Analysis of institutional capacity in wetland management and IWRM in the Gemenc, Ga-Mampa and Nabajjuzi & Namatala Wetlands

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SEVENTH FRAMEWORK PROGRAMME

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Contents

Abbreviations

CBD	Convention on Biological Diversity
DDNP	Danube-Drava National Park Directorate, Hungary
DDNPD	Danube-Drava National Park, Hungary
DEA	Decision support system
DPSIR	Department of Environmental Affairs, SA
DSS	Department of Water Affairs, SA
DWA	Driving Forces-Pressure-State-Impact-Response
EIA	Environmental Impact Assessment
EPI	Environmental Performance Index
GEF	Global Environment Foundation
GWP	Global Water Partnership
IRBM	Integrated River Basin Management
IWMI	International Water Management Institute
IWRM	Integrated Water Resources Management
MA	Millennium Ecosystem Assessment
MEA	Multilateral Environmental Agreement
MWE	Ministry of Water and Environment, Uganda
NEMA	National Environment Management Act, Uganda
OECD-DAC	Organization for Economic Cooperation and Development-Development Assistance Committee
SEA	Strategic Impact Assessment
UNDP	United Nations Development Programme
WfP	Water for Poor Programme, Uganda
WMD	Wetland Management Department, Uganda

1 Introduction

1.1 WETwin Work Package 4 'Management practices and institutional setting'

The overall objective of Work Package 4 (WP4) 'Management practices and institutional setting' of the WETwin project is to assess the institutional capacity on IWRM for twinned river basins. The research questions of WP 4 of the WETwin project are the following:

1) What are the factors hampering the sustainable management of the wetlands under study? What factors determine levels of 'performance'? *(Tasks 4.2 and 4.3)*
2) Do existing guidelines address these factors? Do existing guidelines address the main problems facing the wetland? *(Task 4.1)*
3) What is the role of guidelines in wetland and river basin management? Do existing management practices deviate from the guidelines? Why? *(Tasks 4.2, 4.3 and 4.4)*
4) What is the institutional capacity to implement IWRM and existing guidelines and to adapt to new situations/guidelines? *(Task 4.6)*
5) Based on the institutional analysis (previous questions) what are the requirements for guideline and DSS development to be used by decision-makers and stakeholders? *(Task 4.5)*

The first three research questions are addressed through the guidelines review and the assessment of wetland management structure and practice documents which have already been produced under WETwin. The assessment of the institutional capacity is the final step in the WP4, and it is important for enhanced understanding of how certain characteristics of wetland management institutions, structures and practices can influence their performance given a certain context in which they are embedded. This document is mainly focused on question 4 of the research question set and endeavours to analyse the institutional capacity of four (4) selected wetlands in the WETwin projects (Gemenc, GaMampa, Nabajjuzi and Namatala)

1.2 Objectives of this report

The objective of this document is to analyse the institutional setup and capacity to implement IWRM in the study areas in line with answering the research question number 4 of task 4.6. this report is based on the WETwin document "Approach for Researching Institutional Capacity and Requirements for Guideline and DSS Development: A Concept Note" (WETwin 2009a). This concept note also introduces the framework used in the assessment of the institutional capacity in the selected study sites, which was further elaborated in 2010 (WETwin 2010b). The report also uses other WETwin products such as "Report on Stakeholder analysis and strategies for stakeholder engagement" (WETwin 2010e), "Report on initial vulnerability assessment for each case study" (WETwin 2010d) as well as literature reviews and experiences of wetland specialists and practitioners from the selected case sites.

In chapter 2, the conceptual approach to analysis of institutional capacity is discussed in greater details, n particular, the main concepts and definitions of the capacity and its links to performance of the wetland management institutions. Chapter 3 describes the methodology used for the analysis of four case studies. Chapter 4 gives the detailed assessment of the components of institutional capacity using the cross-case comparison method. This chapter also discusses major findings of the application of the methodology in the case studies. Chapter 5, finally, summarises all the lessons learnt during this exercise and provides some recommendations for improvements of the institutional capacity in the case study areas and in wetland management in general.

2 Conceptual Approach to Analysing Institutional Capacity

Before going to discussion on the methodology we have to introduce main definitions and concepts, which have placed the grounds for our research and analysis. They are discussed in the following sections of this chapter.

2.1 Wise use of wetlands

The wise use of wetlands is one of the key concepts, a reference point, which placed the grounds for our analysis, and, consequently, must be introduced from the institutional (capacity) perspective before the analysis and findings are to be presented. Box 1 provides the important definitions as given in the Ramsar Handbook 1 (2007a).

Box 1: Important definitions (Source: Ramsar Handbook 1, 2007a)

- Wise use of wetlands is the maintenance of their ecological character, achieved through the implementation of ecosystem approaches, within the context of sustainable development" (p. 12)
- Ecological character of the wetlands is the combination of the ecosystem components, processes and benefits[1]/services that characterize the wetland at a given point in time (p. 11)
- Change in ecological character is the human-induced adverse alteration of any ecosystem component, process, and/or ecosystem benefit/service (p. 12)

The Convention is clear on that societal choice is inherent in advancing human well-being and poverty alleviation, which depends on the maintenance of ecosystem benefits/services. Pressures to follow sustainable development precepts, and to maintain environmental, economic and social sustainability in land use decisions, encourage compromises ("trade-offs") between individual and collective interests. Within the context of ecosystem approaches, planning processes for promoting the delivery of wetland ecosystem benefits/services should be formulated and implemented in the context of the maintenance or enhancement, as appropriate, of wetland ecological character at appropriate spatial and temporal scales.

The Conceptual Framework developed by the Millennium Ecosystem Assessment (MA) for the maintenance of ecosystem services for human-well-being and poverty reduction provides a multi-scalar approach that indicates how and where policy and management interventions and decision-making are supposed to be made (Figure 1).

Main guidance on policy, laws and institutions for sustainable use of wetland resources (Handbook 3, 2007b), as it is clear from the diagram, is concerned with (direct and indirect) drivers of change, though some other Handbooks also include some policy advice (e.g., Handbook 7 on River basin management, 2007c).

[1] We give here the remark of the Ramsar book 1 (2007a) explaining that "ecosystem benefits are defined in accordance with the MA definition of ecosystem services as the benefits that people receive from ecosystems" (p. 11)

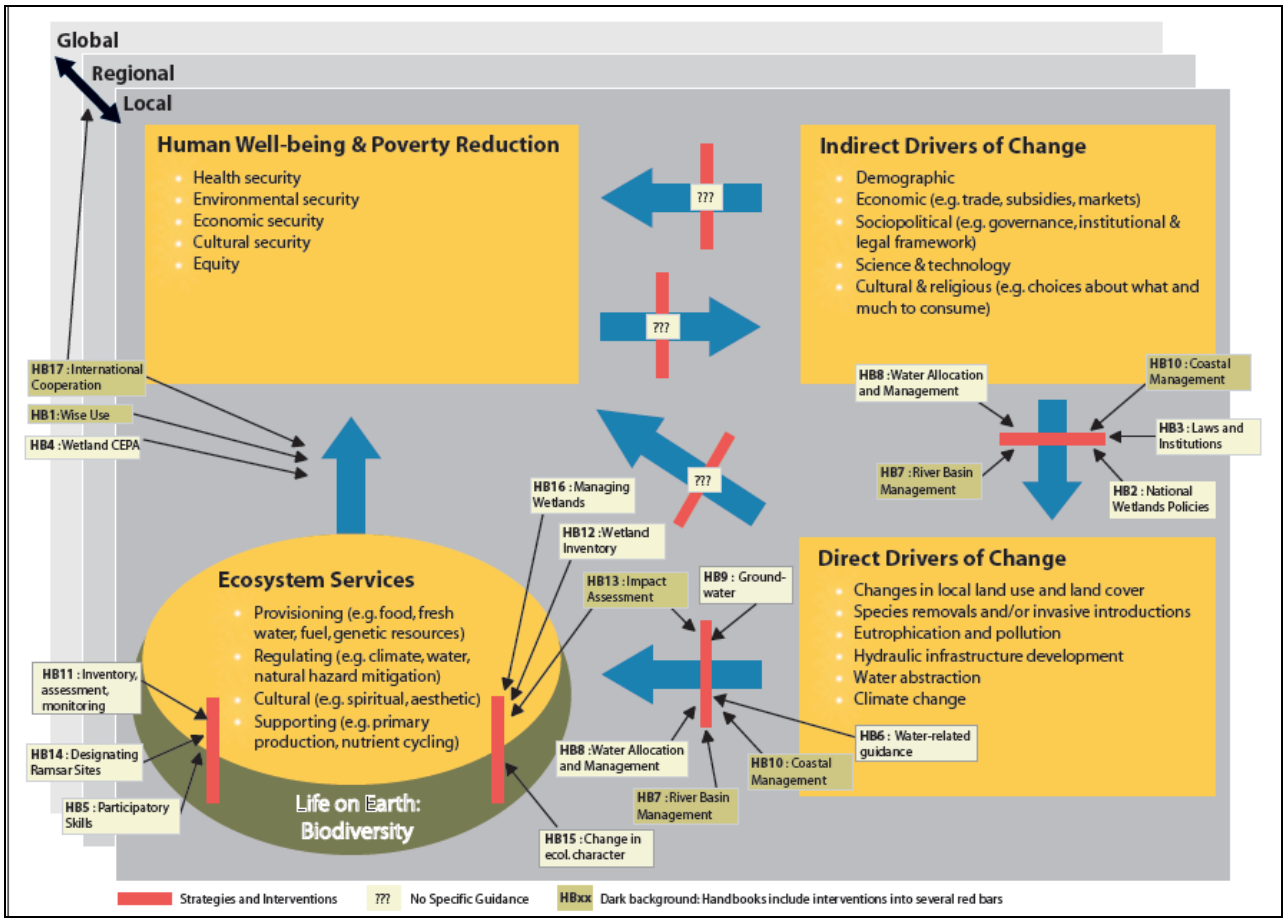

Figure 1: A Conceptual Framework for the Wise Use of Wetlands and the maintenance of their ecological character, and the application of the guidelines in the Ramsar 'toolkit' of Wise Use (Source: Ramsar Handbook 1, 2007a)

However, this focus is crucial for our study because it gave us an idea not only to analyze the current status of institutional capacity of wetland sites but also consider its dynamics, need to adapt to existing and future changes. It brings a new (temporal) dimension to our research and broadens its scope.

2.2 Failures to good practice in wetland management

Despite their international protection by the Convention on Wetlands of International Importance (*Ramsar Convention, 1972)* many wetlands lack sustainable management and are being increasingly threatened by anthropogenic pressure. This issue has been discussed in details in the WETWIN report on "Assessment of wetland management structures and practices" (2010c). We come back to it because it is important for further analysis of institutional capacity. Summing up the literature discussing barriers to wise wetland management (Opschoor and Perrings 1994; Ostrom 1994; Turner and Hulme 1997), the following types of failures can be revealed:

- ***Internal failures*** - Wetlands are common pool resources with often unclear boundaries and ownership. When individual rationality and collective rationality in using a common-pool resource diverge, the total resource units withdrawn from the resource stock will be greater than the optimal economic level of withdrawal that leads to conflicts between individual and collective interests
- ***External failures*** - Wetlands are part of basin-wide system, meaning that wetlands are part of a larger system. Basin developments impact on wetlands even if the actual development

occurs outside the wetland. The externalities of these developments (which may appear at a distance in both time and space) are often not valued and not taken into account.

- ***Information failures*** - Wetland functions are insufficiently appreciated and only to a limited extent quantified. The result is that often users/stakeholders lack sufficient knowledge on wetland functioning, options for sustainable use of the wetland and sustainable development within the wetland.
- ***Policy intervention failure*** can be defined as inconsistent or contradictory policies in different areas incl. environmental quality, nature protection, physical planning including the lack of consistency and coordination between wetlands and river basin management.

2.3 Capacity concepts

Lack of capacity could be seen as an overall cause behind these observed failures. The question comes up whether there is enough capacity to manage wetlands and river basins in line with good practice. But what does the term 'capacity' imply? As capacity is a broad term used in different contexts, we will start with giving a brief (not complete) review of some concepts.

Some definitions of capacity:

- The ability of individuals, institutions and societies to perform functions, solve problems and set and achieve objectives in a sustainable manner (UNDP 2007:5).
- Capacity is the ability of people, organisations and society as a whole to manage their affairs successfully (OECD-DAC Network on Governance 2006:7).
- Capacity is the ability of an organisation to function as a resilient, strategic and autonomous entity (Kaplan 2007).
- Capacity is that emergent combination of individual competencies, collective capabilities, assets and relationships that enables a human system to create value (Baser and Morgan 2008).

Baser and Morgan (2008) define capacity as the collective skill or attitude of an organisation or system to carry out a particular function or process either inside or outside the system. Capabilities enable an organisation to do things and to sustain itself. They group these collective skills into the following five core capabilities that contribute to the overall capacity of a system or organisation:

- *The core capability to commit and engage* - to encourage mindfulness, to persevere, to aspire, to embed conviction, to take ownership and to be determined.
- *The core capability to carry out technical, service delivery and logistical tasks* - to deliver services, for strategic planning and management, for financial management.
- *The core capability to relate and to attract resources and support* - to earn credibility and legitimacy, to buffer the organisation or system from intrusions, to earn the trust of others, such as donors and clients, to combine political neutrality and assertive advocacy.
- *The core capability to adapt and self-renew* - to improve individual and organisational learning, to foster internal dialogue, to reposition and reconfigure the organisation, to incorporate new ideas; and to map out a growth path.
- *The core capability to balance diversity and coherence* - to communicate, to build connections, to manage diversity and to manage paradox and tension.

While applied in the climate change literature the concept of capacity reflects the increased recognition of people's ability to face climate-related and other natural hazards which was not captured in the mainly negative concept of vulnerability (Gaillard 2010). Capacity refer to the resources and assets people possess to resist, cope with and recover from disaster shocks they experience, however it is not the opposite end of vulnerability on a single spectrum, because highly vulnerable communities may display a large range of capacities (Davis et al. 2004). The concept of capacity also encompasses the ability to either use and access needed resources and thus goes beyond the sole availability of these resources (Kuban and MacKenzie-Carey 2001). Capacities to

adapt to climate and environmental change are seen as rooted in resources which are endogenous to the community and which rely on traditional knowledge, indigenous skills and technologies and solidarity networks (Gaillard 2010).

2.4 Institutional capacity

Various authors have operationalised the term capacity in different groups (modes) of capacities, including institutional capacity. A few perspectives on institutional capacity are presented in this section. However, for better clarity of which capacity exactly we intend to analyse we have to introduce here the term "institutions" first.

Institutions have been defined by many including Nobel laureate Douglas North (1990) as "rules of the game". The sociologist Keman (1997) formulates a covering concept of institutions as sets of rules that occur in social reality in the form of recurrent behavior that complies with those rules. Similarly, The International Human Dimensions Programme's Institutions project defines institutions as: "systems of rules, decision-making procedures, and programs that give rise to social practices, assign roles to the participants in these practices, and guide interactions among the occupants of the relevant roles" (IDGEC 1999: 14). The rules and roles can be formal and informal, visible and latent, and conscious and unconscious (Arts 2006). Institutions both enable and yet restrict the opportunities for actors to respond (Sharpf 1997) to changes in the environment.

'Institutions' sometimes refers to 'organizations' since these are formalised patterns of rules and decision making and in ordinary speech, 'institutions' have become synonymous with 'organizations'. However, in this report institutions are not equivalent to organizations as institutions also refer to underlying ideological values and norms (Zijderveld, 2000; Young 1989; IDGEC 1999) and they are not actors.

Institutions reflect formal governmental processes as well as formal and informal social patterns of engagement. To avoid confusion, we will follow a terminological distinction made by the legal theorist Ota Weinberger (1991) between *normative* institutions – that is, institutions as distinct systems of rules – and *real* institutions – that is, institutions as enduring patterns of social behavior. This distinction between rules and behavior patterns (practices) is crucial for our further analysis.

In relation to the four orders outcomes presented in the previous section, the term 'Institutional capacity' mainly covers the first and second order. As Baser and Morgan (2008) say "Capacity development is about both first- and second-order changes. First-order changes are those relating to formal aspects such as structure and the configuration of tangible assets. Second-order or deep change involves altering mindsets, patterns of behaviour, degrees of legitimacy, and the relationship between the formal and the 'shadow' system. Machine building to fix gaps focusing on first-order change is not enough".

Morgan (2003) distinguishes four perspectives on capacities:

- *Institutional* capacity: the ability of institutions, both formal and informal, to structure the incentives and expectations of the participants and stakeholders in ways that support their performance.
- *Organisational* capacity: The aggregated ability of an organization or system to perform. This type of *overall capacity* is thought to come about by improving the contribution of the various organizational components such as the structure, systems, financial resources, the personnel, the vision, the culture and so forth. The emphasis is on the overall capacity of the organization or system to perform effectively.
- *Disaggregated* capacity: A skill or competence of some sort -usually technical or administrative and usually described as 'core' - that is housed within an organization or system. It usually refers to the ability of a person, group or organization to carry out a task or

function. From this perspective, a human organizational system at whatever level can be usefully thought about as a combination or interconnected web of capacities.

- *Empowerment or liberation*: This stems from personal engagement, identity and availability of choice, qualities that enable people to participate fully as citizens in society. This concept of capacity has to do with learning, participation and access to opportunity.

In the water sector the concept of capacity development was defined during the 1991 UNDP symposium on “Water Sector Capacity Building” by its three elements of:

- the creation of an enabling environment with appropriate policy and legal frameworks;
- institutional development, including development of community participation or institutional strengthening of communities; and
- human resources development and the strengthening of managerial systems.

