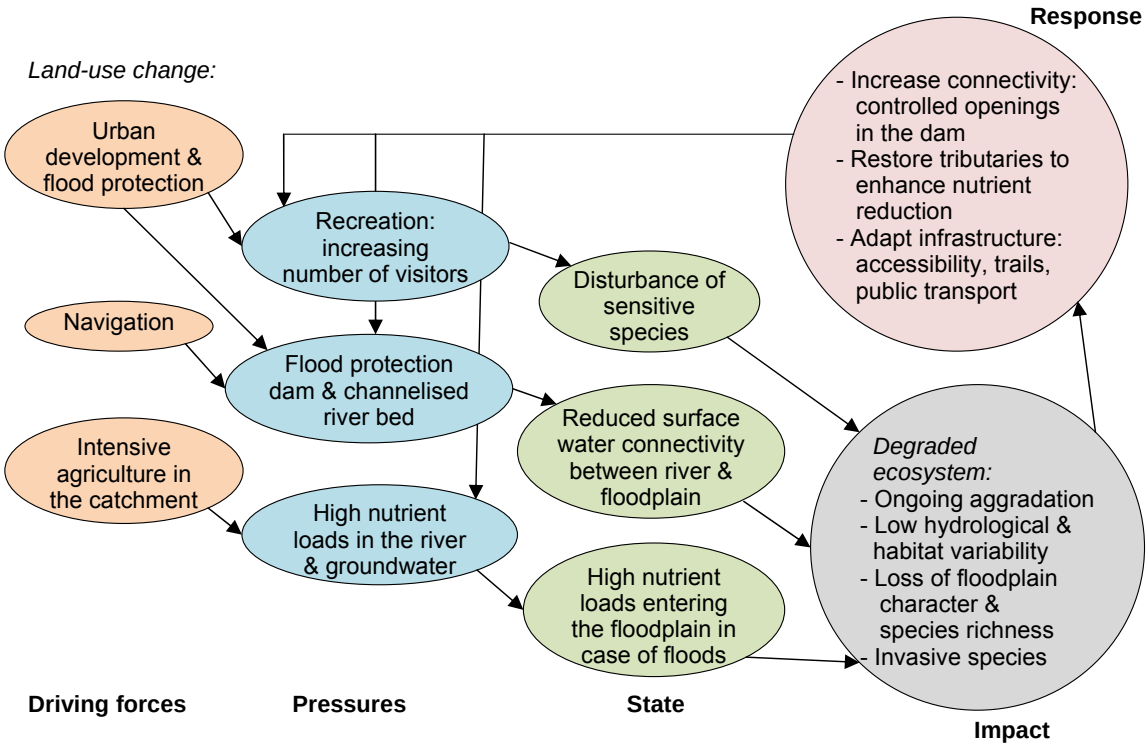
The ***floodplain Lobau*** is one of the smaller floodplains in the upper to middle reaches of the Danube River. It has a size of about 1,039 ha and covers a length of 10 km of the Danube. The Lobau is situated along the left bank of the River Danube at the eastern border of the city of Vienna. Originally, the Lobau was one of the broadest floodplains of the Austrian anabranching Danube, where braided river arms constituted the dominant habitats. In order to protect the city of Vienna from catastrophic flood events, the Danube was straightened and embanked at the end of the 19th century, whereby the floodplain was disconnected from the river by a flood protection dike. At the downstream end, a gap called the "Schönauer Schlitz" was left for drainage of the floodplain area. In order to retain the water within the floodplain and to facilitate forestry, about thirty-five check dams, partly with culverts and weirs, were built in the floodplain. The groundwater connection between the River Danube and the floodplain was further subdued by a road project along the dike and later on (1972-84) by an artificial flood relief channel, the „Neue Donau", which was built alongside the main river for an improved flood management. Together with the ongoing river bed incision of the Danube and the aggradation of sediments in the backwaters, the river regulation resulted in a severe and long lasting modification of the geomorphological and hydrologic features of the floodplain. During the last century, the shoreline lengths shrank by approximately one third and the mean groundwater level in the active zone dropped from -1.9 to -3 m. Until 2000, the floodplain consisted of isolated pools which were dominated by seepage or groundwater inflow.

In 1997, the hydropower plant Freudenau was put into operation on the River Danube. The impoundment of the Danube had a stabilizing effect on the decreasing water levels in the floodplain, but led to a significant attenuation of the original water table fluctuations. The reduced hydro-morphological dynamics affected the structure and composition of the land cover and enabled the establishment of rare but atypical dry meadows. Because of the great diversity of aquatic, semi-aquatic and terrestrial habitats and their high nature protection value, the Lobau has been included in several national as well as international schemes of nature conservation

during the last 30 years (nature protection area, UNESCO biosphere reserve, wetland under Ramsar convention). In 1996, it became part of the Alluvial Zone National Park.

After the river regulation, the different parts of the Lobau underwent a divergent development. The upstream part, the "***Obere Lobau***", was completely cut off from flood events and oscillated with the river only via the groundwater. Its reduced dynamics led to the development of large shallow lake-like backwaters with extended reed communities, which are used for recreational fishery and as natural bathing sites. The downstream part of the floodplain, the "***Untere Lobau***", still receives flood events via the downstream opening, the "Schönauer Schlitz". Due to its higher hydrologic dynamics, the "Untere Lobau" is in a much more natural status than the "Obere Lobau". Most of the area is covered with forests, wetlands and water bodies of considerable morphological and hydrologic variety.

The altered connection to the river also affected the utilisation of the area. Within only a few decades after the Danube regulation, most parts of the former floodplain in the Obere Lobau became densely populated. Human settlements expanded especially at the borders of the "Obere Lobau", while the "Untere Lobau" remained relatively intact. With growing social and economic demands, the diversity of utilisations increased. While hunting and forestry dominated until the beginning of the 20th century, the economic crisis after the two world wars led to a marked increase in agricultural land use for food supply in the "Obere Lobau". During the industrialisation, efforts to exploit this area economically resulted in the establishment of an oil-harbor and a tank top there. Intensified nature protection efforts in the 1980s prevented any further industrialisations of the area and finally resulted in the establishment of the National Park. Nowadays, up to 600.000 visitors per year use the Lobau as recreation resort. Besides, the Lobau is used for drinking water supply of parts of the city of Vienna. Since the establishment of the National Park, forestry, agriculture, sports fishery and recreation are regulated by the National Park Authority. Nature protection and the drinking water supply are of priority in local management plans.



Issues:

- Decoupled former dynamic floodplain
- Decrease of aquatic and semi-aquatic habitats
- Still high biodiversity and internat. designation (UNESCO MaB, RAMSAR, Natura2000, NP)

- Improvement of flood protection
- Important drinking water supply for Vienna (max. 25% of total amount can be provided)
- Pressure by recreation – currently more than 600,000 visitors / y with increasing tendency

Other contextual information
At the moment, management plans for the Lobau are under development. These plans focus on the freezing of the status quo in the "Obere Lobau", in order to maintain the use as a recreation area, and the partly re-connection and, thus, dynamisation of the "Untere Lobau", to increase a more natural and floodplain specific development and sustain the high biodiversity of the floodplain.

Optional management measures are a controlled re-connection of the floodplain via openings in the dam and the restoration of tributaries. At the moment, the effects of different degrees of connectivity on the hydrology, biogeochemistry and the biota of the floodplain are being modelled, based on the results of the ongoing monitoring.[148]

Past and ongoing projects:

Optima Lobau (2005-2008) (research project)
Different socio-economic and ecological demands were studied via a multi-criteria analysis on the base of hydro-ecological and socio-economic models.

Dotation Lobau (water enhancement scheme)
For several years the Lobau is being endowed with water from the "Neue Donau" (a flood protection basin) with a mean of 400 l/s (max. 1500l/s) in order to increase surface and subsurface water levels. Monthly monitoring of ecological data, surface and ground water quality is being performed.

Anbindung der Altarme *(reconnection of backwater system)*
This project studies the effect of an increased connectivity between the Danube main channel and the Lobau floodplain via controlled openings and weirs in the flood protection dam. Surface water and groundwater are being modelled as well as various important species and habitat types. The project is in the stage of literature research and model development.

Flussbauliches Gesamtprojekt *(Integrated river engineering project)*
The project consists of a set of measures in the main channel and adjacent wetlands.
In this project, the modelling of hydrology and suspended sediments in the Danube main channel are being carried out.

MAB 2020 Lobau (research project)
Within the next decade a huge increase of population – up to 100.000 people – is expected in and around the Obere Lobau (the former floodplain part which is now within the city limits of Vienna.) Here, urban development is in conflict with the interests of the national park. This project aims at assessing the effect of the pressure due to an increased number of visitors. Ecologically important issues such as macrophyte and algal growth are being studied.

The above mentioned projects provided the data base for the following stakeholder analysis for WETWin.