2.5 Performance, change and adaptive capacity

Institutional capacity for wetland management will become increasingly important under a changing environment. Gupta et al. (2010: 459) stressed that "institutions, traditionally conservative and reactive, will now have to support social actors to proactively respond through planned processes and deliberate steps, but also through cherishing and encouraging spontaneous and autonomous change, as well as allowing for institutional redesign." They define adaptive capacity as the inherent characteristics of institutions that empower social actors to respond to short and long-term impacts either through planned measures or through allowing and encouraging creative responses from society both ex ante and ex post. It encompasses:

- the characteristics of institutions (formal and informal; rules, norms and beliefs) that enable society (individuals, organizations and networks) to cope with change (the authors refer to climate change, but it can be any).
- the degree to which such institutions allow and encourage actors to change these institutions to cope with change.

Various studies address the inter-relation between capacity, change and performance (Olsen 2003; Baser and Morgan 2008). Baser and Morgan (2008) argue that these interrelations are complex and need to be seen in relationship to the socio-political dynamics of the context within which they take place (external context, stakeholders, external interventions and internal features and resources). In line with this concept, Olsen (2003) and later Huntjens (2009) define four orders of outcomes in ecosystem-based management and through successive project cycles:

- First order - Enabling Conditions
  - Governmental commitment; authority agreement, funding
  - Legal/Institutional capacity to implement;
  - Clear policy and goals;
  - Constituencies present at local and national levels.
- Second order - Changes in Behaviour
  - Changes in behaviour of institutions and stakeholder groups;
  - Changes in behaviour directly affecting resources of concern;
  - Changes in Investment strategies.
- Third order - Attainment of IWRM objectives
  - Desired social and/or environmental qualities maintained, restored or improved.
- Fourth order - Sustainable Basin and Coastal Zone Development
  - A desirable and dynamic balance between social and environmental conditions is achieved.

This model of Olsen (2003), as well as that of Baser and Morgan (2008) give an interesting perspective on capacity for use in WETwin, for a number of reasons:

- they link capacity, change and performance,
- incorporate adaptive capacity and
- allow for a development perspective over time (gradual development of capacity and moving over time from one order to the other) which is realistic in a project with European and southern wetland sites.

It is envisaged that the enhanced (institutional) capacity of the wetland sites and river basins will lead to change and better performance (Figure 2).

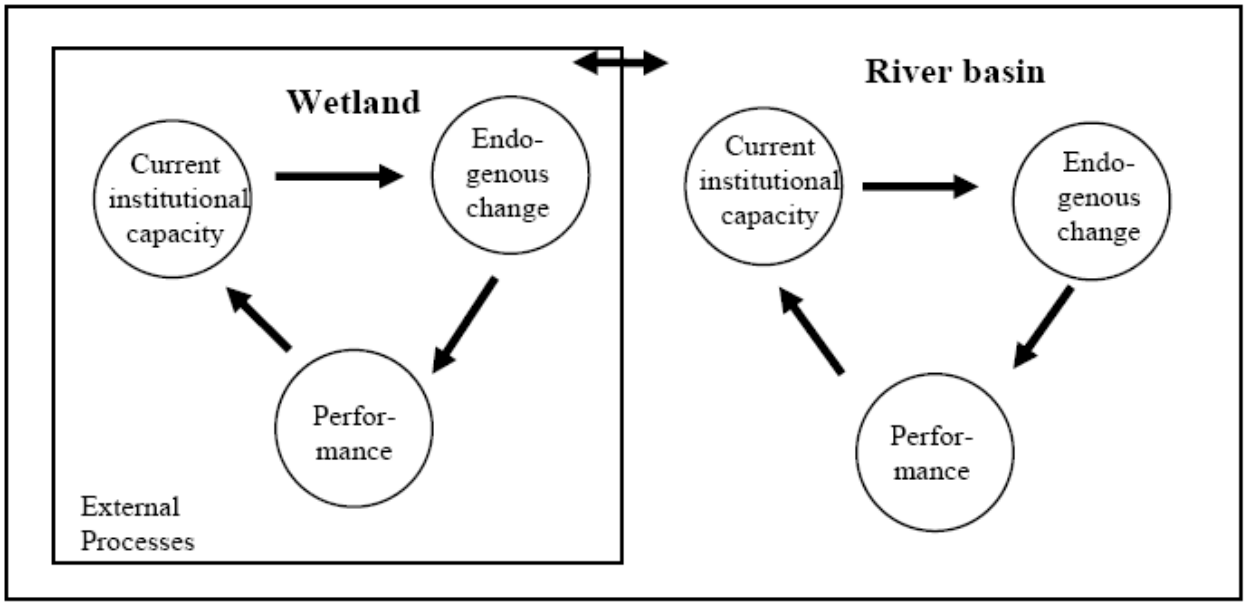

Figure 2: Conceptual framework for analysis of institutional capacity in wetland management (modifed from Baser and Morgan 2008)

While the term "capacity" represents the potential ability to do something, the term "performance" indicates how this ability is used in practice to achieve certain goals.

There are extensive literatures discussing factors that influence the environmental performance (e.g., Burby and Paterson 1993; Grasmick et al. 1991; Tyler 1990; Winter and May 2001). Understanding how these driving forces affect different sectors of the economy and types of organizations help managers to master their policies and methods and to better target resources. The major drivers and constraints for good performance are summarised in Table 1.

Table 1: Factors influencing environmental performance (Source: Principles, 1992)

Factors motivating performance	**Factors affecting performance**
ECONOMIC	
• Desire to avoid a penalty; • Desire to avoid future liability; • Desire to save money by using more cost-efficient and environmentally sound practices	• Lack of funds; • Greed/desire to achieve competitive advantage; • Competing demands for resources

SOCIAL/MORAL	
• Moral and social values for environmental quality; • Societal respect for the law; • Clear government will to enforce environmental laws	• Lack of social respect for the law; • Lack of public support for environmental concerns; • Lack of government willingness to enforce
PERSONAL	
• Positive personal relationships between program personnel and facility managers; • Desire, on the part of the facility manager, to avoid legal process; • Desire to avoid jail, the stigma of enforcement, and adverse publicity	• Fear of change; • Inertia; • Ignorance about requirements; • Ignorance about how to meet requirements
MANAGERIAL	
• Jobs and training dedicated to compliance; • Bonuses or salary increases based on environmental compliance	• Lack of internal accountability for compliance; • Lack of management systems for compliance; • Lack of compliance training for personnel
TECHNOLOGICAL	
• Availability of affordable technologies	• Inability to meet requirements due to lack of appropriate technology; • Technologies that are unreliable or

As one can see, one of the major factors driving performance is the capacity of organizations/systems to operate effectively and the overall institutional environment where the organizations have to operate.

Given the diversity of environmental problems, the variety of contexts in which they arise, and the numerous possible solutions to them, no “perfect” set of indicators to measure performance exists. Nor is it practical to develop an exhaustive list of all possible indicators. Frequently, the performance is assessed by determining the *effectiveness* and *efficiency* of a program or an organization. The ***effectiveness*** is determined by the degree to which its goals or objectives are realized, and the ***efficiency*** depends on resources used to produce an output. ***Input*** and ***output*** describe resources (in terms of personnel efforts and money) and activities (e.g., trainings etc.). ***Intermediate outcome*** and ***final outcome*** describe results (e.g. changes in farmers’ behaviour) and impacts (e.g., changes in water quality) of those efforts.

Figure 3 provides a simplified overview of how effectiveness and efficiency relate to the established objectives and to the resources, activities, outputs and outcomes.

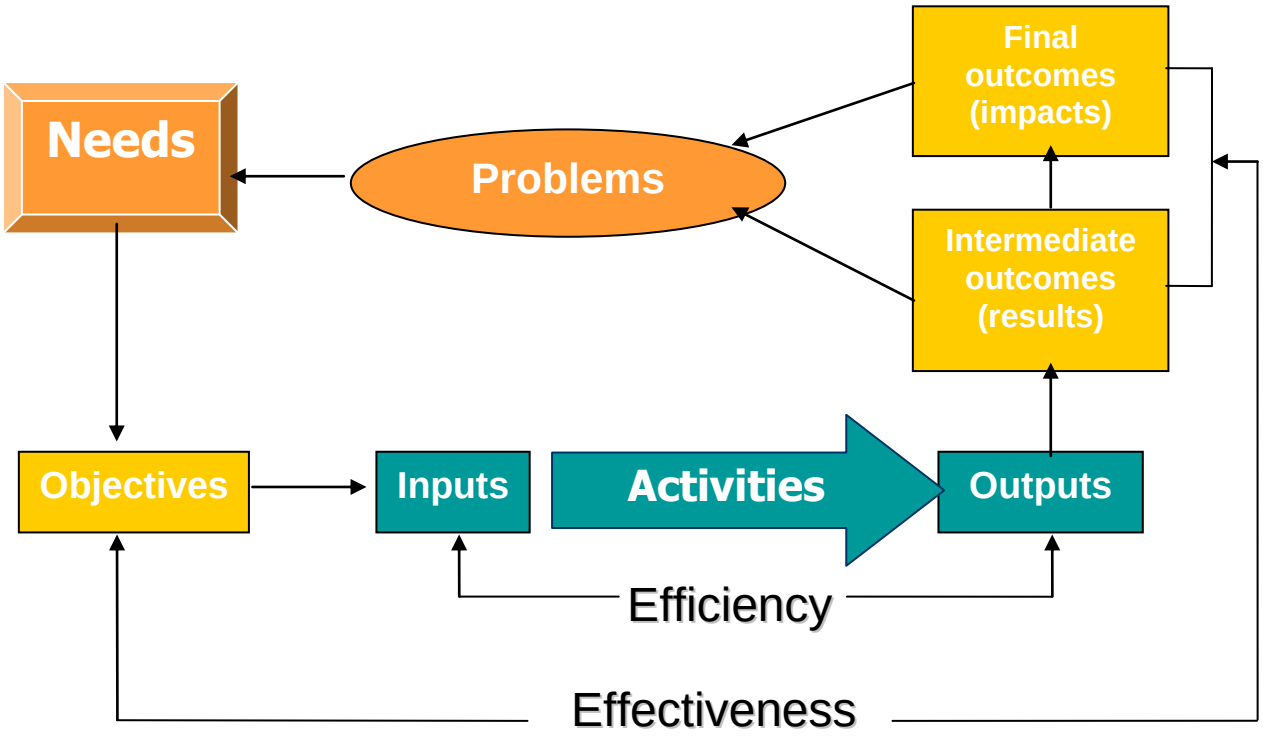

Figure 3: Links between efficiency and effectiveness (adapted from Cap-Net, 2008)

Performance evaluation is an essential part of any planning process and aimed to examine how policy, program, project or an organization has succeeded in achieving its goals and objectives. The environmental performance measures how well the environmental objectives of a policy, project etc., including regulatory compliance, have been met. Indicators can be designed for various purposes: for evaluating performance of a country, a sector and an organization, or a policy, program and a project.

In Box 2, the USA EPA scheme for performance measurement is given.

Box 2: The USA EPA's performance measurement scheme (Source: Sparrow, 2000)

Tier 1. Effects, impacts and outcomes (environmental results, health effects, decline in injury and accident rates)

Tier 2. Behavioral outcomes

- Compliance or non-compliance rates (significance etc.);
- Other behavioral changes (adoption of best practices, other risk reduction activities, "beyond compliance", voluntary actions etc.)

Tier 3. Agency activities and outputs

- Enforcement actions (number, seriousness, case dispositions, penalties etc.);
- Inspections (number, nature, findings etc.);
- Education and outreach;
- Collaborative partnerships (number established, nature etc.);
- Administrative and voluntary programs;
- Other compliance-generating or behavioral change-inducing activities

Tier 4. Resource efficiency, with respect to use of

- Agency resources;
- Regulated community's resources;
- State authority

The Environmental Performance Index (EPI) is the example of a successful approach to development of performance measurements at a country and global levels. It was designed by Yale Center for Environmental Law and Policy and Columbia University's Center for International Earth science Information Network in 2006, as a tool to assist policymakers in tracking their environmental performance. The EPI is applied to evaluate environmental performance for 133 countries using a uniform set of six widely established environmental policy objectives: environmental health, clean air, clean and sufficient water, protected biodiversity and habitat, productive natural resources, and sustainable energy. Within each of the policy categories between two and five indicators track progress against fixed performance targets (Srebotnjak, 2007).

This was an inspiration to select indicators in WETwin for analysis of institutional capacity.

3 Cases and research methodology

3.1 General approach

This chapter presents the conceptual framework for analysis of institutional capacity proposed for WETwin. As the framework itself is an important product of the Work Package 4 and places the grounds for developing policy indicators/recommendations for the next project stages, we find it important to give more space for its detailed explanation in this chapter. First of all, the link between capacity and the Driving Forces-Pressure-State-Impact-Response (DPSIR) system (OECD 1998; EEA 2004) is worth stressing out (see Figure 4). DPSIR[2] methodology is a specific type of problem analysis, which allows identifying cause-effect relations behind a problem and screening possible solutions. As one can see from the diagram below, the institutions should have a certain capacity to be able to serve a driver for positive changes (**D**rivers) and to respond to challenges (**R**esponse). This dual nature of institutional capacity is important to take into account.

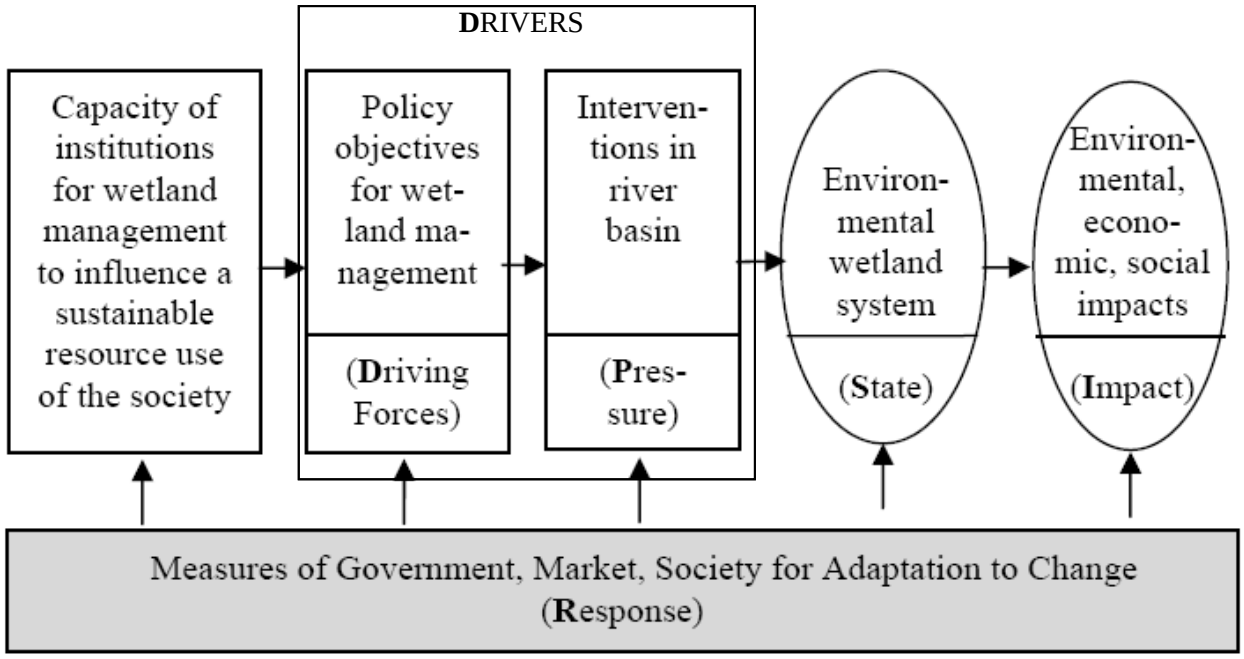

Figure 4: Interrelation of the DPSIR approach and institutional capacity (modified from Helbron 2008)

In studying institutional capacity, we build our research on the findings obtained in earlier research activities of WP4, in particular the wetland management structures and practices (WETwin 2009b; WETwin 2010c). The study of wetland management structures and practices has taken the four-order model of Olsen (2003) and capacity concept of Baser and Morgan (2008) as benchmarks, so that some elements of institutional capacity have been addressed by this study. Table 2 indicates the relation of the framework for the review of the wetland management structure and practice to these two benchmarking concepts.

[2] The WETwin project eliminates the distinction between 'Driving Forces' and 'Pressures' and calls them uniformly 'Drivers', so the DPSIR chain is modified to 'DSIR'

Table 2: Relation of the "Framework for the assessment of the wetland management structure and practice" to 'Institutional capacity'

WETwin framework for the assessment of the wetland management structure and practice (2009b)	**Order model (Olsen, 2003)**	**Basem and Morgan (2008)**
Components		
General description of the river basin section includes description of the basin area, main economic activity and water/land use, main stakeholders, as well as main problems, their causes and future threats	**Pressure-State-Impact**	Context
General description of the wetland section includes description of the wetland area, main economic activity and water/land use, main stakeholders, as well as main problems, their causes and future threats	**Pressure-State-Impact**	Context
Management structure of river basin section analyses current legislation and policies related to water management at national, provincial and local level, as well as provides overview of responsibilities of organizations managing the basins. It also explores if and how recent reforms has changed the tasks and responsibilities of different organizations in the basin	**First order - Enabling Conditions** including level of governmental commitment; authority agreement, funding; legal/Institutional capacity to implement; clear policy and goals; constituencies present at local and national levels **Second order - Changes in Behaviour** including changes in behaviour of institutions and stakeholder groups; changes in behaviour directly affecting resources of concern; changes in Investment strategies.	Institutional capacity Change
Management structure of wetland section includes description of current legislation and policies related to wetland management at national, provincial and local level, as well as provides overview of responsibilities of and resources of organizations managing the wetlands. It also explores formal and informal procedures for stakeholder participation in wetland management and if the overall institutional setup allows to tackle current problems and react on future threats	**First order** (see explanation above)	Institutional capacity

WETwin framework for the assessment of the wetland management structure and practice (2009b)	Order model (Olsen, 2003)	Basem and Morgan (2008)
Actual planning and management process this section analyses regular wetland management plan development and implementation including the plan integration into river basin planning activities	**Second order** (see explanation above) **Third order - Attainment of IWRM objectives** including desired social and/or environmental qualities maintenance and/or restoration	Institutional capacity Performance
Use of guidelines and indicators in planning and management This section analyses how the existing guidelines are implemented in the case study sites, including resources available for the implementation	**First and second order** (see explanation above)	Institutional Capacity Change
Adaptive capacity section explores if the management structures allows to effectively adapt to environmental and climate change in the wetland sites taking into account available instruments and resources	**First and second order** (see explanation above)	Institutional Capacity Change

The review addresses some contextual factors (according to Baser and Morgan's model), and to some extent the first order (enabling environment), the second order (change) and the third order (performance) of the Olsen's model (Table 2), but also includes the analysis of adaptive capacity with a focus mainly on organizational capacity and availability of resources and means to operate. The review provided rich information for qualitative analysis of the wetland management practices and institutions having however predominant focus on formal once.

Taking into account the results of previous work in WP4 and literature review (WETwin, 2009a) it was decided to focus the framework for institutional capacity on the following four elements:
(1) Enabling environment
(2) Organizational capacity and availability of means for operation
(3) Adaptive capacity
(4) Performance

The first two elements are covered in many definitions of institutional capacity, e.g. UNDP (2007) and Alaerts (2009). Human capacity is also part of these definitions, but in the context of this study it was decided to incorporate this in organisational capacity (element 2). Adaptive capacity is added as a separate element (3) as it is considered of increasing importance in the last years to enable organisational change. The last element is performance measuring the impact of institutional capacity. This set-up is in line with frameworks presented by Olsen (2003) who makes a distinction between different orders (levels) of integrated management, and Baser and Morgan (2008) who distinct between the related concepts capacity, change and performance. The diagram below (Figure 5) shows how these components are connected to each other, and reflects the links between wetland and river basin management we would like to emphasize.

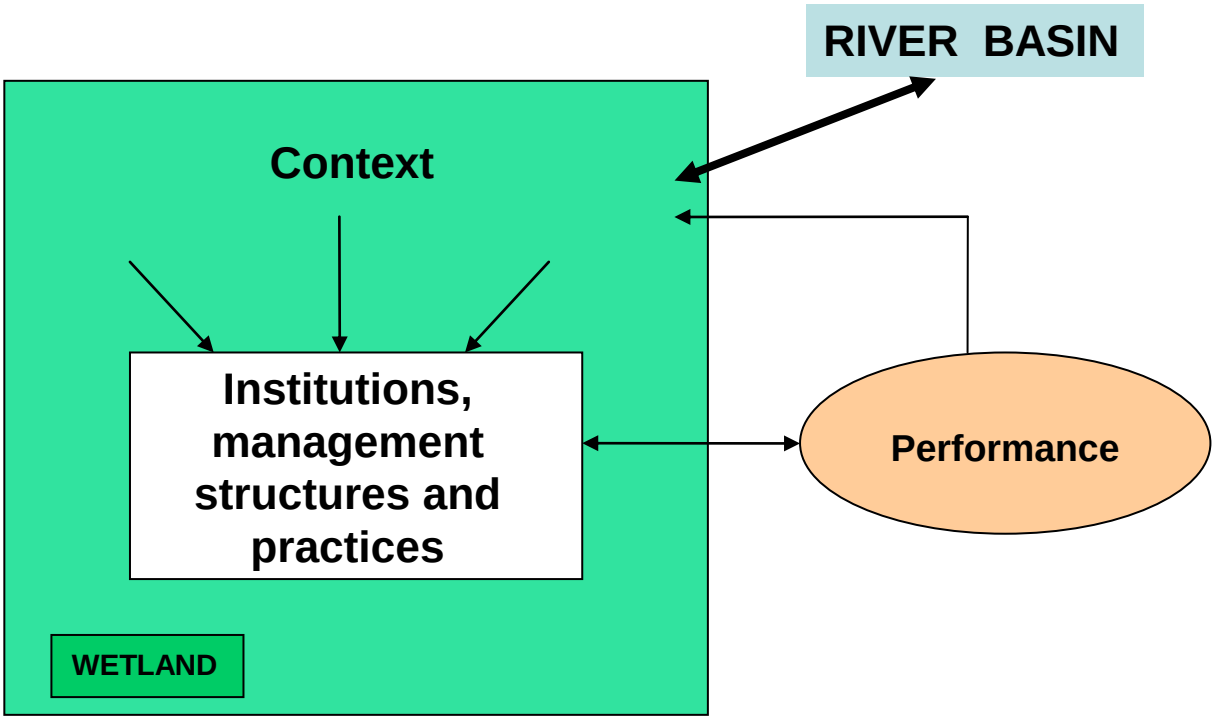

Figure 5: An overall approach to analysis of institutional setting and capacity for wetland management

3.2 Methodological framework

The research underlying this report followed a case study approach, with the WETWIN wetland sites (Gemenc, Nabajjuzi and Namatala, and Ga Mampa) involved.

At the start the findings form the previous assessment of management structures and practices on institutional setting for wetland management were critically evaluated and lessons drawn in order to avoid overlaps and repetition. The second step was to select the case studies and to develop the framework for analysis of the institutional capacity in each of the selected cases. The next stage revolved around undertaking the actual case studies. And, finally, a cross-case comparison was made that provides the grounds for conclusions concerning the institutional capacity in the case sites and in general terms. Figure 6 presents the main steps in the research.

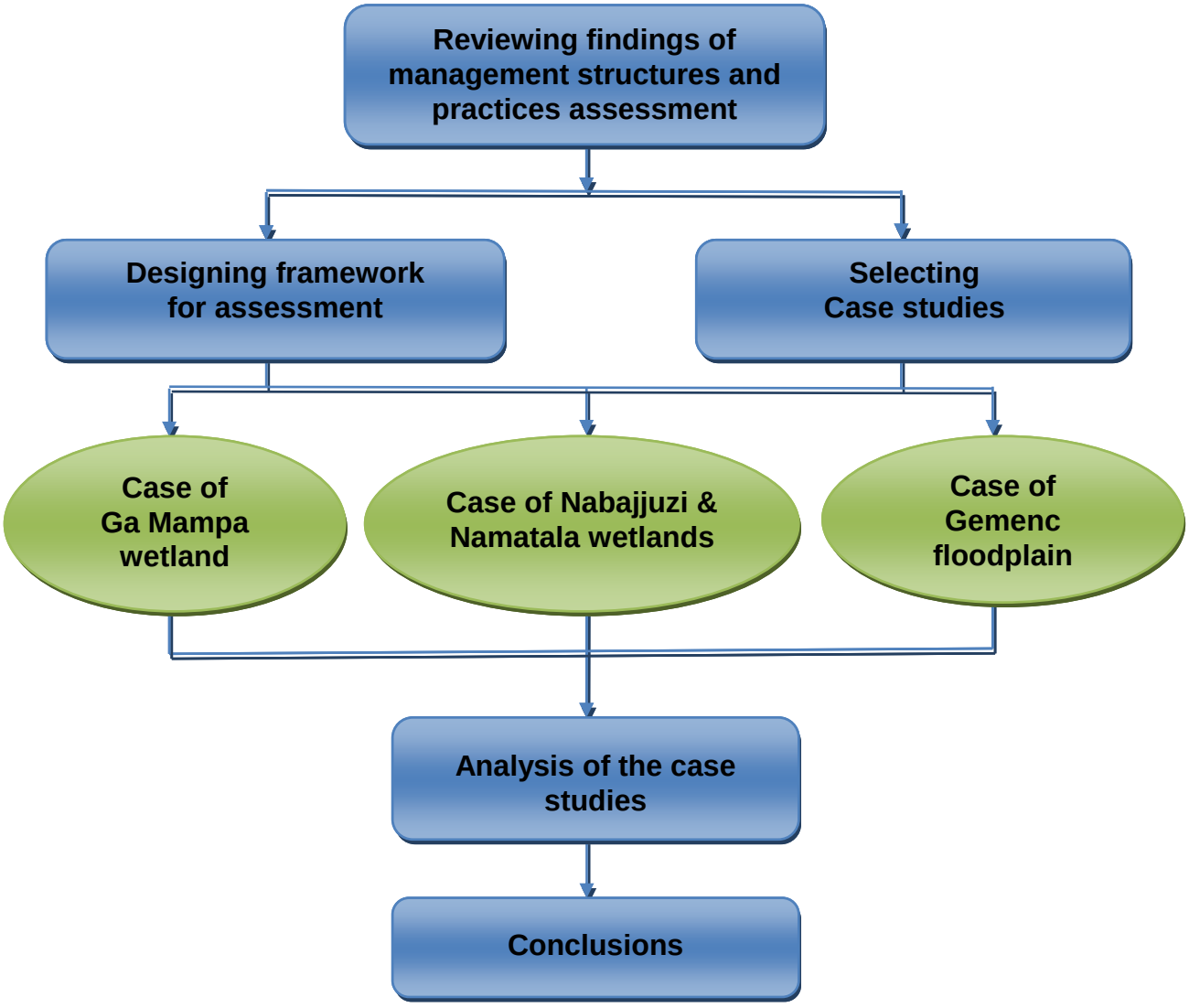

Figure 6: Methodological framework

3.3 Framework for assessment of institutional capacity

After Baser and Morgan (2008), we consider capacity in terms of the overall ability of a system to create public value and apply this understanding to the specific area of wetland management. Consequently, we focus our framework on the following key issues:

- Capacity to use and manage wetlands wisely
- Capacity to integrate wetlands into river basin planning and management
- Capacity to better adapt to climate and environmental change

We believe these three key elements are important to get insight into overall capacity of institutions involved in wetland management, which are seen as the whole system. This means that we do not consider organizational or individual capacities but sort of aggregate capacity.

As institutional capacity is a complex concept depending on many contextual factors, that is difficult to capture in a number or score. The framework (WETwin 2010b) was built upon internationally recognized objectives and standards for the 'wise use of wetlands' derived from the Convention on Wetlands held in Ramsar, Iran, in 1971. The 'Ramsar Convention' concerns an "intergovernmental treaty that embodies the commitments of its member countries to maintain the ecological character of their Wetlands of International Importance and to plan for the "wise use", or sustainable use, of all of the wetlands in their territories" . Over the years the Convention has developed Handbooks on a variety of themes, such as the Wise Use of Wetlands on Law and Institutions (Handbook 3; Ramsar, 2007b), on River basin management (Handbook 7; Ramsar, 2007c), and on Environmental impact assessment (Handbook 13, Ramsar, 2007d) (see Box 3).

Box 3: The Ramsar Handbooks for the Wise Use of Wetlands

17 Ramsar Handbooks describe the different planning and management activities that support wise and sustainable use of wetland resources, and among others aim at more effective integration of wetlands into river basin management. The major assumption of Handbook 7 (2007b) is that there is a certain degree of sequencing required between planning and management activities at river basin level and between management and user activities at individual wetland or site level. Difficulties in implementation of wetland management plans often occur when higher-level water resources planning, management and water allocation issues have not been adequately addressed prior to the design and implementation of wetland management plans. The Handbook is intended to provide supporting information and guidance for wetland managers and planners to participate in river basin management, including water resources planning, allocation and management. In this way, it provides an ideal picture how to better integrate the requirements of wetland ecosystems into their planning and management initiatives

The Handbooks recommend, which policies and authorities should be in place (allowing to assess the "enabling environment"), and which actions should be taken with priority in order to use wetland resources sustainably. Evaluation in this study is seen as "measuring" the closeness to an ideal situation, as it is defined in the Handbooks. The Handbooks provide the grounds for the framework since the overall goal of WETwin project is to enhance the role of wetlands in IRBM. We use the Ramsar ideal as guidance (a benchmark) for the selection of key indicators and for assessing capacity in the selected wetlands with the aim to define actions and measures to implement these "minimum" requirements for institutional capacity in wetland management. This framework is specified in a later step with the selection of indicators and their application in the selected case studies (Figure 7).

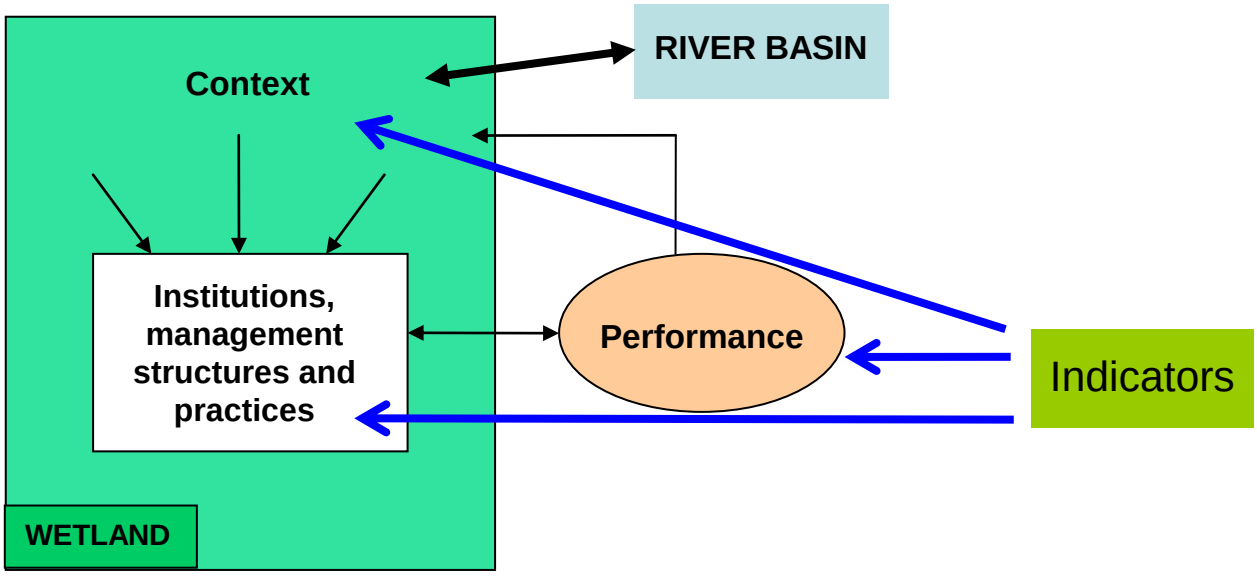

Figure 7: Indicator system for analysis of institutional capacity for wetland management

The framework applies some elements of the legal and institutional reviewing process defined in Ramsar Handbook 3 (2007b) for better promoting the conservation and wise use of wetlands (Figure 8).

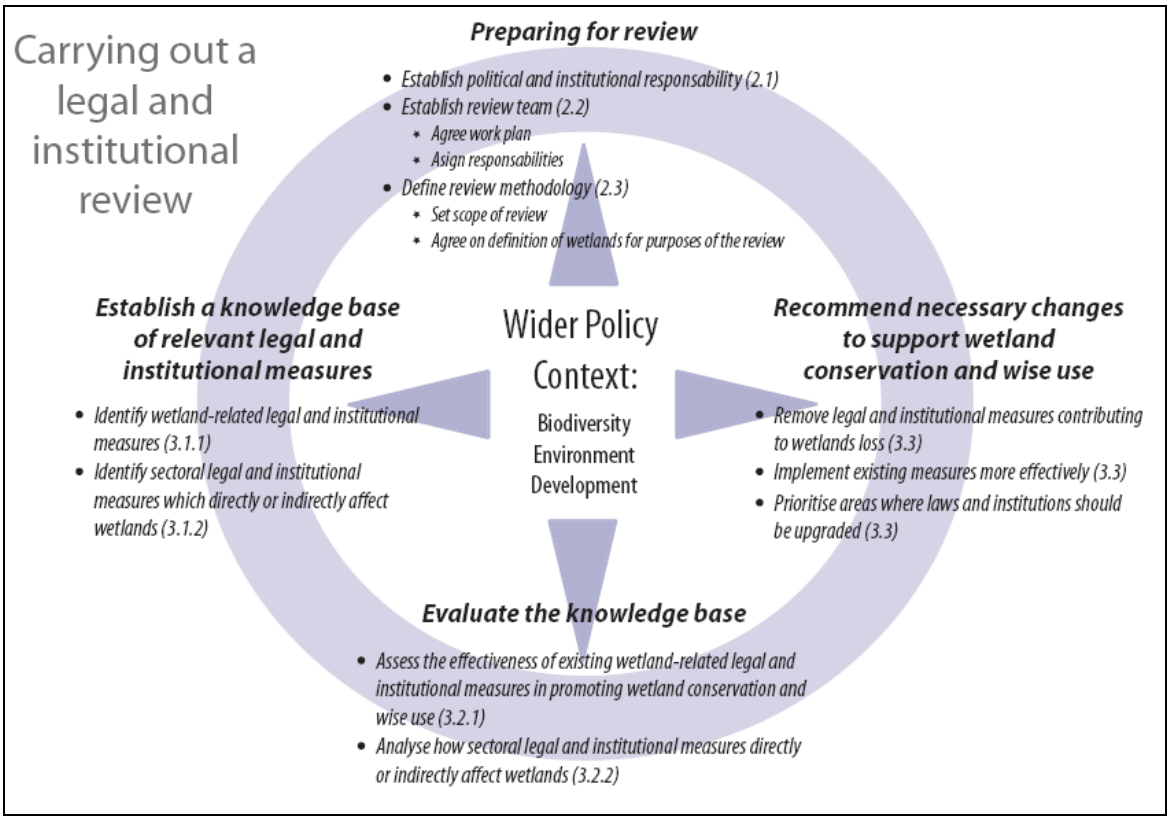

Figure 8: Ramsar cycle of legal and institutional review (Ramsar Handbook 3, 2007b)

Ramsar Guidelines for reviewing laws and institutions urges Contracting Parties "to develop national wetland policies to support wise use and to address all problems and activities related to wetlands in a national context" (Handbook 3, 2007b: 5). The Guidelines do not insist that wetland policies must

be separate, but accept that they may form a clearly-identifiable component of other planning processes (e.g., national environmental action plans or national biodiversity strategies and action plans). The Guidelines aim to guide the process of critical reviewing of national "legal and institutional measures" in order to identify those which constrain wetland conservation and wide use and to develop those which would support. The Guidelines define the wetland-related legal and institutional measures as "those which directly promote conservation and wise use of wetlands, including those directly supporting the implementation of the Ramsar Convention" (Handbook 3, 2007b: 11). The Guidelines provide a checklist for the identification of possible legal and institutional measures to be reviewed, which has guided our framework development (see Box 4).