2. Process followed for the stakeholder analysis

The Lobau is owned by the Governments of Vienna and Lower Austria (100 %). It is part of the Nationalpark Donauauen, Natura 2000 area and Ramsar site and, thus, also within the area of responsibilities of the main nature conservation authorities, which are represented by the Governments of Vienna and Lower Austria.

During the last 20-30 years, research teams and stakeholders have been working on a sustainable management plan for the Lobau to ensure the natural development of the floodplain as well as the controlled

[148] It seems that the degree of connectivity (and the related advantages/disadvantages) is the key issue. Has all been decided yet in this respect (degree of connectivity) and are you monitoring the consequences of implementation or do you play a role in researching/modelling different options for the degree of connectivity? Please clarify.

utilisation of the area. At the moment, the key stakeholders and the different research teams, including the WasserKluster Lunz, are engaged in a concrete planning process regarding the sustainable management of the Lobau, dealing with a partial re-connection of the floodplain (see above, project “Anbindung der Altarme”). A compromise solution between social and ecological demands has already been found in the form of a National Park, where the conservation of the floodplain is of supreme priority, and socio-economic utilizations are restricted mainly to recreation and sustainable fishing and are regulated by the National Park Authority via the National Park Management plans.

The largest conflicts for a sustainable scenario for the Lobau still exist between flood retention, drinking water supply and ecological objectives, but they are currently dealt with. This is the reason why WKL decided to involve the key stakeholders of the Lobau in the project WETwin only on the level of “information giving” and “consultation” (in relation to stakeholder priorities and decision processes). The currently discussed Lobau plans are already too detailed to be included in the WETWin project. Besides, stakeholder structures have already been assigned for a long time and conflicts between the different accesses and demands are well known. A base for this new planning process was provided amongst others by the project “Optima Lobau” (2005-2008), in which different socio-economic and ecological demands were studied in a multi-criteria analysis.

The summary of the stakeholders for the Lobau and detailed analyses of the key stakeholders is based on these pre-ceding studies as well as on long-term experiences with the different stakeholder groups.

3. List of all stakeholders with their characteristics and interest/stake in WETwin or its outcomes

Table A7-1: List of stakeholder groups, their responsibilities and interests

Stakeholder groups	Name	Responsibilities in the Lobau	Interests
Governmental organisation on international scale	ICPDR	advisory	Water conservation on Danube River Basins scale
Governmental organisation on national scale	Federal Ministry for Environment	decision maker, investor	Nature conservation and water ways
Governmental organisation on national scale	Federal Ministry for Traffic	decision maker, investor	Nature conservation and water ways
Governmental organisation on provincial scale	Government of Vienna, Municipal authorities for Nature Conservation, Hydrology, Forestry, Drinking Water and Sanitation	decision maker, land owner, investor; implementation and monitoring	Flood protection, nature conservation, drinking water supply, sanitation, recreation
Governmental organisation on provincial scale	Government of Lower Austria, Municipal authorities for Nature Conservation, Hydrology, Forestry, Drinking Water and Sanitation	decision maker, land owner, investor; implementation and monitoring	Flood protection, nature conservation, drinking water supply, sanitation, recreation
Governmental organisation on provincial scale	Advocacy for the Environment of Vienna and Lower Austria	advisory	Legal questions regarding nature conservation
Local government	Adjacent Municipalities	direct users, adjacent settlers	Fishery, Recreation, Flood protection, health (moscitoes)
Company	National Park Authority (Nationalpark GmbH)	executing and controlling agency; implementation and monitoring; research, education	Nature conservation, National Park, Research and education
Research institutes	Universities (e.g. University of Vienna, University of Technologies, University of Natural resources and applied Scinecs, WasserKluster Lunz, …)	research; advisory	Reserach, Nature conservation
NGOs	Nature Conservation NGOs (WWF, Bird Life, ...)	advisory	Nature Conservation
Civil society	Associations for Hunting and Fishing of Vienna and Lower Austria(members of the National Park Advisory Board)	Direct users; advisory	Hunting, Fishing
Civil society	Chamber of Commerce of Vienna and Lower Austria (members of the National Park Advisory Board)	advisory	Agriculture

The table above categorizes all stakeholders for the Lobau. The stakeholders have been grouped according to the character of their organisation. This table only refers to the Lobau floodplain and not to the whole river basin[149]. There is no common management for the river basin, as the management is in national responsibility; that is also the reason, why the ICPDR is only of minor importance; the situation is similar to that in the Gemenc floodplain, only that in Austria the stakeholders are a bit different to that in Hungary. The interests listed in the table A7-1 are common interests in the Lobau, not in WETWin.

Table A7-2: List of all stakeholders with their characteristics and interest/stake in WETwin or its outcomes[150]

Categories	Stakeholders[151]	Interests in WETwin or outcomes	Characteristics

[149] Decisions taken at RB level will affect the wetland and therefore should not be disregarded: the final WETwin generic guidelines are among others meant for RB level authorities to be used!

[150] Interpretation of author (TvI)

[151] The following "stakeholders" appear in other reports but not in the Stakeholder analysis report received for Lobau. For some it is not clear if is a another description of an existing authority or a separate entity or what role they play:

- Water works??? – which department(s) is this?
- Water authority??? – which department(s) is this?
- "Flood protection commission": is this something inter-departemental? Official? Local, provincial or National? What mandate?
- Which are the spatial planning authorities?

Categories	Stakeholders[151]	Interests in WETwin or outcomes	Characteristics
1a. Water managers at wetland level	1. Government of Vienna – Municipal Authorities for Nature Conservation; Forestry, Drinking Water and Sanitation 2. Vienna Municipal Authority for Hydrology and Flood Protection 3. National Park Authority	1. Nature conservation, drinking water supply, sanitation, recreation. 2. Secure surface and groundwater balance and flood protection 3. Nature conservation, National Park, research and education	1-2: Decision makers, land owners, investors, implementation and monitoring 3: Company[152]; executing and controlling agency; implementation and monitoring; research and education
1b. Water managers at RB (provincial) level	1. Government of Lower Austria – Departments of Nature Conservation; Forestry, Drinking Water and Sanitation 2. Government of Lower Austria – Department of Hydrology and Flood Protection 3. Advocacy for the Environment of Vienna and Lower Austria	1-2: Nature conservation, drinking water supply, sanitation, recreation, flood protection; interest in higher connectivity 3. Legal questions regarding nature conservation	1-2: Decision makers, land owners, investors, implementation and monitoring; owner of downstream reaches and surrounding land which are affected by hydrological measures 3. Provincial government structure; advocacy
2. Direct users	Adjacent Municipalities: direct users, adjacent settlers	Fisheries, Recreation, Flood protection, health (mosquitoes)	Civil society: adjacent settlers
3. Landowners	Government (only?)	Flood protection, nature conservation, drinking water supply, sanitation, recreation	Governmental (land owner), funding, implementing, monitoring)
4a. Govt/public sector local (W) level	1. Vienna Municipal Authority for Drinking Water 2. Vienna Municipal Authority for Hydrology and Flood Protection 3. Vienna Municipal Authority for Nature Conservation 4. Vienna Municipal Authority for Forestry 5. National Park Authority (Nationalpark GmbH)	1. See 1a 2. See 1a 3. Conserve existing habitat and species of high nature conservation value; enable natural development; 4. Secure natural development of indigenous tree species 5. Conservation of floodplain; enabling natural development of the floodplain	1-4: Governmental (land owner), funding, implementing, monitoring 5. Executive authority with respect to National park issues (funded by Ministry of Environment); monitoring, reporting, research, education
4b. Govt/ public sector RB (provincial) level	1. Government of Lower Austria – Department for Hydrology 2. Government of Lower Austria – Department for Nature Conservation	1. Secure surface and groundwater balance and flood protection; interested in better water supply to surface and ground water and thus to higher connectivity. 2. Conserve existing	1-2: Governmental (land owner), funding, implementing, monitoring 3. Provincial government structure; advocacy

[152] Privatised?

Categories	Stakeholders[151]	Interests in WETwin or outcomes	Characteristics
	3. Advocacy for the Environment of Vienna and Lower Austria	habitat and species of high nature conservation value; enable natural development; 3. Legal questions regarding nature conservation	
4c. Govt/public sector national	1. Federal Ministry for Environment 2. Federal Ministry for Traffic	1. Nature conservation 2. Water ways	Decision makers; investors
5a. Private sector (WATSAN[153])	????		
5b. Private sector (other)	Chamber of Commerce of Vienna and Lower Austria	Agriculture	Members of the National Park Advisory Board - advisory
6. NGOs/ CSOs RB & national level	Nature Conservation NGOs (WWF, Bird Life, ...)	Nature conservation	Advisory[154]
7. CSOs/ CBOs local level	Associations for Hunting and Fishing of Vienna and Lower Austria	Hunting, fishing	Civil Society;advisory[155]
8. Research institutes	1. Wasser Kluster Lunz (WKL) 2. Universities (see table A7-1)	Research; nature conservation	Research; advisory role
9. International RB organisation[156]	International Commission for the Protection of the Danube River (ICPDR)	• Sustainable and equitable use of waters and freshwater resources in the Danube River Basin.Water; • Implementation of the transboundary aspects of the EU Waterframework Directive (WFD).	• International Governance structure (located in Vienna) comprised by the Delegations of all **Contracting Parties** to the **Danube River Protection Convention**, but has also established a framework for other organisations to join • Advisory role
10. Donors	1. EU 2. Lower Austria and Vienna governments		
11. Other[157]			

4. <u>Influence/importance matrix of all stakeholders and identified key stakeholders</u> (important, influential or both)

Table A7-3: DFID Influence and importance matrix (source: De Groot, et al. 2006).

High influence	*Low influence*

[153] Water and sanitation sector
[154] Members of the National Park Advisory Board?
[155] Members of the National Park Advisory Board?
[156] Because it has an advisory role it is not an "authority"
[157] E.g. religious leaders, teachers, churches

	High influence	*Low influence*
High importance	**A – *High influence, high importance*[158]** • Governments of Vienna and Lower Austria, • Municipal authorities for Nature Conservation, Hydrology, Forestry, Drinking Water and Sanitation • National Park Authority (Nationalpark GmbH) • Federal Ministry of Environment • *"Flood Protection Commission"?*[159]	**B – *High importance but low influence*[160]** • Adjacent municipalities (inhabitants) • Associations for Hunting and Fishing of Vienna and Lower Austria • Nature Conservation NGOs (WWF, Bird Life, ...)
Low importanc	**C – *Low importance but high influence*[161]** • Federal Ministry for Traffic • Advocacy for the Environment of Vienna and Lower Austria • Research institutes	**D – *Low importance and low influence*[162]** • Chamber of Commerce of Vienna and Lower Austria • ICPDR

In relation to WETwin the key stakeholders are:[163]

- Governments of Vienna and Lower Austria,
- Municipal authorities for Nature Conservation, Hydrology, Forestry, Drinking Water and Sanitation
- National Park Authority

5. Analysis matrix of key stakeholders with the possible contributions they can make, challenges that need to be addressed and actions required to engage key stakeholders

TableA7-4: challenges and possible contributions of key stakeholders

Categories	Stakeholders	Possible contributions	Challenges	Actions[164]
1a. Water managers at wetland level	1. Government of Vienna – Municipal Authorities for Nature Conservation; Forestry, Drinking Water and Sanitation 2. Vienna Municipal Authority for Hydrology and	1-2: database for floodplain; monitoring of drinking water quality and quantity, water levels and water exchange; surveillance and implementation of hydraulic measures; funding of research projects with regard to hydrology and nature conservation; funding of hydraulic measures and monitoring programmes 3. Decision process; list of	1-2: Nature Conservation vs. utilisation; conflicting conservation objectives: e.g. higher connectivity may threaten drinking water quality 3: Nature Conservation vs. utilisation; conflicting conservation	1-2: Connectivity should ensure balanced water supply but not threaten flood protection and costs should be kept low

[158] **A – *High influence, high importance:*** Stakeholders who stand to lose or gain considerably from the project AND whose actions can affect the project's ability to meet its objectives (process and outcomes) significantly - *The project needs to ensure that their interests are fully represented in the coalition. Overall impact of the project will require good relationships to be developed with these stakeholders.*

[159] What is this and what role they play (not in WETwin but in the Lobau plain? Is it a government authority? Who is involved?

[160] **B – *High importance but low influence:*** Stakeholders who stand to lose or gain significantly from the project BUT whose actions cannot affect the project's ability to meet its objectives - *Special initiatives are required to ensure that their interests and values are represented and protected*

[161] **C – *Low importance but high influence:*** Stakeholders whose actions can affect the project's ability to meet its objectives BUT who do not stand to lose or gain much from the project (whose interests are not the target) - *They may be a source of risk; and you will need to explore means of monitoring and managing that risk*

[162] **D – *Low importance and low influence:*** Stakeholders who do not stand to lose or gain much from the project AND whose actions cannot affect the project's ability to meet its objectives - *They may require limited monitoring or informing of progress but are of low priority. They are unlikely to be the subject of or involved in project activities.*

[163] The Federal Ministry of Environment should also be considered a key stakeholder for WETwin because it is considered category A (important and influential) and could be an important authority for implementing WETwin generic guidelines

[164] No actions planned with stakeholders

Categories	Stakeholders	Possible contributions	Challenges	Actions[164]
	Flood Protection 3. National Park Authority (Nationalpark GmbH)	stakeholders & priorities; database	objectives	
1b. Water managers at RB level	1. Government of Lower Austria – Departments of Nature Conservation; Forestry, Drinking Water and Sanitation 2. Government of Lower Austria – Department of Hydrology and Flood Protection 3. Advocacy for the Environment of Vienna and Lower Austria	1-2: database for floodplain (see 1a) 3.	1-3: Nature conservation vs. utililisation; conservation vs. restoration	
2. Direct users	Adjacent Municipalities: direct users, adjacent settlers		Nature conservation vs. utilisation	
3. Landowners	Government *(only?)*			
4a. Govt/public sector local (W) level	1. Vienna Municipal Authority for Drinking Water 2. Vienna Municipal Authority for Hydrology and Flood Protection 3. Vienna Municipal Authority for Nature Conservation 4. Vienna Municipal Authority for Forestry 5. National Park Authority (Nationalpark GmbH)	1. See 1a 2. See 1a 3. Monitoring of fauna and flora; implementation and surveillance of EU habitat directive and national nature conservation acts. 4. Monitoring of forest development, planting of indigenous species and cutting of exotic species; forest management with regard to nature conservation 5. Executive authority; monitoring, reporting, research, education	1. See 1a 2. See 1a 3. Higher connectivity may threaten small valuable lentic water bodies and dry meadow elements; lower connectivity may lead to a loss of aquatic habitats. 4. Higher connectivity may threaten forest habitats and may lead to sedimentation in the floodplain. 5. current development threatens existence of National Park in the future; need for more water	
4b. Govt/ public sector RB level	1. Government of Lower Austria – Department for Hydrology	1. See 1b 2. See 1b	1. See 1b 2. See 1b	

Categories	Stakeholders	Possible contributions	Challenges	Actions[164]
	2. Government of Lower Austria – Department for Nature Conservation 3. Advocacy for the Environment of Vienna and Lower Austria			
4c. Govt/public sector national	1. Federal Ministry for Environment 2. Federal Ministry for Traffic		1. Nature Conservation vs utilisation; conflicting conservation objectives 2. International waterways vs development of flood plain	
5a. Private sector (WATSAN)	????			
5b. Private sector (other)	Chamber of Commerce of Vienna and Lower Austria		Nature conservation vs. agriculture	
6. NGOs/ CSOs RB & national level	Nature Conservation NGOs (WWF, Bird Life, ...)		Conflicting conservation objectives	
7. CSOs/ CBOs local level	Associations for Hunting and Fishing of Vienna and Lower Austria		Nature conservation vs. hunting and fishing	
8. Research institutes	1. Wasser Kluster Lunz (WKL) 2. Universities (see table A7-1)	Decision matrix; database	Conflicting conservation strategies	
9. International RB Authority	International Commission for the Protection of the Danube River (ICPDR)	Platform for decision process on DRB scale	Up- and downscaling (DRB – single floodplain)[165]	
10. Donors	1. EU 2. Lower Austria and Vienna governments			
11. Other				

6. Overview of interrelationships (formal and informal platforms and networks, power relations, existing and/or potential conflicts of interests) between key actors/stakeholders

Existing platforms and networks

[165] Important WETwin challenge as well! Communication and outreach strategy should be developed!

The platforms and networks for cooperation and information exchange between decision makers and researchers are usually established within the course of ongoing planning processes. Public participation and consultation is required by law but takes place at a latter stage in the planning process, when alternatives for management measures and their effects on the region can be presented. There are several instruments for intervention for the public.

Power relations

Any management or development actions in the Lobau requires permissions, authorizations and approbations from the relevant authorities and land users according to national and international law.

Existing and potential conflicts

The most important existing conflicts are between:

- Conflicting conservation objectives (e.g. fish vs. birds; dynamisation vs. conservation of reed communities; …)
- Wetland revitalization and drinking water supply
- Navigation, Flood control and Ecological health
- Recreation and Ecological health
- Nutrient reduction and Ecological health
- Wetland conservation and Fishing activities
- Wetland conservation and recreation

Annex 8: DFID influence and importance matrix[166]

Key stakeholders are those which can significantly influence, or are important to the success of the project. Influence refers to how powerful a stakeholder is; "importance" refers to those stakeholders whose problems, needs and interests are the priority of the project - if these "important" stakeholders are not assisted effectively then the project cannot be deemed a "success".