Box 4: Possible legal and institutional measures to review (Source: Ramsar Handbook 3, 2007b: 11-12)

- The legal instrument adopted to incorporate Ramsar into domestic law;
- Non-site specific or generally-applicable legal and institutional measures which promote wetland conservation and wise use (regulatory and non-regulatory measures) and/or confer special protective status on wetlands;
- Legal and institutional measures, including site-specific customary laws which promote the conservation and wise use of wetlands, and customary institutions which support this;
- Legal and institutional measures for integrated management of river basins, catchments, watersheds or coastal areas; international agreements for shared wetlands, watercourses or wetland flora and fauna; and
- Relevant legal and institutional measures adopted pursuant to other treaties or supra-national instruments.

The Guidelines also stressed the need for assessing effectiveness of existing wetland-related legal and institutional measures in promoting wetland conservation and wise use and for reviewing both legislation AND practices (Ramsar Handbook 3, 2007b).

Because WETwin project has a special focus on integration wetland concerns into wider river basin context the major part of our framework is devoted to the targets given in the Ramsar Guidelines for integrating wetland conservation and wise use into river basin management (Ramsar Handbook 7, 2007c). COP6 urged "to integrate conservation and wise use of wetlands . . . into national, provincial and local planning and decision making on land use, groundwater management, catchment/river basin and coastal zone planning and all other environmental management" (Ramsar Handbook 7, 2007c:10).

Table 3 shows the key aspects of the Ramsar Handbooks that were taken into account in our analysis and evaluation. Analysis of the closeness attempts to take all critical factors including contextual factors into consideration. One key factor, but not the only one, can be the fact that international guidance (or good practice) is not always reflected or properly transposed in national, regional and local guidance. This analysis could also give insight into how realistic the international guidance actually is. Although care should be taken while comparing different cases, the qualitative analysis will give insight into how far the real situations are from the ideal for the different study areas caused by different factors. A second similar type of analysis in a later point in time, may give insight into how managerial systems move towards or away from the ideal situation, how they evolve and adapt over time (links to adaptive capacity), and which factors influence their evolution and why.

Table 3: Outcome targets and components for institutional capacity assessment (Source: Ramsar Convention Handbooks 3 (2007b), 7 (2007c) and 13 (2007d))

Outcome Targets	Reference to Ramsar guidance
1) Enabling Environment	
a) Formal instruments: water and environmental policy, institutional & legal framework, planning regulations, financing	
Policy and legislation for IWRM are developed and strengthened	Handbook 7, p. 12
Wetland management issues are incorporated into water or river basin management policies	Handbook 7, p.13
Legal framework for spatial planning and environmental assessment is established	Handbook 3, p. 34, 38-39 Handbook 13 on EIA
Formal regulations and processes for the involvement of stakeholders, community participation and public awareness are in place	Handbook 7, p. 14
Adequate financial resources to ensure effective operation of organizations charged with planning and management of wetlands conservation are provided	Handbook 7, p. 14; 20; 28
b) Informal instruments: planning and management practices, public participation	
Stakeholders are involved, community participation and public awareness are an important goal	Handbook 3, p. 17 Handbook 7, p. 14
2) Organisational Capacity and Availability of Means for Operation	
a) Assessment and enhancement of wetland functions	
Studies to identify the wetlands functions and benefits to water management are undertaken	Handbook 7, p.20
The wetland functions are enhanced or restored	Handbook 7, p. 20
Status of wetlands and their biodiversity is assessed, and actions needed to provide better protection measures are undertaken	Handbook 7, p. 28
b) Integration of data on current and future water supply and demand (water allocation)	
Current and future supply and demand for water are Identified	Handbook 7, p.20
Studies to determine the minimum and ideal flows and flow regimes required to maintain natural riverine wetland ecosystems are undertaken	Handbook 7, p. 23, 27

Outcome Targets	Reference to Ramsar guidance
Sustainable water allocation plans for the users including allocating water to maintain wetlands are developed	Handbook 7, p. 27
c) Mitigation of impacts of land use and water development projects on wetlands	
Impacts of land use and development projects are minimized	Handbook 7, p.22
Impacts of water development projects are minimized	Handbook 7, p.23
d) Vertical and horizontal coordination and cooperation	
Coordination and cooperative governance between the water and wetlands sectors exists	Handbook 3, pp. 17-18 Handbook 7, p. 37
Communication between water and wetlands sectors is improved	Handbook 7, p.36
Knowledge and expertise exchange between science and policy is improved	Handbook 1, p. 18-19
e) Partnerships with relevant conventions, organizations and initiatives (knowledge and expertise sharing)	
Partnerships with ***relevant*** conventions, organizations and initiatives are established	Handbook 3. p. 18, 27-28 Handbook 7, p.33
3) Adaptive capacity	Handbook 1
4) Effectiveness	Handbook 3, p.15-16

The framework addresses different spatial levels (Cash et al., 2006). It focuses on management of the wetland, but, taking into account the overall objective of WETwin and WP4, also pays particular attention to the interaction of the wetland with higher spatial (river basin, regional, national) levels. The framework and related indicators clearly indicate which spatial level is addressed.

The general approach followed in the development of the framework is that objectives and targets were distilled from Ramsar guidance (the 'ideal' situation). A set of indicators was established to 'measure' achievement of these objectives. Indicators are not scored, but qualitatively described as through different classes, which e.g. can range from ideal to less ideal (Figure 8), but also can be seen as different situations.

Increasing level of institutional capacity	Classification*
Desired	High level of institutional capacity ⇨The capacity in place is close or similar to the Ramsar recommendations
Recognised	Moderate level of institutional capacity ⇨ The existing capacity is insufficient and should be enhanced
Undesired	Low level of institutional capacity ⇨ The capacity is highly insufficient and should be enhanced with priority

* Classes are to be linked to results of a qualitative assessment of institutions at national, sub-regional and local scales site-specifically for a wetland case.

Figure 8: Classes of institutional capacity

The questionnaire (indicator set) was designed with the aid of the Ramsar Handbooks for the wise use of wetlands and on the basis of **"**Approach for Researching Institutional Capacity and Requirements for Guideline and DSS Development: A Concept Note" (WETwin, 2009a). It takes into account findings of the analysis of existing management structures and practices and represents an attempt to quantify (to some extent) the institutional capacity in order to contribute to the WETwin WPs dealing with the development of DSS and guidelines requirements. The questionnaire is given in Appendix 4. It consists of 4 parts with the objectives (targets) distilled the from Ramsar Handbook 7 (2007c) and indicators which are related to the objectives. WETwin partner organizations of the selected case sites were asked to categorize given indicators according to provided classes and explain their choice for a selected class in the next column providing the source of information they use for making the choice.

Besides the indicators specific to local contexts, we use international indices for better understanding of contextual country's conditions, which local actors have to perform in, and consequently, which represent "enabling environment" and partly "performance". We group the indices into 5 categories and use their following definitions:

1) Economic development of the country

- *Gross domestic Product (GDP)* - Sum of value added by all resident producers in the economy plus any product taxes (less subsidies) not included in the valuation of output,

calculated without making deductions for depreciation of fabricated capital assets or for depletion and degradation of natural resources. Value added is the net output of an industry after adding up all outputs and subtracting intermediate inputs. When expressed in US$ terms, it is converted using the average official exchange rate reported by the International Monetary Fund. An alternative conversion factor is applied if the official exchange rate is judged to diverge by an exceptionally large margin from the rate effectively applied to transactions in foreign currencies and traded products. When expressed in purchasing power parity (PPP) US$ terms, it is converted to international dollars using PPP rates. An international dollar has the same purchasing power over GDP that the U.S. dollar has in the United States.

- *% of population living under poverty line* – percentage of a country's population living under officially recognized or established "poverty line" (minimum of income per capita). This index can vary from one country to another quite essentially, that makes it difficult to compare different countries. However, it indicates how many people live under country's living standards and to some extent allows for making assumptions about country's priorities.

2) Societal development

- *Human Development Index (HDI)* - measures development by combining indicators of life expectancy, educational attainment and income. The HDI sets a minimum and a maximum for each dimension, called goalposts, and then shows where each country stands in relation to these goalposts, expressed as a value between 0 and 1
- % of GDP spent on education - Total public expenditure (current and capital) on education expressed as a percentage of GDP.

3) Social sustainability

- *Gini coefficient* Measure of the deviation of the distribution of income (or consumption) among individuals or households within a country from a perfectly equal distribution. A Lorenz curve plots the cumulative percentages of total income received against the cumulative number of recipients, starting with the poorest individual or household. The Gini index measures the area between the Lorenz curve and a hypothetical line of absolute equality, expressed as a percentage of the maximum area under the line. A value of 0 represents absolute equality, a value of 100 absolute inequality.

4) Effectiveness of formal institutions

- *Corruption perception index (CPI)* ranks almost 200 countries by their perceived levels of corruption, as determined by expert assessments and opinion surveys. The rank shows how one country compares to others included in the index. The CPI score indicates the perceived level of public-sector corruption in a country/territory. The CPI is based on 13 independent surveys. However, not all surveys include all countries. The surveys used column indicates how many surveys were relied upon to determine the score for that country. The confidence range indicates the reliability of the CPI scores and tells us that allowing for a margin of error, we can be 90% confident that the true score for this country lies within this range

5) Environmental performance

- *Environmental performance index EPI* (as described in section 2.5)

The main data source for applying the framework was literature and reports. To a large extent the judgments on classifications are made based on available local and regional studies and reports and those produced by WETwin WP4, in particular the assessment of wetland management structure and practice (WETwin, 2010c), and WP2 (information related to the stakeholders and their coordination). Some data were cross-checked through interviews with experts, e.g. with a representative of the river basin or a wetland organization.

Analysis of institutional capacity was then carried out mainly qualitatively based on the responses from the partners and the results were discussed among a panel of three experts to rationalise the class assigning. Assessing indicators with this framework involves normative judgments on whether a researcher thinks a criterion is met or not. We understand that every person who uses this framework may come to a slightly different judgment, because his or her norms and views will differ from the other person. We assume to reduce this subjectivity by doing the assessment in three rounds: a first classifying effort by one researcher (a wetland site representative, normally), then a second round by the researcher of the WP4 team specializing in institutional analysis, and then a third round in which the final choices were discussed in the entire team involved in the analysis. Analysis of closeness to the Ramsar ideal enables us to take major critical (wetland management) factors including contextual factors into account and to get insight into how realistic international guidance actually is.

3.4 Case studies

The framework for analyzing institutional capacity was applied to four wetland sites located in Uganda, South Africa and Hungary. The cases were selected among the WETwin project sites and vary in geographical location, climatic conditions, ownership, socio-economic conditions and status of protection (Table 4). All three countries are now undertaking reforms in the water sector, and it is interesting to look at how these recent changes influence their capacity to manage wetlands. Finally, data availability in the different sites was taken into account in the selection of the studied wetland sites.

Table 4: Characteristics of the study areas

Wetland	Gemenc floodplain	Nabajjuzi and Namatala wetlands	Ga-Mampa wetland
Country	Hungary, EU	Uganda	South Africa
River basin	Danube river basin	Upper White Nile river basin	Olifants river basin
Climatic conditions	Temperate	Tropical, wet	Tropical, dry
Socio-economic situation	Country in transition	Developing country	Country in transition
Wetland size	10 km^2	65 km^2	1 km^2
Existence of protected areas	Part of Gemenc is a Ramsar site, most of it is included in the Danube-Drava National Park	Not a Ramsar site, but part is included in the Uganda Central Forest Reserve	No protected areas

4 Assessment of the institutional capacity

4.1 Institutions for wise use of wetlands in a changing environment

As it was explained above in section 3.3, in our analysis we consider the capacity of the selected cases as the closeness to an ideal situation, as it is defined in the Ramsar Handbooks for Wise Use of Wetlands (2007). We analyse the aggregated capacity of the institutions taking into account its following key aspects:

- Capacity to use and manage wetlands wisely
- Capacity to integrate wetlands into river basin planning and management
- Capacity to better adapt to climate and environmental change

Resolution VI.23 on *Ramsar and Water of* the 6th Conference of the Contracting Parties (COP6) confirmed through that Contracting Parties "RECOGNIZE the important hydrological functions of wetlands, including groundwater recharge, water quality improvement and flood alleviation, and the inextricable link between water resources and wetlands, and REALIZE the need for planning at the river basin scale which involves integration of water resources management and wetland conservation" (Handbook 7, 2007c:10). Resolution VI.23 calls for a range of actions (including the establishment of hydrological monitoring networks on wetlands, studies of traditional water management systems and economic valuation methods) in promoting the integration of water resource management and wetland conservation.

The Ramsar Handbooks described, in some detail, the different planning and management activities that can support more effective integration of wetlands into river basin management. The major assumption of the Ramsar guidelines is that there is a certain degree of sequencing required between planning and management activities at river basin level and between management and user activities at individual wetland or site level ("Ramsar Critical Path"). Difficulties in implementation of wetland management plans often occur when higher-level water resources planning, management and water allocation issues have not been adequately addressed prior to the design and implementation of wetland management plans. The Handbook 7 (2007c) is intended to provide supporting information and guidance for wetland managers and planners to participate more fully in broader cycles of river basin management, including water resources planning, allocation and management. In this way, it provides an ideal picture how to better integrate the requirements of wetland ecosystems into their planning and management initiatives.

Pahl-Wostl and Ross (2010) argue that many problems have not primarily been associated with the resource base but have to be attributed to governance failures. Governance is defined as a decision process involving multiple players at different levels – individual water users, government agencies, private sector interests, non-governmental organizations and lobby groups, and those who do not have a distinct 'voice' because of poverty or accessibility, and therefore lack access to powerful decision-makers (Hooper 2005).

Table 5 summarise main problems facing wetland managers in the selected case studies, which have been discussed in full details in the WP4 report on analysis of wetland management structures and practices (WETwin, 2010c). The table gives us important information for better understanding of the institutional arrangements for wetland management in the selected cases.

Table 5: Main failures in wetland management in selected cases (Source: WETwin, 2010b)

Wetland	Internal failures	External failures	Information failures	Policy/governance failures
Gemenc	State-owned, partly - protected Ramsar site (partly)	Lack of integration of wetlands into basin planning and management	Insufficient appreciation of wetland's functions and services, especially at the local level	- Inconsistent sectoral policies - Weak implementation of policies incl. lack of enforcement; - Lack of vertical and horizontal coordination (between wetland and water sectors) Unresolved conflict between forest management and nature conservation - Lack of coordination between wetland and river basin planning and management
Nabajjuzi and Namatala	Mixed ownership (private land, state-owned), partly - protected area (forest reserve)	Lack of integration of wetlands into basin planning and management	Insufficient knowledge and appreciation of wetlands functions and services, especially at the local level	- Weak implementation of policies incl. lack of enforcement - Lack of vertical and horizontal coordination (between wetland and water sectors) - Lack of coordination between wetland and river basin planning and management
Ga Mampa	Common-pool resource	Lack of integration of wetlands into basin planning and management	- Lack of information available, especially at the local level - Insufficient appreciation of wetland's functions and services, especially at the local level	- Inconsistent sectoral policies - Weak implementation of policies incl. lack of enforcement; - Lack of vertical and horizontal coordination (between wetland and water sectors) - Lack of coordination between wetland and river basin planning and management

As one can see from the Table 5, in all the studied cases the wetland integration into basin planning and management is lagging behind. In all the cases, wetlands functions and services are insufficiently appreciated, especially at local level, and in the case of Ga-Mampa local people are even lacking the information about wetland functioning. On the policy side, though there are relevant policies in place they have sometimes conflicting objectives and are hardly enforced. Coordination (vertical and horizontal) among the sectors involved in wetland management and between wetland and water (river basin) management is rather weak.

Namatala wetland (photo NWSC)

The results of the evaluation of the institutional capacity in selected wetland cases are summarized in Table 6 and discussed in details in the following sections. We can conclude here that overall institutional capacity for wetland management is insufficient in Gemenc and Ga-Mampa cases, and highly insufficient in the Ugandan wetland sites. Referring also to the results of the analysis of management structures and practices (WETwin 2010c), we can say that the capacities in these locations are strongest at the strategic (policy) level and weakest at local level, where those policies are to be implemented. It is also worth noting that despite the differences (in local contexts) among the three countries, quite similar bottlenecks in the process of the wetland management can exist, namely there is a gap between two types of institutions – formal rules and practices (see for definitions section 2.4), or in other words, practices (which are actually products of previously existing rules) are deviating from what current rules prescribe (for many reasons, which we will discuss later in this report). Capacities of the wetland management institutions to deal with environmental changes such as climate change appeared to be limited as well.

We should note here that our analysis does not aim to compare cases, which are highly different in their contextual features; rather we want to draw lessons from their experience in wetland management. Therefore, we should note that capacity classifications, we made, reflect people (and our own) perceptions and understanding of the capacities of systems for wetland management in the studied areas. This means that even if the cases have similar classes in capacity it does not automatically imply that they are at the same level of capacity, but just indicates whether the capacity is perceived being sufficient to manage resources in sustainable way. The deficiencies experienced in the case studies can vary from one case to another even if the cases are placed in the same class.