By combining influence and importance using a matrix diagram (see table A1-2), stakeholders can be classified into different groups, which will help identify the key stakeholders, and assumptions and the risks which need to be managed through project design. Before outlining this matrix, ways of assessing influence and importance are suggested.

Box A1-1 Definitions:

Influence: the power which stakeholders have over an intervention - to control what decisions are made, facilitate its implementation, or exert influence which affects the intervention negatively; the extent to which the stakeholder is able to persuade or coerce others into making decisions, and following a certain course of action.

Importance: the problems, needs and interests of these stakeholders are the priority of the intervention at stake; these stakeholders will definitely be affected by the outcomes of the intervention, either positively or negatively, directly or indirectly.

Assessing influence

Influential power may derive from the nature of a stakeholder's organisation, or their position in relation to other stakeholders (for example, line ministries which control budgets and other departments). Other forms of influence may be more informal (for example, personal connections to ruling politicians or local informal leaders). It may also be necessary to consider stakeholders whose power, and therefore influence, will increase because of resources introduced by the project.

Assessing influence is often difficult and involves interpretation of a range of factors. By way of example, some of the factors that may be involved are illustrated in table A1-1 below.

Table A1-1: Variables affecting stakeholders' relative power and influence[167]

Within and between formal organisations	**For informal interest groups and primary stakeholders**
Legal hierarchy (command and control, budget holders)	Social, economic and political status
Authority of leadership (formal and informal, charisma, political, familial or cadre connections)	Degree of organisation, consensus and leadership in the group
Control of strategic resources for the project (e.g. suppliers of hardware or other inputs)	Degree of control of strategic resources significant for the project
Possession of specialist knowledge (e.g. engineering staff)	Informal influence through links with other stakeholders
Negotiating position (strength in relation to other stakeholders in the project)	Degree of dependence on other stakeholders Assessing importance to project success

[166] DFID (1995)
[167] Wageningen International (2009)

Assessing importance

Importance is distinct from influence. There will often be stakeholders, especially unorganized primary stakeholders, upon which the project places great priority (e.g. women, resource poor farmers, slum dwellers, ethnic minorities etc). These stakeholders may have weak capacity to participate in the project, and limited power to influence key decisions.

When assessing importance to project success, the following "checklist" questions can be used. The answers to these questions may already be suggested by the information in the list of all identified stakeholders and their interests.

- Which problems, affecting which stakeholders, does WETwin seek to address or alleviate?
- For which stakeholders does WETwin place a priority on meeting their needs, interests and expectations?
- Which stakeholder interests converge most closely with policy and WETwin objectives?

Combining influence and importance in a matrix diagram

Importance and influence can be combined by using a matrix diagram (see table A1-2). This is done by positioning stakeholders in relative terms according to the two broad criteria in a two by two matrix (similar to a graph with vertical and horizontal axes).

This positioning will indicate key stakeholders, risks and assumptions for stakeholder cooperation, and potential coalition(s) of participation and support. The positioning can also inform negotiations and design of the intervention and stakeholder engagement strategies.

Table A1-2: Influence and importance matrix (source: De Groot, et al. 2006).

	High influence	***Low influence***
High importance	**A -** Stakeholders who stand to lose or gain considerably from the project AND whose actions can affect the project's ability to meet its objectives (process and outcomes) significantly. *The project needs to ensure that their interests are fully represented in the coalition. Overall impact of the project will require good relationships to be developed with these stakeholders.*	**B -** Stakeholders who stand to lose or gain significantly from the project BUT whose actions cannot affect the project's ability to meet its objectives. *Special initiatives are required to ensure that their interests and values are represented and protected*
Low importance	**C -** Stakeholders whose actions can affect the project's ability to meet its objectives BUT who do not stand to lose or gain much from the project (whose interests are not the target). *They may be a source of risk; and you will need to explore means of monitoring and managing that risk.*	**D -** Stakeholders who do not stand to lose or gain much from the project AND whose actions cannot affect the project's ability to meet its objectives. *They may require limited monitoring or informing of progress but are of low priority. They are unlikely to be the subject of or involved in project activities.*

Identification key stakeholders out of the importance / influence analysis

The stakeholders in boxes/categories A, B and C are the key stakeholders - those who can significantly influence (C), are most important (stand to lose or gain from)(B), or both (A) for the WETwin objectives.

Annex 9: GOPP Participation Analysis Matrix

With this tool you table the main characteristics of stakeholders, their interests, what they can contribute to or how they can participate in the project or process, what challenges they face (in relation to WETwin issues) and what the required actions are to work with these stakeholders. This can be done using the GOPP (Goal Oriented Project Planning) Participation Analysis Matrix.[168]

Box A2-1: stakeholder participation analysis matrix

- Column 1: Stakeholders
- Column 2: Characteristics, which describes the agency or group. E.g. size; degree of influence in the area; how it is organised; scale or scope (national, regional, provincial / wetland, river basin…); rural/urban; membership, support, etc.
- Column 3: Interests in WETwin. What is it they can / hope to get out of it?
- Column 4: Contributions and resources that they (can) provide. What is it that they can contribute towards WETwin? E.g. data or information; human resources (personnel, expertise); a network; financial resources; material, facilities and/or equipment that might be used in the project; mandate, policies.
- Column 5: Challenges faced (by stakeholders) and that hinder the successful outcome of WETwin. E.g. lack of involvement in planning; lack of funds or material; lack of information or orientation to the project etc.
- Column 6: Required actions. How to work with or engage these stakeholders and what is required to engage them meaningfully (e.g. build capacity or strengthen interest)?

(Adapted from Hamilton & Gaertner, 1992 - GOPP)

Checklist for drawing out interests

Interests of all types of stakeholders may be difficult to define, especially if they are "hidden", or in contradiction with officially stated interests. A rule of thumb is to relate each stakeholder to either the problems or site specific issues which WETwin is seeking to address (if at an early stage), or the established (site specific) objectives of WETwin (if it is already in a more advanced stage). Interests may be drawn out by asking:

- What are the stakeholder's expectations of WETwin?
- What benefits are there likely to be for the stakeholders?
- What resources will the stakeholder wish to commit (or avoid committing) to WETwin?
- What other interests does the stakeholder have which may conflict with WETwin?
- How does the stakeholder regard others in the list?

Information on secondary stakeholders could be obtained from the institutional appraisals of WP4 (D4.1) and information on primary stakeholders from the natural and socio-economic analyses of WP3 (D3.1). Especially in the case of primary stakeholders, many of the interests will have to be defined by the persons with the best "on-the-ground" experience. Double check the interests being ascribed to primary groups, to confirm that they are plausible. ***[169]***

The above could be defined and agreed upon with the stakeholders themselves, e.g. at a stakeholder workshop. At the same workshop WETwin objectives, the process and which key stakeholders should be engaged in what way could be agreed.

[168] Wageningen International (2009)
[169] DFID (1995)

Annex 10: Main issues, ecosystem services and trade-offs

Major issues in study areas

WETLAND-COUNTRY	climate change and variability	water quantity regulation	nutrient retention / waste water discharge	nature conservation / restoration	drinking water supply	sanitation / health	agricultural water supply	provision of material for community well-being
SPREEWALD – GERMANY	X	X	X					
LOBAU – AUSTRIA	X	X		X	X			
GEMENC - HUNGARY	X	X	X	X				
ABRAS DE MANTEQUILLA-ECUADOR	X	X			X	X	X	
NABAJUZZI & NAMATALA-UGANDA	X	X	X	X			X	
INNER NIGER DELTA-MALI	X	X	X	X	X	X		
GA-MAMPA- SOUTH AFRICA	X	X					X	X

Major Ecosystem Services in study sites

	Provisioning services				Regulating services					
WETLAND	Food (agricultural production)	Food (fish)	Food (wild plant and animal products)	Fresh water	Climate regulation	Water regulation	Water purification and waste treatment	Natural hazard regulation	Disease regulation	Ecological health
SPREEWALD					X	X	X			
LOBAU				X	X	X				X
ABRAS DE MANTEQUILLA	X			X	X	X	X			
GEMENC					X	X	X			X
NABAJUZZI & NAMATALA	X				X	X	X			X
INNER NIGER DELTA				X	X	X	X		X	X

GA-MAMPA	**X**		**X**		**X**	**X**				

PARTICIPATIVE TRADE-OFF ANALYSIS

Trade-offs occur when the provision of one ecosystem service is reduced as a consequence of increased use of another ecosystem service.

e.g. food production vs flood regulation

- ⇨ Optimal food production has large water requirements and drainage of wetlands
- ⇨ Optimal flood regulation requires buffering of water volumes (arable land or wetland)
- ⇨ *Which is the best equilibrium?*
- ⇨ *What is an acceptable trade-off*

STEP-BY-STEP

1. Delineate and characterize studied wetland and river basin
2. Select targeted functions – ecosystem services
3. Understand the multiple interactions between
    1. Wetland
    2. Its nearest (sub)catchments
    3. Involved stakeholders and their preferences
    4. Political, legal and institutional constraints

CONTRIBUTE TO BACKBONE CONCEPTS

- River basin management is improved by better wetland management (both ways)
- Adequate management maintains/improves ecosystem services provided by the wetland

Main Trade-offs in study sites

WETLAND-	MAIN TRADE- OFFS	
SPREEWALD	CLIMATE VARIABILITY AND CHANGE	WATER REGULATION – QUANTITY AND QUALITY
LOBAU	NATURE PROTECTION	DRINKING WATER SUPPLY
ABRAS DE MANTEQUILLA	SUSTAINABLE AGRICULTURE	SECURE WATER (DRINKING WATER AND SANITATION)
GEMENC	ENHANCING NUTRIENT RETENTION IN THE GEMENC (BY NOT ENDAGERING THE ECOLOGICAL FUNCTIONS)	SOLVING THE DESSICATION PROBLEM (ECOLOGICAL RESTORATION)
NABAJUZZI & NAMATALA	MAINTAINING ECOLOGICAL FUNCTIONS UNDER PRESSURE OF AGRICULTURE AND WASTEWATER	WATER MANAGEMENT/FLOOD CONTROL IN RELATION TO CLIMATE CHANGE, POLICY, ETC.
INNER NIGER DELTA	BALANCING LOCAL WASTEWATER DISPOSAL/DRINKING WATER SUPPLY VERSUS WETLAND ECOLOGICAL SUPPORT	BALANCING WETLAND AND RIVER BASIN WATER MANAGEMENT PRACTICES AGAINST VECTOR BORNE DISEASE MANAGEMENT
GA-MAMPA	BALANCE LOCAL LIVELIHOODS WITH WATER REGULATION AT BASIN SCALE	

Annex 11: WETwin conceptual framework

This framework is based on a number of existing approaches; the EU Water Framework Directive, the Ramsar Wise Use approach (incl. integration of wetlands in River Basin management, Critical Path, etc.) and the Millennium Ecosystem Assessment.

The framework is built on a basic project management cycle (conception of program, setting objectives, making a plan, implementing the plan, monitoring the system, adjusting the objectives and plan). In this cycle however some specific points have been further elaborated on, such as the important interaction between different scales (wetland ⇔ river basin, local ⇔ national) and the approach to setting management objectives, optimization of ecosystem services and identification of the best compromise solution taking into account hydrology, ecology, livelihood and policy.

A schematic representation of the conceptual framework is presented in figure A11-1. WETwin only deals with the first half of the cycle, however in view of designing a stakeholder engagement strategy it is necessary to also consider the post project stakeholder engagement.

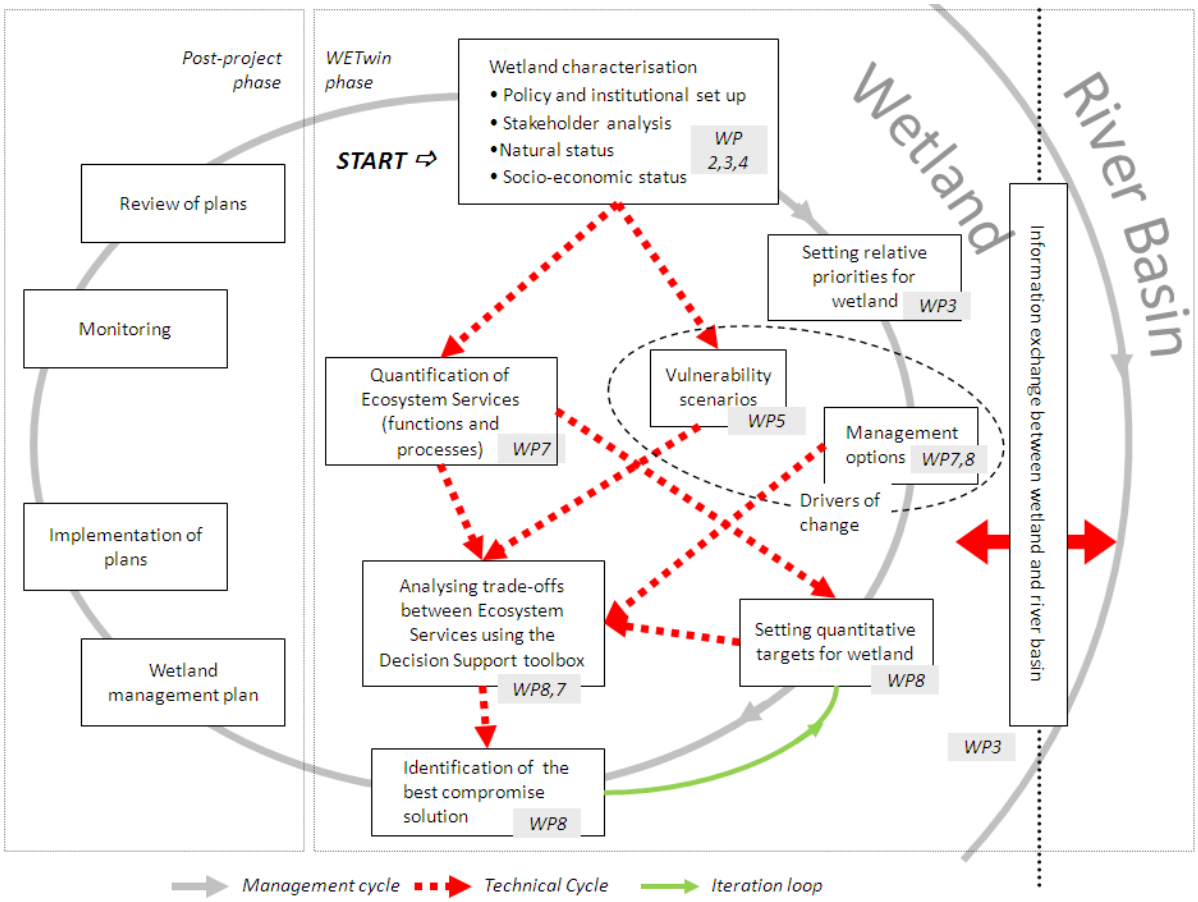


Figure A11-1: Schematic representation of the WETwin conceptual framework.

Interaction wetland ⇔ river basin

The framework is build on two concentric circles indicating two interactive processes. The outer circle represents the river basin management process; the inner circle represents the wetland management process. WETwin is not dealing with the river basin management as such but boundary conditions for wetland management options are influenced by or set in function of the river basin and, vice versa, management decisions in the river basin will need to consider the wetland processes. ***This emphasises the importance of***

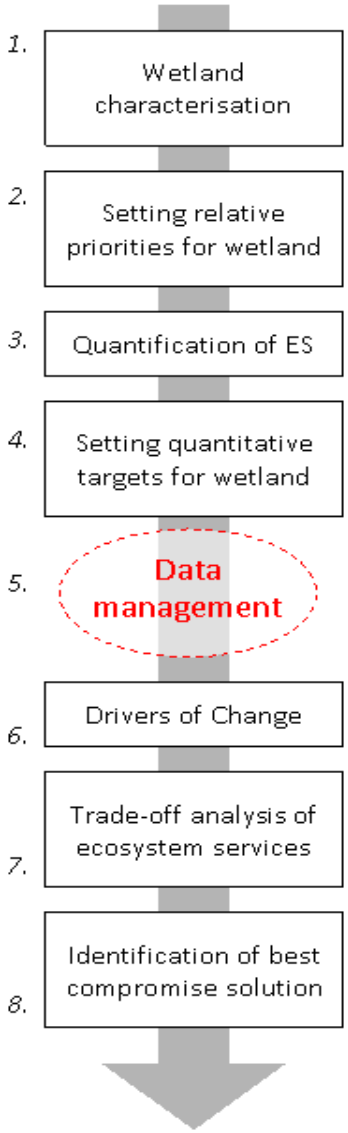
involving stakeholders at both levels and interaction between wetland managers and decision makers and river basin managers and decision makers throughout the entire management cycle.

Here also the importance of integration of sectors can be mentioned, i.e. agriculture, domestic water, industry, tourisms… Or interaction between wetland and river basin can be considered for each of the 'HELP' attributes; Hydrology, Ecology, Livelihood and Policy.

Stages and stakeholders in the WETwin process
With regard to the stakeholder engagement strategy, the following aspects in the cycle are being considered:

1. Wetland characterisation (WP 2, 3, 4)
2. Setting relative priorities for wetland (WP 3)
3. Quantification of ecosystem services (WP 7)
4. Setting quantitative targets for wetland (WP 8)
5. Data collection and management (WP 6)
6. Divers of change (WP 5)
7. Trade-off analysis of ecosystem services (WP 7,8)
8. Identification of the best compromise solution (WP 8)
9. (Planning for sustainability) (WP 2)

Figure A11-2: WETwin stages



The conceptual framework is represented in a linear way as stages in figure A11-2.