Table 6: Summary performance indicators for institutional capacity

Outcome Targets	Wetland's closeness to ideal (qualitative)		
	Gemenc floodplain	**Nabajjuzi and Namatala wetlands**	**GaMampa wetland**
1) Enabling Environment			
a) Formal instruments: water and environmental policy, institutional & legal framework, planning regulations, financing			
Policy and legislation for IWRM are developed and strengthened			
Wetland management issues are incorporated into water or river basin management policies			
Legal framework for spatial planning and environmental assessment is established			
Formal regulations and processes for the involvement of stakeholders, community participation and public awareness are in place			
Adequate financial resources to ensure effective operation of organizations charged with planning and management of wetlands conservation are provided			
b) Informal instruments: planning and management practices, public participation			
Stakeholders are involved, community participation and public awareness are an important goal			
2) Organizational capacity and availability of means			
a) Assessment and enhancement of wetland functions			
Studies to identify the wetlands functions and benefits to water management are undertaken			
The wetland functions are enhanced or restored			
Status of wetlands and their biodiversity is assessed, and actions needed to provide better protection measures are undertaken			

Outcome Targets	Wetland's closeness to ideal (qualitative)		
	Gemenc floodplain	**Nabajjuzi and Namatala wetlands**	**GaMampa wetland**
b) Integration of data on current and future water supply and demand (water allocation)			
Current and future supply and demand for water are identified			
Studies to determine the minimum and ideal flows and flow regimes required to maintain natural wetland ecosystems are undertaken			
Sustainable water allocation plans for the users including allocating water to maintain wetlands are developed			
c) Mitigation of impacts of land use and water development projects on wetlands			
Impacts of land use and development projects are minimized			
Impacts of water development projects are minimized			
d) Vertical and horizontal coordination and cooperation			
Coordination and cooperative governance between the water and wetlands sectors exists			
Communication between water and wetlands sectors is improved			
Knowledge and expertise exchange between science and policy is improved			
e) Partnerships with relevant conventions, organizations and initiatives (knowledge and expertise sharing)			
Partnerships with **relevant** conventions, organizations and initiatives are established			
3) Adaptive capacity			
4) Effectiveness			
OVERALL CAPACITY (summarised)			

Key:

	Not enough information to make assessment
	The capacity in place is close or similar to the Ramsar recommendations
	The capacity in place is insufficient
	There are no or highly insufficient capacity in place to address the specific indicators

4.2 Enabling environment

Successful functioning of every management system is associated with *enabling conditions* in which the system is to operate. They include peace and economic growth, trends in politics and society resulting in institutionalization of improved governance and an increase in the legitimacy and influence of formal rules as against informal patronage (OECD-DAC Network on Governance, 2006). Hooper (2005) defines critical factors that preclude and enhance effective water management as institutional, organizational, economic and socio-cultural. These important conditions both formal and informal form so called "enabling environment", which allows a system to develop its capacity or impedes it. Main conditions hindering capacity development identified by OECD-DAC Network on Governance (2006) for public sector are given in Box 5.

Box 5: Conditions hampering public sector capacity development (Source: OECD-DAC Network on Governance, 2006: 17)

Lack of a broadly enabling environment:

- Lack of human security and presence of armed conflict
- Poor economic policy that discourages pro-poor growth
- Weak parliamentary scrutiny of the executive branch
- Lack of effective voice, particularly of intended beneficiaries. This is generally associated with weak social capital (trust) and with political systems with low participation, unclear and arbitrarily enforced "rules of the game" and/or lack of respect for human rights
- Entrenched corruption (political and administrative) in core government organizations
- Entrenched and widespread clientelism or patrimonialism, weakening the pursuit of organizations' formal tasks

Aspects of government ineffectiveness:

- Fragmented government, with poor overall capacity for economic and public financial management, and low levels of transparency and accountability
- Absent, non-credible and/or rapidly changing government policies, and overload of reform and change initiatives
- Unpredictable, unbalanced or inflexible funding and staffing
- Poor public service conditions: salary levels incompatible with reasonable expectations of living standards; history of flight of qualified staff to other countries; excessive reliance on donor-funded positions
- Segmented and compartmentalized organizations, with centralist, strictly hierarchical, authoritarian management
- Only a formal commitment to a performance-oriented culture, reflected in a lack of rewards for performance and of sanctions for non-performance

Some constituents of "Enabling environment" are discussed below in the context of wetland management in selected WETwin cases.

4.2.1 Formal instruments: water and environmental policy, institutional & legal framework, planning regulations, financing

Ramsar Handbooks recommend, which policies and authorities should be in place (allowing to assess the "enabling environment"), and which actions should be taken with priority in order to use wetland resources sustainably. As it is said in the Handbook 1 (2007a), "without such a policy and legislative framework in place, there is a risk that other interventions will take place in a 'political vacuum' without a clear authorizing environment for their delivery, thus risking such efforts failing" (p. 9).

Ramsar Handbook 7 (2007c) recommends IWRM and IRBM as an overall institutional framework for appropriate management of land and water resources in integrated and participatory way. The

Handbook also stresses the need for "development and strengthening of policy and legislation for IWRM" (p.12), and provides a sort of checklist which policies (national and sub-national) should be in place for its effective implementation (Box 6).

Box 6: Policies for integrated water resource management to be developed and strengthened

- Allocation of water for the maintenance of all ecosystems including marine and coastal ecosystems;
- Issuance of permits for water abstraction and use;
- Domestic and industrial water use, treatment of effluent and the safe discharge of effluent;
- Agricultural water use, mitigation of effects of large water management structures, return of water, limitations of pesticide and other agro-chemical use;
- Determination of water quality standards for use for various purposes;
- Rules and regulations regarding abstraction and use of groundwater;
- Tariff policies for drinking water supply, agriculture, industrial and other water uses;
- Land and water conservation;
- Integration of water and wetland conservation within the national socio-economic development agenda;
- Invasive species which have an impact on water.

As one can see from Table 6, the required policies and legislation are mainly in place in all the cases under study. In Uganda, there is even the wetland policy, and a new Wetland Strategic Plan 2011-2020 (DRAFT launch planned early next year) aims for better integration of both water and wetland sectors.

Ramsar Handbooks also recommend to "incorporate wetland management issues into existing water or river basin management policies" (2007c:13) and to establish legal framework for spatial planning (2007b) and environmental assessment for land and water development projects (2007d). Handbook 7 (2007c) calls for formal regulations and processes for the involvement of stakeholders, community participation and public awareness to be in place (p.14), as well as for adequate financial resources to ensure effective operation of organizations charged with planning and management of wetlands conservation to be provided (p. 14; 20; 28).

These recommendations are not fully met only in the case of the Ugandan wetlands. Uganda actually had the policy and legal framework furthest removed from the Ramsar guidelines, mainly due to the fact that a water and land use sector reform was launched just few years ago and new policies (Wetland policy, Wetland Strategic Plan 2011-2020) had just recently entered into force. The new policies state that wetland ecosystems requirements have to be taken into account in basin plans, but clear guidelines on how to do this in practice has not yet existed. In actual practice, wetlands were being considered to varying degrees in river basin management projects or pilots. River basin plans hardly exist at this moment although the process has been started up in a few basins albeit without a rigid framework. When it comes to land use, the new Physical Planning Act has just recently been taken into force (in 2010). The inter-sectoral advisory committee for wetland management needs to harmonize the physical planning mandate of the Ministry of Lands, Housing and Urban Development with the wetland management mandate of the Ministry of Water and Environment (MWE). The land use policy is of 2008, but plans to implement it will be completed this year with the involvement of the Wetlands Management Department (WMD). In addition, financial resources provided for wetland conservation and protection are seen fragmented and inadequate, sustainable financial mechanisms are not established.

As an EU member state, Hungary has established its water management legislation over the past years based on the EU Water Framework Directive. Supplementary governmental decrees have been approved to harmonize the country's legislation with the Directive, to promote its implementation and to assist in river basin management. However, the fact that the Gemenc floodplain is managed by 3 sub-basin Environment and Water Authorities responsible for water management and environmental protection (in terms of permitting and administration) and by 3

regional water directorates in charge of river basin management, as well as the Danube-Drava National Park Directorate (DDNPD) responsible for nature conservation forms an important challenge.

The GaMampa wetland is located in the so-called “Motherland” area, where traditional leadership still influences decision-making in villages. The wetland is managed by two types of organizations: the traditional leadership and community-based organizations. There were no specific guidelines for wetland utilization in South Africa but in practice wetland-related management guidelines were derived from several Acts scattered under the responsibilities of three main national departments: Department of Water Affairs (DWA), Department of Environmental Affairs (DEA) and Department of Agriculture, Forestry and Fisheries. The Working for Wetlands programme, which aim at rehabilitating degraded wetlands, provided special funding mechanism for wetland management.

GaMampa wetland (photo Mutsa Masiyandima)

4.2.2 Informal instruments: planning and management practices, public participation

Ramsar Handbooks (2007b, 2007c) require wide involvement of stakeholders and communities in wetland management. As given in the Handbook 7 (2007c:14) , “an important element within the concept of integrated river basin management is that planning and management institutions work with and for the entire community of water users in the basin, including wetland users and wildlife, as well as relevant stakeholders outside the river basin. In order to identify the needs and concerns of all water users, public participation in the planning and management of water resources is an important goal”. Box 7 presents the guidelines for Contracting Parties relating to the involvement of stakeholders, community participation and public awareness.

Box 7: Guidelines for Contracting Parties relating to the involvement of stakeholders, community participation and public awareness (Source: Ramsar Handbook 7, 2007c:16)

- Establish mechanisms to identify and involve stakeholders in planning and management of river basins and their wetlands, including a review of the land tenure arrangements within the river basin.
- Facilitate the active participation of stakeholders, responding to their particular needs, and sharing of authority and responsibility for resource management according to arrangements that are agreed by all parties.
- Provide fora for open discussion on river basin management between water management agencies and stakeholders, particularly local communities, to identify the issues, needs and problems of the community.
- Document and promote sustainable wetland and river basin management practices developed through traditional knowledge and skills.
- Support capacity building of community-based organizations and NGOs to develop skills for monitoring or management of resources within river basins

In water management, public participation has been introduced as a tool to achieve more efficiency and sustainability of development projects, as a way of fostering poverty alleviation and economic

growth in developing countries, and creating project ownership among the beneficiaries (Rahman 1995). Water management systems are perceived as complicated systems of governance, in which actors at all levels are forced to interact and overcome a number of obstacles to reach commonly agreed decisions (Beierle 1998; Meadowcroft 2002). The empirical evidence for this conjecture, however, is mixed and indicates that broad participation in natural resources management brings not only opportunities but also challenges to the process (Cleaver 1999; Michener 1998; Paavola 2007), and our understanding of, for example, what makes participation and deliberation effective remains rudimentary (Lebel et al 2006). It can fail to accommodate all the complexity of interests, can lead to the imbalance of power among the players and, consequently, to the conflict among the parties involved reducing the effectiveness of decision-making (Steelman & Ascher 1997; Fitzmaurice 2003; Goodlad et al 2005). Local communities, often targeted for participatory processes, usually do not share a unified view and, therefore, do not always or readily, see the need for peacefully linking multiple stakeholders and interests (Stoll-Kleemann 2004). In the studied cases, the wide public participation may compromise the wetland protection because of the lack of appreciation of the wetlands' functions and services by the stakeholders. But on the other hand, analysis of governance structures and processes sometimes reveals the darker side of conservation in which livelihood needs or the rights of minorities are passed over in the interests of maintaining ecological resilience (Lebel et al 2006). Recent research (Ingram 2008; Pahl-Wostl 2009; Hantjens et al 2010; Nikitina et al 2010) suggests that bottom-up governance is not a straightforward solution to management problems, especially in large-scale, complex, multiple-use systems. Instead, managers are being in a process of finding a balance between bottom-up and top-down governance.

Table 7 shows that the capacity to involve stakeholders and to ensure public awareness and participation in wetland management is perceived insufficient in all the cases in question, though the level of this "insufficiency" varies from case to case. In Hungary, public participation is regulated by law. According to the 9 § (1) paragraph of the 314/2005 (XII. 25) Governmental Decree, public consultation must be part of the EIA process, however, public involvement in decision-making is perceived still inadequate, and the decisions are still mainly made behind the closed doors. Though, A change in attitude was reported as recently public consultations were organized with regard to the ecological restoration plans of the Gemenc (World Bank GEF project).

In the Ugandan cases, civil society was quite actively involved in wetland management. The Wetland Management Department (WMD), for example, works with many non-governmental organisations. Although, public awareness on wetland functions and services was found to be rather high, this did not translate into a strong appreciation of wetlands. The public attitude towards wetland protection remained rather negative as people perceive it as hampering economic development.

Namatala wetland (photo Rose Kaggwa)

In South Africa, civil society institutions were strongly recognized by formal government organisations involved in wetland management. The level of public awareness of functions and services of the wetlands was considered moderate. Awareness had increased in recent years as a result of wetland research involving traditional leaders and community members. Despite their recognition by the Constitution, traditional authority has been weakening in South Africa since 1994 onwards due to the emergence of new elected local governments and suspicion of collaboration of

some traditional leaders with the apartheid regime.

4.2.3 Other societal dimensions

Table 7 shows major contextual factors which have direct impact on the institutional capacity for wetland management. After Ingram (2008: 12), we use the term "context" to describe "the nexus of physical, natural, political, cultural, social, and economic phenomena that make one place distinct from another". The indicators have been defined in section 3.3. The table 7 indicates that societal factors are rather constraining than enabling (supporting), especially in case of Uganda and SA. Though, Hungary is characterized by higher degree of economic and societal development, it also has quite high level of corruption that tells us about some deficiencies in its formal institutions. Environmental performance index indicates that environmental values do not receive high priority in the countries in question.

Table 7: Societal dimensions in the countries

Indicators		Hungary	Uganda	SA
Economic development of the country	GDP (2007), bln $	**138.4**	**11.8**	**283.0**
	% of population living under poverty line (year)	**<2 (2000)**	**51.55 (2005)**	**26.2 (2000)**
Societal development	Human Development Index (2010)	**0.805**	**0.422**	**0.597**
	% of GDP spent on education (year)	**5.4 (2005)**	**3.8 (2008)**	**5.1 (2008)**
Social sustainability	Gini coefficient (year)	**30.0 (2007)**	**42.6 (2005)**	**57.8 (2007)**
Effectiveness of formal institutions	Corruption perception index (2009)	**5.1**	**2.5**	**4.7**
Environmental performance	Environmental performance index (2010)	**69.1**	**49.8**	**58.8**

Summing up, we can conclude that though necessary legal framework and formal institutions are in place in all the studied cases, the "enabling environment" is rather constraining then supporting the sustainable management of wetlands. Institutions in all three countries are found in transition: mix of institutions from the past and new institutions (old and new regulations, overlapping mandates, conflicts between formal and informal institutions, and between formal institutions – mainly new – and practices etc) are identified (see also WETwin report on management structures and practices, 2010c).

Cleaver (2001:26) stressed out the importance of "institutional bricolage as a process by which people consciously and unconsciously draw on existing social and cultural arrangements to shape institutions in response to changing situations". She illustrated (Cleaver 2002) that the introduction of 'new bureaucratic institutions or organizational arrangements are not necessarily robust and enduring, nor do they automatically ensure beneficial collective action and optimum resource use. Arrangements which rely on a blueprint derived from abstract and universalised 'design principles' (such as IWRM, for instance) may result in inadequate institutional solutions as they fail to recognize

the depth of social and cultural embeddedness of decision-making and cooperative relations. The new 'formal' institutions "may erode rather than build social capital" and may be perceived by local people as "costly, lacking in legitimacy and cumbersome in terms of existing social arrangements and resource-use practices" (Cleaver 2001:34). Some signs of the "erosion" and "the lack of legitimacy" are seen in the case studies: implementation of the legal acts is inadequate, and the processes of reforms are slow.

Roland (2005) suggests classifying institutions into 'fast-moving' (political, formal) and 'slow-moving' (culture, values, beliefs, social norms). He argues that interaction between these different types of institutions implies that different cultural paths (slow-moving) may affect the appropriate choices of fast-moving institutions. He points out the difficulty of transplanting institutions into different cultural contexts, and warns that ignoring cultural and historical past of the countries in designing institutional reforms is "likely a recipe for failure" (p.25). We agree with him and Cleaver (2001, 2002) on that policy-makers should recognize these important institutional interactions and dynamics (or *bricolage*) and to build upon them instead of adhering to detached and abstracted formal institutional models.

4.3 Organizational capacity and availability of means to operate

At the organizational level, the system of wetland management should have enough capacity to implement the following activities as specified in Ramsar Handbooks (2007):

- Assessing and enhancing wetland functions
- Integrating data on current and future water supply and demand (water allocation)
- Assessing and mitigating impacts of land use and water development projects on wetlands
- Ensuring vertical and horizontal coordination and cooperation
- Establishing and maintaining partnerships with relevant conventions, organizations and initiatives (knowledge and expertise sharing)

Some constituents and the gaps related to wetland management systems' organizational capacity and availability of means available to and allowing organizations to operate are discussed below in the context of selected WETwin cases.

4.3.1 Assessment and enhancement of wetland functions

Ramsar Handbook 7 (2007c) recommends ""to identify, enhance and restore the wetlands functions and benefits which a particular wetland provides" (p. 17) as a first step to appropriate maintenance and enhancement of the role of wetlands in water resource management. Therefore, the organizations involved in wetland management should be able to undertake "studies to identify the wetlands functions and benefits to water management" (p. 20), "to enhance and restore the wetland functions" (p. 20) and "to assessed status of wetlands and their biodiversity and to undertake actions needed to provide better protection measures" (p. 28). Table 6 indicates insufficient capacity of wetland management organizations to carry out these activities in all four cases in question.

In Hungary, the functions and services of the Gemenc wetland are inventoried, but not in great details. The existing assessments are not always available, some are not published. The data on hydrology, topography and water quality in the wetland have been limited, though the situation is improving just recently thanks to the GEF project, which involved detailed monitoring and modelling activities. Monitoring activities are fragmented (conducted by different organizations) and irregular, though the ecosystem status is regularly monitored by Danube-Drava National Park (DDNP) in the frame of the National Biodiversity Monitoring System and Natura 2000 monitoring system. DDNP puts a lot of effort on biodiversity protection and wetland restoration/rehabilitation, however the forestry company (and the national forestry sector) had sufficient power to push through intensive

wood production in the Gemenc, sometimes at the expense of the protection of the national park located in the wetland.

In Uganda, general assessments of the wetlands have been made recently, but not in sufficient detail. The collected data is imported in the National Wetlands Information System (NWIS) which is only partially operational. A competent agency for the monitoring of water quality and ecosystem status is established but with limited functioning: it is poorly equipped for specific measurements. There is no information available about any activity related to enhancement or restoration of wetlands and their biodiversity.

In SA, the assessments have been made by research agencies such as the University of KwaZulu Natal, International Water Management Institute (IWMI) and Cemagref, and focused on the use, function and valuation of the wetland and stakeholder perceptions. However, accessibility, use and maintenance of an environmental information system is limited. This information is available but limited to those expressing interest enough to find it; there is no active dissemination of information. A competent agency exists and is functioning for the monitoring of water quality and ecosystem status, however in Ga-Mampa, only flow downstream is monitored – there are no on-going programs on water quality and ecosystems in the wetland, though at the level of the Olifants catchment there is monitoring of medium quality. It is unclear if monitoring data is used in wetland planning and management.

4.3.2 Integration of data on current and future water supply and demand (water allocation)

According to Ramsar Handbook 7 (2007c:20), “essential component of river basin management is knowledge of both current and future supply and demand upon water resources in a river basin, taking into consideration the possible impacts of climate change. Current and future assessments of the resource need to focus on the human uses of water (such as irrigation, hydro- electricity and domestic or industrial water supply) as well as the ecological needs for water within different parts of a river basin. In this respect, water demands should not only be defined in terms of water quantity but also water quality”. In addition, in order to maintain natural wetland ecosystems “studies to determine the minimum and ideal flows and flow regimes required” should be undertaken, and “sustainable water allocation plans for the users including allocating water to maintain wetlands” are to be developed (ibid, p. 27). Table 6 indicates that only SA case has sufficient capacity of wetland management organizations to carry out these activities.

In the Gemenc floodplain case, for the time being no artificial water supply infrastructure exists, so that the wetland depends on how water is used in the other parts of the river basin. Data on environmental flows (‘environmental water levels’) required to maintain the wetland ecosystem is available, accessible and actual. The environmental conditions of the floodplain depend first of all on the water levels and not on the flows. The desired ‘environmental water levels’ have been identified for most of the water bodies in the Gemenc within the frame of the GEF project. Water allocation plans are developed but because the floodplain is desiccated it seems there is not enough water provided for the wetland (system).

Gemenc floodplain (photo: Horvath)

In Uganda, there is actual, accessible data available on current and future water supply and demand but it is perceived to be insufficient. The Water Atlas of 2001 is being updated this year, and its presentation took place in September 2010. At national level, water resource assessment is being

done for the four water management zones. Regarding to environmental flow requirements, there is currently no data available, therefore the water allocations do not take into account the wetland ecosystems maintenance.

4.3.3 Mitigation of impacts of land use and water development projects on wetlands

The Ramsar Handbook 7 (2007c: 23) acknowledges that land use and water development projects pose significant threats to wetlands and their biodiversity, which have to be minimized. Among various human land-based activities, the Ramsar guidelines call forestry, agriculture, mining, industry and urbanization as most serious contributors to increased soil erosion, reduced water retention capacity and pollution, and provides the guidance how to minimize their impacts (Box 8).

Box 8: Guidelines to minimizing the impacts of land use and development projects on wetlands and their biodiversity (Source: Ramsar Handbook 7, 2007c:24)

- Develop integrated land use plans for each river basin as a means to minimise the impact of different activities and land uses on the river and wetland systems as well as local residents.
- Develop and enforce appropriate regulations to control land uses, especially forestry, agriculture, mining or urban waste management, so as to minimise their impact on river and wetland ecosystems.
- Carry out Environmental Impact Assessment (EIA) and Cost Benefit Analysis (CBA) studies for development projects which may have significant impacts on rivers and wetlands using independent multidisciplinary teams, and in consultation with all stakeholders, and consider alternative proposals including the no-development option (guidance provided in Handbook 13, 2007d).
- Disseminate the findings of any EIA and CBA in a form which can be readily understood by all stakeholders.
- G5. Ensure that there are adequate control and mitigation measures to minimise, or compensate for impacts if development projects are allowed to proceed.

Water resource development projects modify the natural water flows in a river basin for storing water through drought periods, preventing floods, transferring water to irrigated agricultural areas, industrial and domestic water supply, improving navigation and generating electricity. Such projects have frequently been developed through the construction of engineered structures such as dams, diversion canals, channelisation of rivers, flood levees, etc. Many such projects have had a significant negative impacts on wetlands and associated biodiversity. Ramsar Handbook 7 (2007c:24) names some of the most significant impacts of such projects: “reduction in river flows, blocking of pathways for migratory fish and other aquatic species, increased water pollution levels, disruption of timing of natural floods which maintain wetlands; reduction of sediment and other nutrient input into floodplain wetlands, drainage or permanent inundation of riverine wetlands, and salinisation of surface and groundwater”. Ramsar Handbook 7 (2007c) provides the guidance on what should be done to minimize their impacts (Box 9).

Box 9: Guidelines to reducing the impact of water development projects on wetlands (Source: Ramsar Handbook 7, 2007c:26)

- Ensure that proposals for water development projects are carefully reviewed at their initial stages to determine whether non-structural alternatives may be feasible, possible and desirable alternatives.
- Take all necessary actions in order to minimise the impact of water development projects on biodiversity and socio-economic benefits during the construction phase and longer-term operation.
- Ensure that the project design/planning process includes a step by step process to integrate environmental issues, especially initial biodiversity/resource surveys and post-project evaluation and monitoring.
- Incorporate long-term social benefit and cost considerations into the process from the very initial stages of project preparation.

Table 6 indicates that only SA case has sufficient capacity of wetland management organizations to carry out these activities.

In Hungary, there are EIA regulations in place, zoning of the floodplain with 'strictly protected' core areas and buffer zones has been done, and land use and forestry planning takes this zones into consideration (e.g., access to the strictly protected areas is prohibited). However, in practice, the forestry company (and the national forestry sector) has sufficient power to push through intensive wood production in the Gemenc, sometimes at the expense of the protection of the national park located in the wetland.

In Uganda, operational activities are not always in line with national spatial plans, and there is no land use planning in the wetlands. Impacts of land use and water developments on wetlands are considered in SEA process but clear guidelines on how to carry out SEA are lacking. There are some attempts to integrate national policies in wetland management activities but due to developmental pressure, environmental policies are sometimes overlooked. EIAs are always carried out for wetland management activities, however, the implementation of their recommendations is seen problematic, and compliance to the procedures is low.

Nabajjuzi wetland (Photo Rose Kaggwa)

Regarding water projects, there are no clear obligations or guidelines existing as the DWD put up dams and valley tanks for WfP without assessment of impact on wetlands and also without considering a catchment approach, however, sometimes impacts of small-scale water development projects on the wetlands are assessed and documented.

4.3.4 Vertical and horizontal coordination and cooperation

Because natural resource management should deal with multiple-level and cross-scale issues, the development of good governance requires strong coordination mechanisms between the levels and among the scales (Hooper 2005; Cash et al 2006; Nikitina et al 2010).

Wetland management in its dual nature requires well-established cooperation between two sectors: wetland's as such and water's. Ramsar Handbook 7 (2007c:35) acknowledges that "management and development of wetlands must be undertaken within the context of their larger surrounding 'waterscape' (the river basin or catchment, including the hydrological processes and functions within the basin or catchment) as well their larger surrounding landscape. It is not sufficient to integrate wetland management objectives into land use management plans; they must also be integrated into water resource management plans".

To improve the integration of wetlands into river basin management, following major activities should be carried out (Handbook 7, 2007c: 35-36):

- "Communication of policy and operational needs and objectives across different sectors, primarily the water and wetlands sectors;
- Cooperation between sectors and sectoral institutions, ranging from informal collaboration to formal cooperative governance;
- Sequencing and synchronization of planning and management activities in different sectors, including land, water and wetlands".

Handbook 7 (2007c) acknowledge that the two sectors frequently fail to find common ground due, and the main reason for that is seen in "an inability to describe, quantify and communicate interests, objectives and operational requirements" (p.36). Therefore, in order to ensure understanding and foster collaboration and cooperation between sectors, wetland managers and water resource

managers should improve communication and “find a common language in which to set shared objectives for water resources and wetlands” (ibid p. 36).

Table 6 shows insufficient capacity of wetland management organizations to carry out these activities in all the cases in question.

In Hungary, laws and governmental decrees define the tasks of the organizations at different levels and these tasks determine the level of coordination. As such there is limited to extensive coordination between organisations at local and higher levels depending on the task and this coordination is mostly formal. Horizontal coordination between organisation at national level was limited and of a formal nature. However there has been a change in structure since June 2010 as the new Ministry of Rural Development (result of the joining of the Ministry of Environment and Water (KvVM) and Ministry of Agriculture and Rural Development) comes into effect. At local level, there is limited coordination of a formal nature. Local coordination is undermined by the serious conflict between the National Park (DDNP) and the Forestry Company (Gemenc Zrt.). At local and higher levels, vertical cooperation is in planning, operational management and information sharing defined by laws and governmental decrees, however at local level, horizontal coordination is mostly seen in operational management.

In Uganda, vertical coordination between organisations at local and higher level remains limited and mainly formal. WMD and the District Environmental Officer are coordinating their activities, but no clear reporting structure exists. There is a project mode of doing things such that if a project is being implemented by NEMA then reporting is directed to NEMA and not to WMD and this affects coordination. Horizontal coordination (between organisations) at national level is extensive and mainly formal. There are specific coordinating bodies (Water Policy Committee, Wetlands advisory committee, Policy committee on environment and Parliamentary committee on Natural Resources) established at the national level recently. However, they meet irregularly, the fruits of coordination are not always easily seen and overlapping and conflicting mandates remain. Horizontal coordination between organisations at local level is limited and formal. Inter-district committees for wetlands, have been set up but are not always functional and lacking resources. District environment committees are foreseen but do not really function. Vertical cooperation between organisations at local and higher level is seen in operational management, analytical support and information sharing. Districts do their own planning (District Planning Committee with no participation of the WMD). WMD offers technical advice, supervision and capacity development, through the CAO in the District. There is little integration of wetland ecosystem requirements into river basin plans. There are a few examples of RBM plans where wetlands are considered but are not yet strong enough. Horizontal cooperation between organisations at local level is seen in planning, operational management, analytical support and information sharing. For example all NGOs are supposed to take part in district planning where focal persons are at sub county level (for wetlands, environment, fisheries etc).

In SA, vertical coordination between organisations at local and higher level is limited although it has improved in the last years in the case of GaMampa, mainly thanks to IWMI’s intervention, this coordination is mainly formal. There is some hierarchical coordination, passing on of policies and objectives from higher to lower levels. At national level some tools for horizontal coordination exist (the Working for Wetlands program, the national wetland indaba, etc.). Horizontal coordination between organisations at local level is quite extensive and is of a formal nature considering the high level of interaction between the CDF, ward councillor and local municipality.

GaMampa wetland (photo Mutsa Masiyandima)

Vertical cooperation between organisations at local and higher level is mainly for planning, analytical support and information sharing particularly with respect to policies and legislation. However this coordination suffers from lack of resources by local authorities to coordinate the various departments. Regarding the integration of wetland ecosystem requirements into river basin plans, the DWA acknowledges the importance of this integration and has taken some steps towards it, however, there is no cooperation between different sector departments at local level (e.g. between water management and environmental conservation or agricultural development).

Hantjens et al (2010) shows that there is a strong interdependence of the elements within a river basin management regime, for example, a lack of joint/participative knowledge is an important obstacle for cooperation or vice versa—the two mutually dependent regime elements that were found to be of key importance. As one can see from section 4.2.2, stakeholder participation and knowledge exchange seem to be a weak link in all four cases, and now it is clear that cooperation is also weak.

Regarding knowledge and expertise exchange between science and policy, there is insufficient information available to make a judgement on this issue in all the cases.

4.3.5 Partnerships with relevant conventions, organizations and initiatives (knowledge and expertise sharing)

Ramsar guidelines (2007) acknowledges the importance to be aware about the related activities of other international conventions, organizations and initiatives and to establish partnerships with them, in order to promote the integration of wetland conservation and wise use into river basin management and to share knowledge and expertise.

Table 6 indicates sufficient capacity of wetland management organizations to carry out these activities in Hungarian and Ugandan cases. In the South African case, there is insufficient information available to make a judgement on this issue.

4.4 Adaptive capacity

Institutional analysis we have done in WP4 of the WETwin project (see also WETwin report on assessment of wetland management structures and practices, 2010c) indicates that in all four cases the wetland management systems has recently undergone or are still undergoing significant reforms: political, socio-economic and administrative. In addition, there are also serious environmental changes in the (bio)physical wetland systems caused by human activities and climate variations (see also WETwin report on initial vulnerability assessment, 2010d). All these pose significant challenges for wetland management institutions to be able to adapt to these changes, nowadays and in the future. And this section is assessing their capacity to adapt.

This ability to adapt requires certain degree of flexibility from the system, because institutions are inherently conservative and carry the bias of previous interactions, values and power relations (Klijn and Koppenjan, 2006) evolving over years through processes of institutionalization (Garud et al. 2007; March & Olsen 1989) and “bricolage” (Cleaver 1999), which were discussed in previous sections. Hence, all institutions embed a degree of robustness and resistance to change.
However, in a changing world, societies have to anticipate and respond to changes that may occur. Consequently their institutions need to support social actors to proactively respond (Gupta et al. 2010). The debate on the requirements for sustainable governance of environmental resources has been fueled by prospects of climate and global change that render the conditions under which governance has to perform increasingly unpredictable (Bates et al. 2008).

The adaptive capacity shows on one hand the extent to which institutions enable actors to adapt to changes, and on the other hand the extent to which the institutions themselves can be changed by actors in order to adapt to the changes. This implies that institutions should allow actors to learn from new insights and experiences in order to flexibly and creatively ‘manage’ the expected and the unexpected, while maintaining a degree of identity (Gupta et al. 2010). Gupta et al (2010) also warn

that institutions specifically aimed at nature protection or conservation tends likely to be less adaptive than those of more general nature.

At the organizational level (see summary from OECD-DAC Network on Governance, for instance, given in Box 10), strong and effective leadership emerges as an important success factor, along with powerful pressures for change coming from outside the organization. So does active management of the process, so that gains become cumulative and gradually win the support of the different stakeholder groups that might otherwise sabotage it.

Box 10: Conditions favouring capacity development in organizations (Source: OECD-DAC Network on Governance, 2006: 18)

- Strong demand-side pressures for improvements are exerted from outside (from clients, political leaders, etc.)
- Top management provides visible leadership for change, promotes a clear sense of mission, encourages participation, establishes explicit expectations about performance, and rewards well-performing staff (recognition, pay, and promotions based on merit)
- Change management is approached in an integrated manner
- A critical mass of staff members, including front-line staff, are ultimately involved
- Organizational innovations are tried, tested and adapted.
- Quick wins that deepen commitment for change become visible early in the process.
- Top management and change agents manage the change process strategically and proactively, including both internal and external aspects of the process (communication, sequencing, timing, feedback loops, celebration of victories, and recognition of problems)

Table 6 shows highly insufficient adaptive capacity of wetland management organizations to cope with current and future changes in all the studied cases.

In Hungary, the level of capacity to address perceived threats is seen low. The Gemenc is now exposed to the very serious threat of desiccation. Addressing this threat in an efficient and sustainable way requires large-scale interventions in the entire river draining system. Even the small-scale improvements proposed are now facing the firm resistance of the Forestry Company, despite the provided evidence that these interventions do not have negative impacts on the forests.

Organisations responsible for wetland management have sufficient relevant information regarding possible changes to the wetland, for instance, planned changes, which may have an impact on the Gemenc must be reported to the National Park that is in charge of nature conservation-management of Gemenc and has the right to approve or reject them. In addition natural changes (if monitored) should also be reported to the National Park by the relevant authorities. Documentation of scientific studies on predicted future changes (e.g. changes due to hydro-morphological processes such as desiccation caused by sedimentation and river bed incision) is also delivered to the National Park.

The National Park does have close links to local and national authorities, NGO-s and companies involved into the Gemenc and as such have a strong external network through which it can access information regarding changes in the wetland. However, it takes time for changes in plans and in operational management to be implemented quickly because of long authorization procedure by the relevant authorities, conflict between the National Park and the Gemenc Forestry Company and limited financial resources.

Human resources of the National Park, available for the nature conservation management of the wetland, are sufficient and can therefore quickly address new challenges facing the wetland. This change in human resources capacity to implement changes quickly has been improving over the past decade.

Financial resources of the National Park are quite limited and have been declining over the past decade. These resources are enough only for authorization processes and for the daily operational management of the Gemenc. Implementing changes, restoration measures require external resources.

Publication of data gaps and uncertainties are produced and there is extensive use of produced documents in operational management, which means that the system is rather enabling to learn from its experience and allows for continuing improvements.

In Uganda, the level of capacity to address perceived threats to the wetlands in the future is seen medium to low, considering the different drivers (climate, population pressure, oil & gas extraction etc). Reliable information regarding possible changes to the wetlands is insufficient and lacking details. WMD depends on studies done by research institutes and international projects, however is now working on a research strategy to improve its capacity in this area.

Organizations have strong external networks through which they can access information regarding changes in the wetland. Examples of external links are Nature Uganda, Makerere University, IUCN, Uganda Wild Life Society and Uganda Bureau of Statistics (UBOS) (which now has an environment desk officer). UBOS employs data collectors on the districts to get information (e.g. wetlands poverty mapping was done together with UBOS), NWIS and Kawanda Research Institute.

From line ministry to line ministry the information is given with ease but programs such as Biomass Study and analysis of water quality are now charged. Changes in plans and in operational management take time to be implemented because involvement of many actors is a time consuming process. The financing for planning and operational management is low and as such emerging issues are not budgeted for. The ability to get new emerging issues on board (e.g. oil and gas developments impacts) is low, time is needed for capacity building / training while the issues are already pressing.

The human resources in the organizations responsible for wetland management needed for addressing new challenges facing the wetland are insufficient, though has been improving over the last decade. The situation is also expected to improve in the coming decade. The WMD staff number is not sufficient to fulfill its mandate and to address the pressures and challenges facing the wetlands. At district level some efforts to appoint wetland officers are made since before the districts were in place, wetlands were under the environment officer, however there are still vacancies unfilled.