1) ***Wetland characterisation:*** The characterisation of the wetland and its basin includes the natural and socio-economic description, the institutional assessment and stakeholder analysis. This may consist of an initial characterisation followed by an in-depth analysis. Guidelines for stakeholder analysis have been described in part one of this document, for the description of the natural and socio-economic status and institutional guidance documents were prepared in work packages 3 and 4. These should give an indication as to what extent stakeholder involvement is desired or needed in this stage.

⇨ At this stage probably mostly crosschecking with key stakeholders at strategic and local level if the characterisations that will be used are correct and verifying uncertain information

2) ***Setting relative priorities for wetland***: The characterisation of the wetland is followed by the selection of favoured eco-system services the wetland should be providing and existing or future trade-offs[170]. This is done based on policy, scientific insights in hydrology and ecology and stakeholder consultations. Users of the wetland and in the river basin need to be consulted to identify which ecosystem services are important to them. In most case studies this has been done already as ecosystem services for optimisation and trade-offs are known for all sites.

⇨ Stakeholders to be involved at this stage: as wide a range as possible, e.g. on the wetland, downstream, upstream, local and national decision makers. Formulation of research questions is done by academic staff, policy makers and end users. Methods: consultations, review of existing reports, stakeholder workshop.

3) ***Quantification of ecosystem services***: Ecosystem services are quantified with the help of **indicators**. Indicators are used to characterise the current status and the impact of management solutions, indicating

[170] Trade-offs occur when the provision of one ecosystem service is reduced as a consequence of increased use of another ecosystem service. The use of "trade-offs" has been discussed during the meeting in January 2009, see annex 2 for more explanation in the context of WETwin

the changes to the different wetland services relative to the baseline status. **9. Planning for sustainability**

This is also referred to as the distance to target. Values of indicators are calculated with the help of models simulating the relevant hydrological, water quality, ecological, agricultural and other natural/anthropogenic processes on the wetland. The space formed by the value sets of the selected indicators is the **objective space**.

⇨ *Stakeholders to be involved at this stage: setting and quantification of indicators involves knowledge of the wetland hydrological and ecological processes and is therefore mainly a matter for researchers.*

4) ***Setting quantitative targets for wetland:*** For each indicator a *threshold* value is defined. Threshold values for the indicator can either be constraints which need to be respected or desired values established by certain stakeholders to sustain a certain ecosystem service[171].

⇨ *Stakeholder to be involved at this stage: threshold values need to be compliant with national policy or standards and need to be representing local stakeholders' views; involve both policy makers and wetland users.*

5) ***Data collection and management*** is not a specific stage in the process but it is important to consider this issue in view of the stakeholder engagement strategy. Existing data is collected, data gaps is analysed, new measurements will be done based on findings of gap analysis, a data base is designed and finally a plan is made for management of the data, i.e. who will maintain and update the data and make available for future work.

⇨ *Stakeholders to be involved at this stage: data will be mainly provided by national authorities but for specific information needs other stakeholders might need to be involved in data collection and/or analysis. Indicators should be available, where needed additional measurements can be made, data managers need to be identified i.e. who is in charge of data collection and management at this moment (data generating and holding stakeholders)*

6) ***Drivers of change*** are natural or human-induced factors that directly or indirectly cause a change in an ecosystem. Drivers include **management options** and **vulnerability** which result in combined scenarios for evaluation using the decision support tools.

Vulnerability is taken into account in the models as various sets of boundary data. Vulnerability is the "capacity to be wounded" [Kates, 1985]. Vulnerability is characterized by three components:

- Sensitivity,
- Exposure to future pressures and
- Adaptive capacity. Three types of adaptive capacity will be determined:
  4. Natural adaptive capacity (of the wetland);
  5. Governmental adaptive capacity (of the decision-making structure, in WP4) and
  6. Adaptive capacity of the wetland communities.

  The method to assess adaptive capacity will be flexible and based on the available data and stakeholder interests.

Since every projection into the future is associated with uncertainty, different scenarios have to be formulated to reproduce the range of possible changes and therefore to quantify the uncertainty[172]. The set of all alternative vulnerability scenarios is the **scenario space**.

Management options (measures) are potential strategies for the future management and development of the wetland. Unlike vulnerability scenarios (which are determined by external processes) management options are created by the stakeholders, decision makers and/or researchers being interested in the wetland. Management options can be subdivided into alternatives based on the different levels of certain parameters. For example: reduction of maximum allowable fish harvest on the wetland can be a management option for which alternatives can be constructed according to the different values of the maximum allowable harvest. Management options can also be combined if their implementations do not exclude each other. For example reducing fish harvesting can be combined with the option of reducing wastewater loads into the wetland. A feasible combination of concrete management options (with given parameter values) results in a *management solution* for the wetland. The set of all alternative management solutions is the **decision space**.

⇨ *Stakeholders to be involved at this stage: management options will result from the targets which were set in stage 2 (setting priorities), hence this needs to be done with all key stakeholders.*

[171] E.g. at least 20% of the area needed for agriculture to be able to produce sufficient food
[172] Hatterman, 2008

7) ***Trade-off analysis of ecosystem services.*** The objective of trade-off analysis is to identify the set of optimal solutions within the decision space.[173] Tools needed for trade-off analysis are put together into the decision support toolbox. The decision support toolbox is a modular set of tools of different levels of complexity ranging from qualitative expert judgment-based systems over GIS-based systems to complex numerical models. Modules are selected in function of the ecosystems services under consideration, quantity and quality of data available and the capacity of the end users of the tools. Hence, a clear understanding of the institutional set-up, participation mechanisms or division of responsibilities is needed at each case study site. The institutional set-up and management practices are described in WP4 (D4.3).

⇨ *Stakeholders to be involved at this stage: end users which may be national authorities, basin management authorities or others who are also likely to be in charge of data management, including monitoring of certain parameters necessary for running tools. Therefore these stakeholders need to be involved in the design of the database, transfer of data and set-up of sustainable data management. End users need to be identified and consulted in the final selection of tools.*

8) ***Identification of the 'best compromise solution'*** Experts, decision makers and stakeholders will evaluate the model results of the combined scenarios and identify the best compromise management solution within the given "Pareto-optimal" set of solutions (see annex 3). The 'best compromise solution' resulting from the evaluation of management options under different scenario's will differ from one site to another depending on the specific decision making process at the site. In case the decision makers and stakeholders cannot be satisfied with any of the Pareto-optimal solutions, then the process can loop back to 'Setting quantitative targets for wetland' where the level of constraints can be modified and the steps of trade-off analysis and solution identification can be repeated.

⇨ *Stakeholders to be involved at this stage: wide range of stakeholders at all levels*

Development of guidelines

The development of guidelines is not part of the management cycle but it is a final result of the WETwin project. Guidelines will be developed from the lessons drawn throughout the project and specifically on the case study sites. Hence input from the case studies will be needed. At this point selected stakeholders e.g. decision makers and end-users of tools may need to be involved again at this stage.