Financial resources to implement changes quickly are low to very low, and have been declining over the years due to thinner spreading of resources across the increasing number of districts. The environment is not one of the key priorities in government. The ability to make budget changes quickly is low as funds are already largely dedicated to other priorities therefore shifting budgets for emerging challenges is difficult. The budget is approved according to vote functions, shifting from one to another is difficult although there is a provision to propose changes. Since budgets come earmarked by donors; they cannot be shifted to other priorities.

Documentation of learning from past experiences and improving routines are produced through yearly reports, which propose measures for improvements. Publication of data gaps and uncertainties, external reviews for projects and SWOT analyses for sector performance are also produced although the use of these documents in operational management is limited. Because of limited resources, documents may not always be available and the ability to use documents is low e.g. rice growing guidelines for wetlands are widely distributed but few apply them. Actions of players in the wetland are mostly defined by experience and lessons, rather than application of guidelines.

In SA, the level of capacity to address perceived threats is seen low, and representation of governmental agencies at local level is still lacking within the wetland to effectively implement policies. Though much information/guidelines exist now at national level and at GaMampa wetland level, a lot of research has been done and was handed over to village leaders, but municipal people who take decision on local development are not necessarily all aware of this information. Internet coverage to access information is not too bad in South Africa but municipal managers are not always used to using it.

Local people in GaMampa do not have a strong external network and they are also very isolated because of lack of cell phone network, no NGO is currently working on GaMampa. Only CRCE, an

outreach body within the University of Limpopo can make the link with the outside world. Changes in plans and in operational management may take time to be implemented; due to limited capacity (financial, human resources, technical expertise).

Human resources capacity to implement changes quickly is low though is expected to improve in the coming decade. Financial resources for wetland management are also considered low. Organization in charge of day to day management of wetland (village organizations) have no financial resources at all on their own. Municipal government can provide funds on a case by case basis (project based) but there is little follow up on the projects (e.g. a tourism facility built in 2005 is still not operating). In any case municipal budget also very limited. The financial status in The GaMampa within the next decade is uncertain.

From the information gathered in the assessment of management structure and practices in the wetland the production of documentation of learning from past experiences and improving routines is minimal.

4.5 Effectiveness

We consider in our analysis only that part of the performance which indicates the effectiveness of the overall wetland management systems in four cases under study. The effectiveness shows how the system is progressing towards the goals (in the context of our cases, the goal of wise use of wetlands). Degrading wetlands in all four cases indicate that measures undertaken were not effective enough and should be revised. It also shows how the gaps and deficiencies we have revealed in the previous analyses (including those addressed in the WETwin report on management structures and practices, 2010c) influence of the wetland management system performance.

In Hungary, the Gemenc wetland is in medium condition although it is heading towards degradation. Huge parts of the Gemenc are still under intensive wood production, which results in degraded ecosystems and habitats. Also large areas of former aquatic, semi-aquatic habitats have disappeared due to the desiccation process, which results partly from upstream human activities and partly from natural processes of the river evolution. Though, recently intensive wood production has been somewhat restricted for the benefit of valuable ecosystems and habitats, the overall tendency is still degradation due to the progressive desiccation process.

Gemenc floodplain (photo Bela Kalocsa)

The conditions of the ***Ugandan wetlands*** are bad and degrading. Developmental pressure on the area is high, and there are a lot of unplanned (illegal) developments. There has been a decline in wetland areas and their biodiversity, which is accelerated by human activities. The restoration of wetlands is low but planned (even with military enforcement after long campaigns of awareness), but the process is made difficult by political interference, which plays an important role in the natural resources sector and should be taken into account while considering capacity and performance.

The present condition of ***the SA wetland*** is medium but it is perceived that its future may not be too bright if the current trend in management practice continues. The situation can still be sustainably managed. If conversion of the wetland to agricultural use continues coupled with negative effects of climate change on rainfall then the condition of the wetland is likely to deteriorate**.**

5 Lessons learnt from the case studies

Analysis of the case studies indicates that despite the case specific differences, some general patterns emerge.

- Overall capacity for wetland management is insufficient in Gemenc (Hungary) and Ga-Mampa (South Africa), and highly insufficient in Nabajjuzi and Namatala wetlands (Uganda) The capacities in these wetland sites particularly exist at the strategic level of the "enabling environment», but actual implementation of the policies is lagging behind.

- In all the wetlands, the overall "enabling environment" is rather challenging as mix of new formal legislation and procedures, having been put in place recently, and informal instruments and planning/management practices from the past, which are still used by wetland managers and stakeholders, hinders their performance. Practices are deviating (to different extent in different cases) from what current policies and laws prescribe. Formal institutions are sometimes in conflict with informal ones. Vertical and horizontal coordination among the sectors and stakeholders involved in wetland management is hampered by bureaucratic barriers and conflicts of interests.

- Local capacities to implement and enforce laws and regulations are rather weak in the African cases (limited resources if any are provided). Local managers are lacking resources (human, financial, technical), flexible planning and operational arrangements and knowledge about the changes and their consequences to the wetland. Involvement of local stakeholders in decision-making is limited, and the actual users of the wetlands do not have enough power to influence decisions.

- Capacity of the wetland management institutions in all the cases to deal with environmental changes such as climate change appeared to be limited. Organizations responsible for managing wetlands have difficulty obtaining relevant information pertaining to changes in the wetland and have very limited capacity to react to any changes that are observed due to inflexible planning and operational arrangements and knowledge about the changes and their consequences to the wetland (in African cases). Given the major challenges facing the studied wetlands in the near future (population increase, market demands, climate change, natural disasters), the lack of adaptive capacity identified in the cases is reason for concern.

- Degrading wetlands in all the studied cases indicate that measures undertaken were not effective enough. This means that international conventions (such as Ramsar), national policies and local regulatory experience have not resulted in the sustainable management of wetlands. In African cases, the conservation activities, research and monitoring are mainly donor-driven and –financed, therefore, unsustainable. Stakeholders have limited appreciation of wetlands functions and services. Conflicts between nature conservation and economic activities are observed in all the cases. The emphasis on economic improvement or expansion brings environmental protection and conservation at the bottom of the priority list for government actions in all the case studies.

- It appears that international guidelines such as the Ramsar's prescribe overambitious policies to the countries with underdeveloped capacities. This is because such arrangements often do not recognize and respond to the underlying motivations of individuals, political processes and socio-economic realities (see, for instance, Stoll-Keelmann 2004), however, the success of those policies are determined by local traditions, culture, institutions, and infrastructure.

The issue in ensuring sustainable management of wetlands does not appear to be the development of new and improved guidelines and policies, but to adjust guidelines to the local context and to develop capacity at the local level to implement these guidelines.

6 Recommendations

- The capacity for wetland management should be further strengthened in all the four wetland areas with the special emphasis on wider stakeholder/public engagement, knowledge development and operational management. Institutional capacity development should not be complementary to wetland management, but should be its integral part.

- Declarative character and fragmentation of wetland protection and conservation should be overcome. Coordination and cooperation among the sectors and stakeholders involved in wetland management should be improved. Stakeholders should be empowered to act as partners of governmental authorities. Enforcement of the current legislation should be improved. Though, we should warn that attempts by authorities to tighten control can result in the creation of larger, more difficult challenges for society than the original set of problems (see, for instance Holling and Meffe 1996).

- Adaptive capacity of the organizations involved the wetland management should be strengthened. Experience, knowledge and information exchange of wetland management should be enhanced as a top down (implementation) and bottom up (adaptation) process. Framework for the monitoring and evaluation of the changes in the wetlands (both human- or climate-induced) should be reinforced.

- More emphasis must be given to the development of local capacities in order to achieve improved and sustainable practices in the wetland management. Investments in human development, especially at local level in the African cases, are needed in order to overcome the shortages in human resources and technical means for operational management. As human activities are the primary threat to wetlands, wetland management to be sustainable should take account of how individuals, social networks and local communities value wetlands, especially those who directly utilise the wetland resources on which they depend.

- A pragmatic model for the evolution of wetland management should include a tiered or timelined approach taking account of their current capacities, local knowledge and local institutions. International guidance documents and generic scientific concepts (such as IWRM) should be taken with caution and adapted to the local conditions and capacities.

In summary, all the four selected wetland sites require an improved capacity, as an integrated part of wetland management with the overall objective to bring the human-induced and climate-increased degradation to a halt. However, it should be clear for the wetland managers that the lack of institutional capacity is no excuse not to act. Their ambition should be to continuously change and to improve the institutional capacity, and to accept that such a change takes time. With each step, capacity will improve, so as to bring about a progressive strengthening of actions over time.

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Appendices

Appendix 1: Overview of institutional capacity in the Gemenc wetland, Hungary

1. Enabling environment

Formal instruments: Water and environment policy, institutional and legal framework, planning regulations, financing

IWRM principles are integrated in the national water policy regulations and budget. The main task of the International Commission of the Danube River Protection Convention (ICPDR) is to implement the Water Framework Directive of the EU throughout the Danube of which IWRM is a major part. Wetland strategies, programmes and plans are implemented as part of the water policy. The protection and improvement of wetlands are explicit objectives of the EU Water Framework Directive (WFD) and Hungary has accepted the WFD and integrated it into its water policy and legislation.

An enforcing body and enforcement mechanisms exist to ensure compliance with water legislation. In June 2010 there was a change in the structure of the managing institutions and it is not clear how this will affect the lower institutional levels. However, wetland ecosystem requirements are implicitly mentioned and taken into account in basin plans.

There is a large level of integration of environmental assessment in national law as such an Environmental Impact Assessment (EIA) is always required for developments having potential impact on the wetland. According to the 314/2005. (XII. 25.) Governmental Decree, EIA is required for developments having potential impacts on forests and on protected natural areas, like the Gemenc. Accordingly, an EIA has been implemented within the frame of the World Bank funded GEF project (GEF Nutrient Reduction Project, DDNP component, TF 055 978) dealing with the ecological restoration of the Gemenc.

A Strategic Environmental Assessment (SEA) is required for developments having potential impact on the wetland. An SEA has to be prepared with regard to large scale investments and programs, such as the national project on the 'Improvement of Navigability of the Danube River', or the RBMP project itself. For these two "big" projects, both of which have effects on the Gemenc wetland, SEAs have been elaborated. An SEA has to be elaborated as part of the plan or program whereas an EIA has to be worked out before the real implementation of the plan in view of the very detailed technical plans.

SEAs do not deal in detail with special environmental protection or nature conservation questions, like the EIA. Depending on the result of the SEA, alternatives of the basic components of plans or programs can come to the front. In the case of an EIA, alternatives can emerge only on the level of technical or technological detail. Local wetland restoration plans in Gemenc do not need SEAs but EIAs.

(For example with the World Bank GEF project on "Reduction of Nutrient discharges of the Black Sea", where the Gemenc floodplain is one element of the system, an SEA would be needed to assess the aggregated effects of the whole plan on the whole basin from the Black Forest to the Black Sea – including Gemenc itself.)

Assessment and documentation of impacts of small-scale water development projects on the wetland is always carried out. Examples for small scale water development projects with impact assessments are:

- World Bank GEF project on the ecological restoration of Gemenc. This project envisages small-scale water regime control measures such as retention of water on the floodplain by means of sluices. An EIA has been elaborated with regard to this project.
- Impact assessment was implemented with regard to the bank filtration wells planned in the Gemenc at Báta. Impacts on the groundwater were assessed with the help of onsite pumping experiments and with groundwater models.

Priority areas (priority over other land uses) and action objectives for wetlands can be found in land

use plans and programmes at regional and local scale. The most important land use plan on local scale is the Forest Plan and Game Management Plan elaborated by the Gemenc Zrt (Gemenc Forestry Company). Both plans take into consideration the priority areas of Gemenc and these plans are approved by the Directory of Danube-Drava National Park. These priority areas (or 'strictly protected areas') are smaller land units that can be found all over the Gemenc. Nature conservation is the priority role of these areas. All land use forms, and even the access, are forbidden.

On the other hand, clear-cutting and plantation of alien tree species are still practiced, and accepted in the forest management plans with regard to several forest units of Gemenc, although such practices are by no means compatible with the nature conservation status (Natura 2000, Ramsar, National Park) of Gemenc. As Gemenc is a nature conservation area with state owned forest and game management, regional land use plans do not deal with it. The regional development plan controls hunting and tourism/recreation in relation to the area.

Public participation is regulated by law. According to the 9 § (1) paragraph of the 314/2005 (XII. 25) Governmental Decree, public consultation must be part of the EIA process. In case of the World Bank GEF project for example two public consultations were organized with regard to the ecological restoration plans of the Gemenc.
With regard to financial resources for the implementation of wetland management, both governmental and external (from donor parties) funds are allocated. The environmental protection and water management authorities in charge carry out their activities from a central budget source. For example: funds are allocated to the DDDNP (Danube Drava National Park) for the environmental management of the Gemenc such as: checking and authorizing the forestry plans of the Forestry Company and employing nature protection rangers in the floodplain. However, elaboration and implementation of nature restoration plans for the Gemenc require external funds, e.g.

- World Bank funded GEF project dealing with the ecological restoration of the Gemenc
- WWF funded project on the reintroduction of beavers in the Gemenc

Financially, a national budget for wetlands conservation as well as a separate budget for restoration and nature protection exists. However this is not yet visible in reality as the Danube Drava National Park Directorate has no separate budget for 'wetland management' as such; they have a budget for nature conservation in general. Currently, the available budget is not sufficient, external funds, such as that of the World Bank, are needed to be involved whenever nature restoration measures are aimed to be implemented, above the routine operational activities. Water prices, payment for environmental services and environmental taxes are in force, but require enhancement for the enforcement of economic incentives for sustainable water and wetland use.

Informal Instruments: Planning culture, traditions, participation

The level of recognition of informal institutions by formal government organisations involved in wetland management is medium, for example in the cooperation of nature conservation with the BITE NGO (Youth Nature Conservation Organisation) and cooperation with WWF for the reintroduction of beavers in the Gemenc. Local people are more or less aware (medium awareness) of the environmental values, function and services of the Gemenc. On the other hand they are not interested in public consultations where more detail about values, functions and services are introduced and discussed.

There is a low level of public recognition and valuation of functions and services of the wetlands. People tend to disrespect the environmental values function and services as seen in illegal fisheries, illegal garbage disposal and disturbance of ecosystems.

2. Organisations involved in wetland management

Assessment and enhancement of wetland functions

In general assessments are made, but not in sufficient detail. Inventory of functions and services have been made, but detailed model-based quantitative assessments have been done only partly. As a consequence of this there is lack of knowledge about the nutrient reduction function. This is due to the limited hydrological, topographical and water quality data from the area. The situation is improving just recently thanks to the GEF project, which involved detailed monitoring and modelling activities.

There is limited accessibility of assessments of the wetland functions and service. Some studies and yearly reports of the DDNP are available, most of the important plans (nature conservation plans, forest plans) including detailed description of functions and services are not published.

A competent agency for monitoring of water quality and ecosystem status is in existence but has limited functioning. Competent agencies for monitoring, such as the DDNP and the local Environmental and Water Management Directorates, do exist. However their monitoring activities with regard to the Gemenc floodplain are limited due to financial constraints. Ecosystem status is monitored by DDNP, while water quality monitoring is carried out by the local Environmental Protection and Water Management Directorates. Regular water quality monitoring is taking place in the main channel of the Danube only.

Water quality monitoring on the floodplain takes place irregularly within the frame of research and development projects such as the World Bank funded GEF project. Regarding the ecosystem status, regular monitoring takes place in the Gemenc. Basic status and several species are monitored by DDNP in the frame of the National Biodiversity Monitoring System and Natura 2000 monitoring system.

There are other local monitoring activities focusing on rare and valuable species such as the black stork, the beaver and the white-tailed eagle. This monitoring is carried out by the BITE NGO (for professional database of the State Secretariat for Nature Conservation)
Monitoring of forest status as ecosystem service – wood production (distribution of species, health, age, cutting, etc.) is carried out by Gemenc Zrt. - detailed data is not published yet, but data on national level available at Central Agricultural Office.

Monitoring of game status as an ecosystem service, hunting (distribution of species, health, age, hunting, etc) is carried out by Gemenc Zrt. - detailed data is not published yet, but data on national level is available at Central Agricultural Office. There are other monitoring activities mainly in the main channel of the Danube - in the frame of the Hungarian Academy of Science, Institute of Ecology and Botany – Hungarian Danube Research Station.

This data plays an important part in wetland planning and management. Monitoring plays a key role in the World Bank GEF project dealing with the restoration of Gemenc. Water quality, ecological, surface and groundwater monitoring programmes are carried out within the frame of this project. The monitoring programme will continue after the implementation of the restoration measures in order to monitor the impacts of the measures. If the results of monitoring justifies, the measures will be modified.

Ornithological monitoring data, such as the continuously updated database of trees with nests of valuable birds, play a key role in authorizing the Forest Plans (Plans are not authorized by the National Park if they endanger such trees).

Integration of data on current and future water supply and demand in wetland planning

Water supply and demand can be interpreted in the Gemenc only with regard to the forests and floodplain water bodies. For the time being no artificial water supply infrastructure exists in the Gemenc. The water supply of forests and the water bodies is implemented in a natural way by means of surface and sub-surface flows. There is some hydrological information about the water supply of the floodplain forests and water bodies. Also there is information about the water demands of different tree species (in terms of optimal groundwater levels and inundation durations).

Data on environmental flows required to maintain the wetland ecosystem is available, accessible and actual. In fact the environmental conditions of the floodplain depend first of all on the water levels and not on the flows. The desired 'environmental water levels' have been identified for most of the water bodies in the Gemenc within the frame of the GEF project.

Consideration of impacts of land use and water development projects on wetlands

Operational activities are always in line with spatial (land use) plan. There is an elaborated zonation on the floodplain with 'strictly protected' core areas and buffer zones. Access and land use planning takes this zonation into consideration as access to the strictly protected areas is prohibited. In addition, forestry plans are elaborated according to the requirements of this zonation.