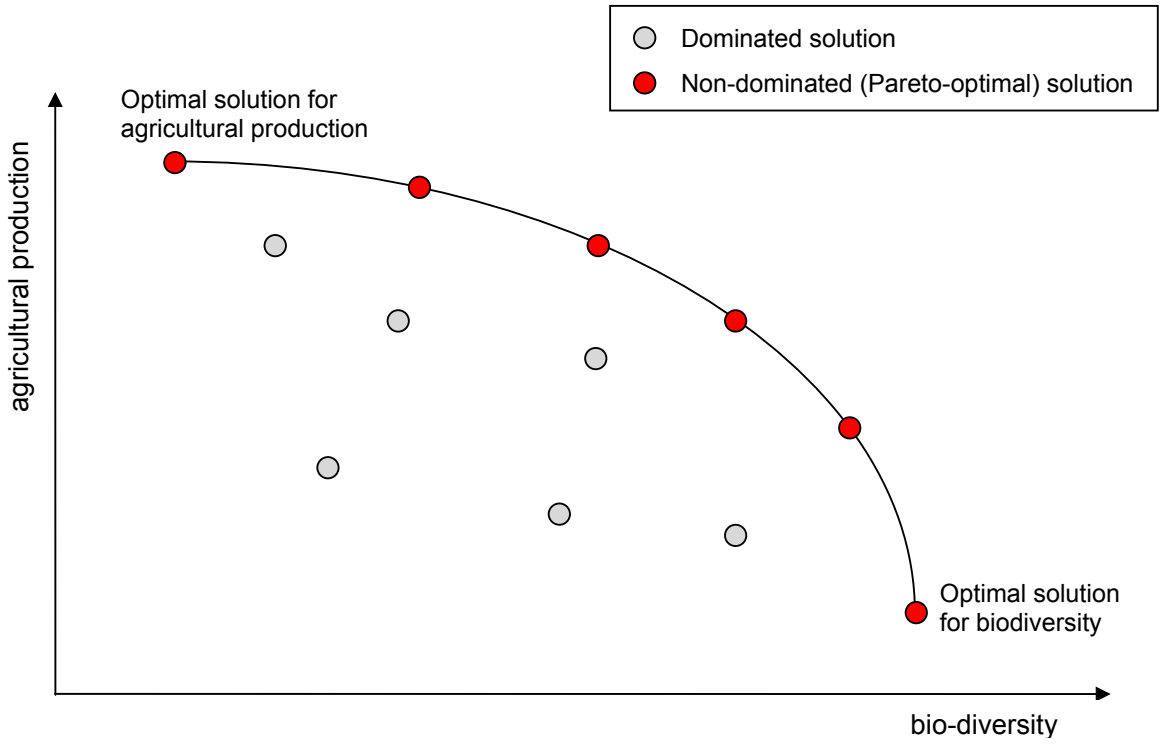
9) ***Planning for sustainability***

Once decision makers have reached a consensus on the best compromise solution, a new phase in the process commences. To avoid that stakeholder participation becomes inactive when the project funding stops, ***a plan setting the conditions that facilitate stakeholder participation needs to be developed.*** This includes institutional arrangements, generation of funds, sustain the motivation to participate and enhance further empowerment of stakeholders. For this reason it is important from the onset to get commitment of stakeholders, especially at decision making level and end user level, that they will use and integrate the recommendations of the project. It is necessary to consider the special role of women, not only in the use of water resources but also in its management. It is equally important to consider how to adapt guidelines and tools and make them accessible at different (strategic and implementation) stakeholder levels and how to build the capacity at local level to use tools or guidelines. It is also necessary to consider the special role of women, not only in the use of water resources but also in its management. To avoid falling in pitfalls, lessons from other study areas need to be exchanged. Concrete activities should be linking with a wide series of existing initiatives related to water management (e.g. income generation activities, micro finance networks, implementation of Poverty Reduction Strategy Papers (PRSP), national or regional expenditure frameworks etc., involving and establishing links with donor community, enhancing advocacy and lobbying activities. The results of this task will be included into the Project "After-Life Plan" prepared by WP10.[174]

[173] For more information on trade-off analysis and identifying Pareto-optimal solutions see annex 3
[174] WETwin annex 1, 2008

Annex 12: Trade-off analysis and Pareto-optimal solutions

The objective of trade-off analysis is to identify the set of Pareto-optimal (or non-dominated) solutions within the decision space. A solution can be considered Pareto-optimal if it doesn't violate the constraints (feasible solution) and there is no other feasible solution that performs at least as well on every criteria and strictly better on at least one criteria (Goicoechea, 1982). In case of two objectives (criteria) the Pareto-optimal solutions form a trade-off curve:



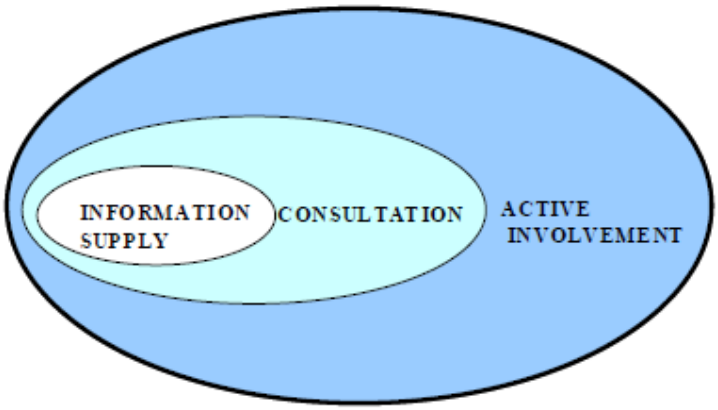
Trade-off (Pareto-optimal) curve in the objective space in case of the dual objectives of increasing agricultural production and increasing bio-diversity in a theoretical wetland

In case of more than two objectives, the Pareto-optimal solutions form a trade-off surface.
Identification of the Pareto-optimal set is a difficult task. In most cases only partial identification is possible, when a finite number of characteristic (quasi-) Pareto-optimal solutions are identified. Criterion-specific optimal solutions are examples for such characteristic points in the Pareto set. This approach is recommended for the WETwin project.
Too many objectives make the Pareto-optimal set too complex and too difficult to determine. In such a case the dimensionality of the objective space is proposed to be reduced by *aggregating* the criteria. The various ecological criteria for example can be aggregated into the ecological value, while economic indicators can be aggregated into the economic value of the wetland, using the *monetary valuation* approaches (de Groot et al., 2006).
Details of trade-off analysis have to be worked out better.
Tools needed for trade-off analysis are put together into the decision support toolbox. The decision support toolbox is a modular set of tools of different levels of complexity ranging from qualitative expert judgment-based systems over GIS-based systems to complex numerical models. Modules are selected in function of the ecosystems services under consideration, quantity and quality of data available and the capacity of the end users of the tools.
One tool is the decision (and scenario) space development tool (or Participatory Planning Support Tool (PPST)) that help the users in building up the decision and scenario spaces based on the vulnerability scenarios and management options identified by the researchers and stakeholders. The tool will also support the search of the decision space for Pareto-optimal solutions.

Annex 13: Different levels of participation

For each stakeholder considered important to be engaged in a certain stage, also the level of participation needs to be agreed. Levels of participation can be ranging from three levels of participation (see figure A13-1), to five (see table A13-1) and seven (see table A13-2), depending on which model is used.

Figure A13-1: Degrees of participation[175]



In the simplest model with three levels of participation (figure A13-1) information supply is the foundation of public participation, necessary to make consultation and active involvement work. The first level of 'real participation' is consultation. Stakeholders are consulted to learn from their knowledge, perceptions, experiences and ideas. A higher level of participation is participation in the development and implementation of plans, shared decision-making and self-determination. Having a share in the decision-making implies a degree of responsibility in the outcome.

Others distinguish between five levels which offer increasing degrees of control to the others involved:

Table A13-1: Wilcox's typology of participation[176]:

Information	You tell people what is planned
Consultation	You offer a number of options and listen to the feedback you get
Deciding together	You encourage others to provide some additional ideas and options, and join in deciding the best way forward.
Acting together	Not only do different interests decide together what is best, but they form a partnership to carry it out
Supporting independent community initiative	You help others do what they want - perhaps within a framework of grants, advice and support provided by the resource holder

[175] WFD CIS Guidance Document No.8 on public participation
[176] Wilcox (1994); adapted from Arnstein (1969)

A more elaborate model that is often used is Pretty's typology of participation, where likewise the degree of participation and empowerment increases at each level:

Table 13-2: Pretty's typology of participation[177]:

Passive Participation	People participate by ***being told*** what is going to happen or has already happened. It is a unilateral announcement by an administration or project management ***without any listening*** to people's responses. The information being shared belongs only to external professionals.
Participation in Information giving	People participate by ***answering questions*** posed by extractive researchers using questionnaire surveys or similar approaches. People do ***no***t have the ***opportunity to influence*** proceedings, as the findings of the research are neither shared nor checked for accuracy.
Participation by consultation	People participate by being consulted, and external agents ***listen to views***. These external agents define both problems and solutions, and ***may modify*** these in the light of people's responses. Such a consultative process does not concede any share in decision-making, and professionals are under no obligation to take on board people's views.
Participation for material incentives	People participate by providing resources, e.g. labour, in return for food, cash or other material incentives. Much on-farm research falls in this category, as farmers provide the fields but are ***not involved in the experimentation or process of learning.*** It is very common to see this called participation, yet people have no stake in prolonging activities when the incentives end.
Functional Participation	People ***participate*** by forming groups ***to meet predetermined objectives*** related to the project, which can involve the development or promotion of externally initiated social organization. Such involvement does not tend to be at early stages or project cycles of planning, but rather ***after major decisions have been made***. These institutions tend to be dependent on external initiators and facilitators, but may become self-dependent.
Interactive Participation	People participate in ***joint analysis***, which leads to ***action plans*** and the formation of ***new local institutions*** or the strengthening of existing ones. It tends to involve ***interdisciplinary*** methodologies that seek multiple objectives and make use of ***systematic and structured learning processes***. These groups take ***control over local decisions***, and so people have a stake in maintaining structures or practices.
Self-Mobilisation	People participate by taking initiatives independent of external institutions to change systems. Such ***self-initiated mobilisation and collective action*** may or may not challenge existing inequitable distributions of wealth and power.

All models show increasing levels of participation. One level is not necessarily better than any other, although you might strive to a certain level of participation in general, e.g. functional or interactive participation in Pretty's model. Different levels for different stakeholders can be appropriate at different times or stages in the project.

What is important is to be familiar with the fact that there are different possible levels of participation and to come to a decision for each stage of the project which stakeholders are important to engage and at what level, e.g. it might be that in a particular stage certain stakeholders will just be informed while other stakeholders are actively involved in decision making and implementation.

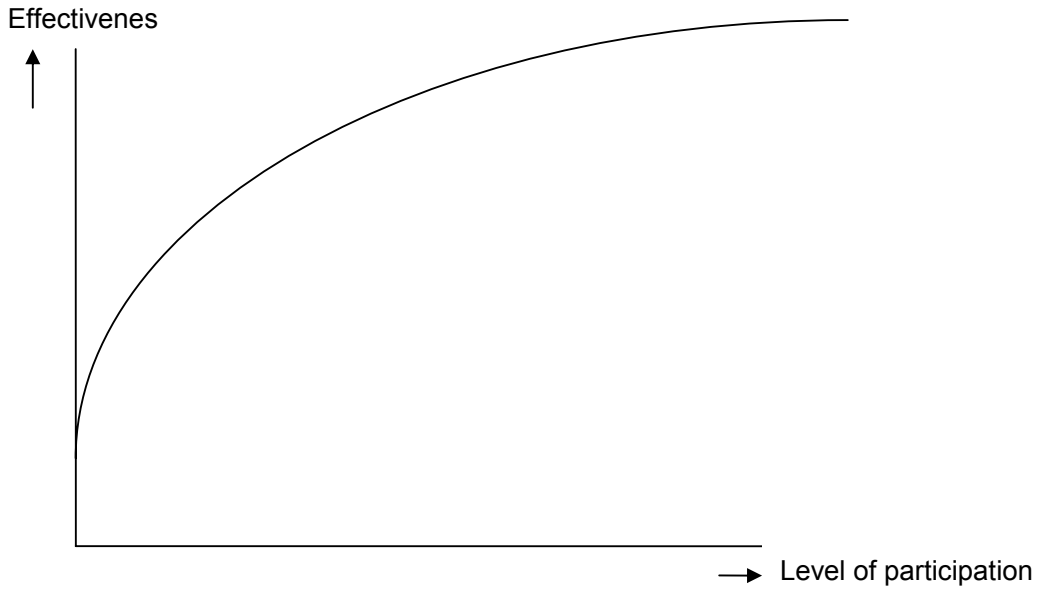
The desired level of participation of each stakeholder in each stage depends on:

[177] Pretty et al. (1995)

- The influence and/or importance of the stakeholder in terms of the intervention at stake and in terms of longer term sustainability
- Available resources (human, financial, material, information)
- Existing opportunities, e.g. existing (participatory) planning procedures, formal and informal platforms and networks that can be used; the support of influential stakeholders, etc.
- Existing constraints and obstacles, e.g. conflicts of interests, opposition of stakeholders who feel threatened in their power and control, lack of functional relationships/platforms, etc.
- Optimum balance between effectiveness and costs

In general: the higher the level of participation the higher the probability of effectiveness and sustainability. However, in practice there will be all kind of limiting factors and increasing the level of participation might not have the same increase in effectiveness and sustainability ("law of diminishing returns").

Figure 13-1: "Law of diminishing returns"



There might be all kind of enabling or limiting factors that determine the level and ability of participation of stakeholders. Apart from the available resources and capacity of the stakeholders it is depending on the system, existing structures, interrelationships, power relations, conflicts and all kind of other factors (see also section 2.5 of part 1 of the guidelines).

The challenge is to find the most functional balance between the desired level of participation and cost-effectiveness, taking into account enabling, limiting and other factors that determine the feasibility. The stakeholder analysis should provide the foundation to make informed decisions about what is the most functional level of participation

Annex 14: Participation tools decision matrices

Decision Matrix 1: Applicability of participatory methods and tools in different stages of process (source: HarmoniCOP)[178]

Criteria			PP Phase			PP level		
Name of tool or method	**Short description**	**Ref (*)**	Starting	Managing	Improving	Information	Consultation	Active Involvement
Methods								
Brainstorming	Workshop setting focused on the collection of a large number of ideas on a specific subject	1	■	■	●	▲	●	■
Citizen's jury	A series of meetings, attended by a group of randomly selected people who represent the public, to learn about and discuss a specific issue and draw conclusions.	1	●	■	▲	■	■	■
Focus group	Group interviews with 6-10 people at the same time		■	■	●	▲	■	■
Group model building	Facilitated session in which participants build a model to improve their understanding of the issue	3	●	■	▲	●	■	■
Interviews	Discussions, usually with open questions and the possibility of extensive answers.		●	■	●	■	■	●
Problem / cause analysis	In-depth analysis of causal network which is behind a problem	1	■	■	●	●	■	■
Public audience / public hearing	Meeting which presents the public with information and provides a forum for answering questions and collecting opinions	1	■	■	●	■	■	▲

[178] Decision matrix 1 distinguishes between three different phases: starting (1), managing (2), improving (3)- see also section 3.4.3

The levels of participation:
1) Information → also referred to as 'co-knowing'
2) Consultation → also referred to as 'co-thinking'
3) Active involvement → also referred to as 'co-operating'

Criteria			PP Phase			PP level		
Name of tool or method	Short description	Ref (*)	Starting	Managing	Improving	Information	Consultation	Active Involvement
Reframing workshop	Workshop setting which allows participants to explore different analytical frameworks and refine their problem perception	3	■	■	▲	▲	●	■
Review sessions	Workshop setting to monitor progress, keep momentum, discuss lessons learnt and evaluate steps taken so far	5	▲	■	■	▲	●	■
Role playing game	Gaming situation in which players play roles in a real or imaginary context	3, 4	●	■	▲	●	■	■
Round table conference	Facilitated and reported open discussion between participants	3	●	■	▲	■	■	■
Scenario building	Workshop setting in which policy options for the present and the immediate future are debated and their possible future consequences are explored.	2	▲	■	▲	▲	●	■

Decision Matrix 1; continued

IC-tools								
Geographic Information System (GIS)	System used for storage, mapping and analysis of geographical data	3, 4	■	■	●	■	●	■
Graphic tool-kit	Tools that help to illustrate discussions during workshops (includes whiteboards, pens and pencils, flipcharts)		■	■	■	■	■	■
Maps	Graphic scale models	3, 4	■	■	●	■	■	■
Comment Management system	System for the structuring and archiving of comments for future reference and follow-up		■	■	■	▲	■	■
Planning kit	Decision support tool that presents the effects of proposed (technical) measures	3	●	■	▲	■	●	●
Questionnaire	List of written structured questions for one-way information gathering	3	■	■	■	▲	■	■
Simulation models	Computer models that help to gain insight in effects of combinations of measures		▲	■	▲	●	●	■
Spatial mental models & maps	Geographical representation and structuring of perceptions about issues	3	■	■	●	▲	■	■
Website	Computer-based collection of information accessible on the Internet, sometimes including a forum	3	■	■	■	■	■	■

■ High applicability

● Medium applicability

▲ Low applicability

References (cf. further readings)
1. CIS guidance document N°8 on Public Participation
2. CIS guidance document N°1 Economics and the Environment
3. This handbook, section 2.4
4. HarmoniCOP report 'Role of information and communication tools'; http://www.harmonicop.info)
5. http://www.communityplanning.net/methods/method110.htm

Decision Matrix 1; continued

Decision Matrix 2: Applicability of tools within methods (Source: HarmoniCOP).

■ = high applicability, ● = medium applicability, ▲ = low applicability.

IC-tool	GIS	Graphic tool-kit	Maps	Comment Management	Planning kit	Questionnaire	Simulation models	partial mental models & maps	Website
Brainstorming	●	■	■	■	●	▲	▲	■	▲
Citizen's jury	■	■	■	■	■	■	▲	▲	■
Focus group	■	■	■	■	■	●	●	▲	●
Group model building	■	■	■	■	▲	●	■	●	▲
Interviews	▲	▲	■	▲	▲	■	▲	■	▲
Journals / Weblogs	▲	▲	●	▲	▲	▲	▲	▲	■
Monitoring and participatory evaluation	●	■	■	■	▲	■	▲	■	●
Problem / cause analysis	■	■	■	■	■	■	■	■	■
Public hearings	■	■	■	■	●	■	▲	▲	■
Reframing workshop	■	■	■	■	■	■	■	■	●
Review sessions	▲	■	●	■	▲	■	▲	●	■
Role playing game	■	●	■	●	●	●	■	▲	▲
Round table conference	●	■	●	■	●	▲	▲	▲	▲
Scenario building	■	●	■	■	■	●	■	●	▲
Stakeholder analysis	■	▲	■	■	▲	■	▲	●	■