Sometimes there is integration of national environmental policies into decision making at wetland level. The point is that neither wood production nor environmental protection has full priority in the Gemenc. For the time being these two functions, and as such the two managing institutions (the Forestry Company and the National Park), are in mutual dependence, and a continuous power struggle is going on for safeguarding and enforcing interests. Under such conditions integration of national environmental policies can hardly be successful. In practice the success of enforcement of national nature conservation policies for national parks is rather limited, due to the fact that the forestry company (and the national forestry sector) has sufficient power and influence to maintain intensive wood production in the Gemenc.

Vertical and horizontal coordination and cooperation between

Laws and governmental decrees define the tasks of the organizations on different levels and these tasks determine the level of coordination. As such there is limited to extensive coordination between organisations at local and higher levels depending on the task and this coordination is mostly formal.

Horizontal coordination between organisation at national level was limited and of a formal nature. However there has been a change in structure since June 2010 as the new Ministry of Rural Development (result of the joining of the Ministry of Environment and Water (KvVM) and Ministry of Agriculture and Rural Development) comes into effect. There is no information about the future changes on lower institutional levels. National development plans (e.g. in the field of agriculture) need horizontal coordination of different organizations at national level but no details are available.

At local level, there is limited coordination of a formal nature. Local level coordination is overshadowed by the serious conflict between the National Park (DDNP) and the Forestry Company (Gemenc Zrt.). This is due to their conflicting interests: the Park's primary interest is nature conservation, while the Company is interested in the wood production and hunting business first of all. Nevertheless, the Forestry Company is obliged by law to submit its forestry plans to the Park for authorization. The Park also supervises the forestry activities of the Company through its rangers. Outside of this, no constructive coordination exists between the two institutions due to their conflicting interests.

The DDNP checks and approves the forestry plans of the Gemenc Zrt. while local specialised authorities check and approve development plans based on EIA.

At local and higher levels, vertical cooperation is in planning, operational management and information sharing. In the same manner, laws and governmental decrees define the tasks of the organizations on different levels. The tasks determine the level of coordination and cooperation. However at local level, horizontal coordination is mostly in operational management.

An active partnership with wetland-related conventions and organizations exists. The DDNP has active partnerships in this field mainly because the Gemenc is both a Ramsar area and a Natura 2000 area and as such cooperation with NGO-s such as the WWF and the BITE (Youth Nature Conservation Organisation) plays an important role.

In terms of financing, it is not known where financial resources for communication and coordination between water and wetlands sectors come from.

3. Adaptive capacity of organisations Involved in wetland Management

The level of capacity to address perceived threats is low. The Gemenc is now exposed to the very serious threat of desiccation. Addressing this threat in an efficient and sustainable way requires large-scale interventions in the entire river training system. This requires sufficient financial resources as well as close cooperation among the water management, nature conservation and forestry sectors, both on national and on local levels. For the time being these conditions do not exist.

Even the small-scale interventions proposed by the GEF project are now facing the firm resistance of the Forestry Company, despite the GEF project having proven that these interventions do not have negative impacts on the forests.

Organisations responsible for wetland management have sufficient relevant information regarding possible changes to the wetland, for instance, planned changes, which may have an impact on the Gemenc must be reported to the National Park (organisation responsible for conservation-management of Gemenc), who has the right to approve or reject them. In addition natural changes (if monitored) should also be reported to the National Park by the relevant authorities. Documentation of scientific studies on predicted future changes (e.g. changes due to hydro-morphological processes such as desiccation caused by sedimentation and river bed incision) have been delivered to the National Park.

The National Park has the opportunity to get informed about un-reported, illegal changes too (e.g. construction of huts without permission, illegal wood felling), thanks to its rangers, who keep on patrolling the wetland on a daily basis. The National Park does have close links to local and national authorities, NGO-s and companies involved into the Gemenc, and as such has a strong external network through which it can access information regarding changes in the wetland.

However, it takes time for changes in plans and in operational management to be implemented quickly because of;

- lengthy authorization procedure by the relevant authorities
- conflict between the National Park and the Gemenc Forestry Company (they tend to act against plans/projects initiated by the other)
- limited financial resources: many times changes in plans and management can only be financed from external source, which are difficult to obtain

Human resources of the National Park, available for the nature conservation management of the wetland, are sufficient and can therefore quickly address new challenges facing the wetland. This change in human resources capacity to implement changes quickly has been improving over the past decade.

Financial resources of the National Park are quite limited (low). These resources are enough only for authorization processes and for the daily operational management of the Gemenc. Implementing changes, restoration measures require external resources (e.g. GEF project financed by the World Bank). The Gemenc Forestry Company does have financial resources; however it is interested in sustaining the status quo with the intensive wood production and profitable hunting business. Available funds have been declining over the past decade.

Publication of data gaps and uncertainties are produced and there is extensive use of produced documents in operational management.

The following are some available documents:

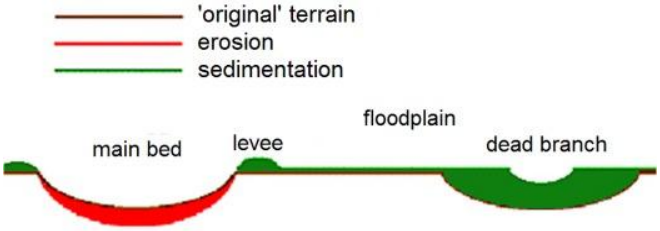
- Danube Drava National Park Development Plan (2009-2014) (http://www.ddnp.hu/index.php?pg=menu_2714)
- Danube Drava National Park Activity Report (yearly) (http://www.ddnp.hu/index.php?pg=menu_2544)

Also available on local level, but mainly on regional level:

- reports of the Regional Inspectorates for Environment, Nature and Water (yearly reports without proposed measures available on their web page)
- reports of the Environmental and Water Management Directorates (yearly reports available on their web page)
- No documentation available from Gemenc Zrt. (forest and game management) yet.

4. Performance

The Gemenc wetland is in medium condition although it is heading towards degradation. Huge parts of the Gemenc are still under intensive wood production, which results in degraded ecosystems and habitats. Also large areas of former aquatic, semi-aquatic habitats have disappeared due to the desiccation process. The wetland is subject to an enhancing desiccation process, which is the combined consequence of sedimentation on the floodplain and incision in the Danube river bed:



(Source: Tamás & Kalocsa, 2004)

These processes will lead to the disappearance of characteristic aquatic and semi-aquatic habitats (oxbow lakes, side arms, swamps) within a few decades.

However, there are some positive changes too, such as the restrictions of intensive wood production for the benefit of valuable ecosystems and habitats. Nevertheless, the overall tendency is still degradation due to the progressive desiccation process.

Appendix 2: Overview of institutional capacity in Nabajjuzi and Namatala wetlands, Uganda

1. Enabling environment

Formal instruments: Water and environment policy, institutional and legal framework, planning regulations, financing

The principles of IWRM in Uganda (holistic view, participation, role women, and water as economic good) are integrated in the national water policy, regulations and budget as the management of water resources is crosscutting, multi-sectoral and requires different actors which is acknowledged in the policies.

Wetland strategies, programmes and plans are own policy, separate from water policy. Currently there is a wetland policy and a separate water policy document but a new Wetland Strategic Plan 2011-2020 (DRAFT launch planned early next year) aims for better integration of both water and wetland sector.

Compliance with water legislation is monitored by an enforcing body and enforcement mechanisms exist to ensure compliance with water legislation, but it lacks power and authority. A problem frequently mentioned by managers (e.g. district officers) is the high level of political interference because national and local politicians overrule any decision which could have electoral consequences. In many cases when violations are detected, no consequences follow.

There are several institutions are involved in enforcement at different levels:

- At national level: DWRM, DWD (Regulation department), WMD, NEMA
- At local level: District local governments (water officer, environment officer), the police

Failing to comply with the law e.g. failing to carry out an EIA, causing pollution without permits, failing to fulfil restoration orders can be penalised with jail sentences up to 18 months and/or fines up to 18.000.000 Uganda Shillings (depending on the violation). Improved enforcement is required to ensure compliance with ENR legislation, standards, regulations and guidelines. There is need also for a wetland specific law with punitive penalties and that can be implemented indiscriminately. Sufficient provisions need to be made to issue penalties and effectively support enforcement and compliance.

Wetland ecosystem requirements are implicitly mentioned and taken into account in basin plans. Clear guidelines on integration of wetlands in RBP in Uganda are not available, whereas in practice wetlands are being considered in varying degrees in RBM projects or pilots. River basin plans hardly exist at this moment although the process has been started up in a few basins albeit without a rigid framework. However, guidelines for setting up Basin plans do make reference to wetlands

There is limited integration of environmental assessment in the national law. EIA is included in the law but there are no specific guidelines for integrating wetland objectives in EIA (e.g. WMD is designated as lead agency but specific guidelines are lacking). This may also apply for general water issues at large. An EIA is always required for large developments having potential impact on the wetland. In principle it is required for all developments, however the policy describes that '... any person intending to develop an area of more than 0.25 hectares (50×50m) in a wetland is not permitted to do so unless she/he has carried out an EIA and this has been approved by NEMA. Since most people are cultivating small plots only (<0.25 ha), no EIAs are done. A few SEAs have been done for developments having potential impact on the wetland but the strategic framework and capacity is lacking. There is also no legislation nor guidelines to this effect.

When it comes to land use, spatial plans or programmes do not exist. The use of wetlands as regulated by the process of spatial planning hardly exists. Wetlands according to the constitution cannot be owned by anyone but are held in trust by the government. People using wetlands in any

way are bound by the National Environment Act Cap 153, the Land Act and the Wetland Resources Regulations. A new Physical Planning Act has been accepted recently but the content is yet unknown. Physical and Urban Planning have not been given due attention in Uganda's decentralization process. The legal framework for physical planning in Uganda is premised in the Town and Country Planning Act Cap 30 of 1964. This law is outdated and obsolete and it is therefore unable to contain the emerging pressure and demands from urbanization. In addition the law is not in tandem with the Local Governments Act, and other policy frameworks such as the National Environment Act. (http://www.pdm-net.org/fiches_pays/Uganda%20_Sept07_.pdf) The Act of 1964 was recently replaced by the new Physical Planning Act 2010, which declares the entire country a planning area, implying that all land use activities will, going forward, have to be authorised by a sub-county, town/municipal or city administration.

The inter-sectoral advisory committee for wetland management needs to harmonize the physical planning mandate of the Ministry of Lands, Housing and Urban Development with the wetland management mandate of MWE. Kampala has a structure plan of 1994 which takes Wetlands (and other green areas into account). This plan expired in 2004 and has not been updated or replaced. Before 2004 the plan was respected but after it expired problems in several wetlands begun (Nakivubo). The new Act makes the entire country a planning area. The land use policy 2008 exists and plans to implement it will be completed this year with the involvement of the Wetlands Management Department (WMD).

As a source of financial resources for the implementation of wetlands management, funds are allocated as well as an allocation of external donor funds. A national budget for wetlands conservation exists as well as a regional/district budget for wetlands conservation. Generally speaking the district and city have the most devolved powers, these powers include district planning, land surveying, land administration, physical planning, forests and wetlands, meaning that wetlands management has been devolved to districts for management purposes and now have the responsibility for good management of 'their wetlands'. As such this also has to be reflected in the budget framework at district level to provide funds for wetland management purposes. These funds however need to be released by the national government in accordance with the budget framework. The budget for wetlands falls under the sector Water and Environment. A district wetland conditional grant exists, allocating funds to districts taking into account a number of criteria and weights. Currently, no separate budget for restoration and nature protection measures is in place and the available budget is not sufficient. The need for restoration and nature protection is acknowledged in the National Budget Framework Paper, although no specific financial instruments are available for restoration other than for the sustainable management of wetlands.

There is a specific objective for restoration in the Sector Investment Plan (Strategic Objectives) and it is part of the overall budget. The existing budget has to be spread over many management activities.

Water prices, payment for environmental services and environmental taxes are in force, but require enhancement. A system of water extraction permits and water discharge permits exists as well as permits for use of wetlands; however enforcement and the setting of tariffs or level of the permits may be a problem. Currently there is an ongoing pilot project for implementing PES.

Informal Instruments: Planning culture, traditions, participation

There is a medium level of recognition of informal institutions by formal government organisations involved in wetland management. WMD works with faith based organisations, kingdoms and CBOs and information by word of mouth is passed on everywhere.

There is medium to high level of public awareness of functions and services of the wetland. However there is a low level of public recognition and valuation of functions and services of the wetland. A lot of awareness raising is done but it is unknown to what extent public the is actually aware of service and functions e.g. the regulating services. Knowledge is high but Perception (= positive attitude) is

low.

2. Organisations involved in wetland management

Assessment and enhancement of wetland functions

In general assessments of the wetland are made, but not in sufficient detail. In theory all wetlands are mapped and monitored but not in practise. The collected data is imported in the National Wetlands Information System (NWIS) which is partially operational because software/hardware issues need to be fixed in addition, inventory and updates are needed. The NWIS is to be operationalised by the end of the year.

Between 1995 and 2005, the Wetlands Inspection Division spent about $US 2 million to carry out wetland inventories for 30 Districts and build the NWIS. The system tracks 13 main uses of wetlands: beekeeping, cultivation of food and fibre, fishing, harvesting of natural herbaceous vegetation, human settlement, hunting, livestock grazing, mineral excavation, natural tree harvesting, tree plantations, tourism, wastewater treatment, and water collection. It also classifies each wetland use according to its level of impact on the individual grassland, swamp forest, or other wetland system. This information can then be converted into an index that classifies each wetland according to the combined impacts of all uses, thus helping to manage wetland resources more optimally.
The National Environment (Wetlands, River Banks, and Lake Shores Management) Regulations 2000 require that 'the lead agency shall … publish the inventory of wetlands every five years reflecting the current state of wetlands in the inventory'. The lead agency in this case is, at present, the Wetlands Inspection Division of the Ministry of Water, Lands and Environment. *Source:* W*etland Sector Strategic Plan 2001-2010. January 2001.*

The NWIS, maintained by the WMD, contains detailed data on different wetland uses, the level of use, and the impact of these uses on wetland systems. It is based on a standardized inventory of wetlands carried out for approximately 5,000 wetland sample points between 1997 and 2001. Each sample point reflects the uses and impacts observed in the field of vision at that location. Field teams inventoried 37 different wetland products, which they aggregated to 13 different main uses. It is important to point out that most of the products and uses inventoried for the NWIS focus on provisioning ecosystem services of wetlands (see Table 1). These provisioning services are easier to measure and observe, and provide useful information to understand subsistence and commercial livelihood strategies. On the other hand, the important contribution of regulating services such as erosion control, fish breeding, flood water retention, and carbon storage were not assessed comprehensively in this first round of data collection. Regulating services were captured in a limited way. Wetlands' contribution to water purification, for example, was counted only when the wetlands were specifically designated for that purpose as part of a wastewater treatment facility. Or the uses were categorized broadly, for example "water collection and use," which is linked to both provisioning services (the quantity of fresh water) and regulating services (water purification and timing of hydrological flows). *Source: Wetlands Management Department.*

Assessment procedures are outlined in the 'Wetland Inventory Guide' (Guide for collecting inventory data used by Districts but not yet published)

Access to assessments of the wetland functions and services is limited as the NWIS is not yet fully operational. Nevertheless policies and protocols on accessing data are being put in place and districts can input and download maps for their areas. There is need to generate and improve access to ENR information, including valuation of the ENR base on the economy and research on pollution levels, ecosystem degradation, impact of climate change and coping strategies. (Recommendation SPR2009)

A competent agency for the monitoring of water quality and ecosystem status is present but with limited functioning. There is a Water Quality Management Department under the DWRM but the

issue (capacity gap) is specialised equipment. Monitoring is done on different levels from local to national and water quality is in principle monitored by the DWRM following the National Water Quality Strategy developed in 2006.

In addition, a number of other agencies including WMD and NWSC have water quality monitoring equipment although it is limited. There is medium (regular monitoring and medium quality). Some specialised equipment is missing and therefore difficulties coping with emergencies (floods, landslides etc). Monitoring data on wetland planning and management plays an important role in wetland planning and management.

Integration of data on current and future water supply and demand in wetland planning

There is actual, accessible data available on current and future water supply and demand change but it is not sufficient. The Water Atlas of 2001 is being updated this year and a presentation took place in September 2010. At national level, water resource assessment is being done for the four water management zones. As regards environmental flow requirements, there is currently no data available.

Consideration of impacts of land use and water development projects on wetlands

Sometimes operational activities are in line with spatial plans but there is absence of land and physical plans. Consideration of impacts of land use and water developments on wetlands is also part of the SEA process but clear guidelines are lacking.

Often times, there is integration of policies in wetland management activities but due to developmental pressure, environmental policies are sometimes overlooked. EIAs are always carried out for wetland management activities however, even though they are considered they are not always implemented or followed, compliance to the procedures is a problem.

There are a few examples where SEAs have been applied n operational activities for example, in the Namanve and Luzira Industrial Park project, an SEA was carried out although this was requested by the donor. There are no clear obligations or guidelines existing as the DWD put up dams and valley tanks for WfP without assessment of impact on wetlands and also without considering a catchment approach. Sometimes there is assessment and documentation of impacts of small-scale water development projects on the wetland.

Vertical and horizontal coordination and cooperation

Vertical coordination between organisations at local and higher level is limited and is mainly formal. There is coordination between WMD and the District Environmental Officer but no clear reporting structure. Technical officers are related to the ministry but they are recruited and employed by the District (COA).

There is a project mode of doing things such that if a project is being implemented by NEMA then reporting is directed to NEMA and not to WMD and this affects coordination.

Horizontal coordination (between organisations) at national level is extensive and mainly formal. The coordinating bodies include:

- Water Policy Committee
- Wetlands advisory committee
- Policy committee on environment
- Parliamentary committee on Natural Resources

The fruits of coordination are not always easily seen because of overlapping and conflicting mandates which have affected the level of coordination and functioning of committees as seen by the irregular committee meetings (up to 3 years between meetings for some of the committees).

Horizontal coordination between organisations at local level is limited and formal. Inter-district committees for wetlands, have been set up but are not always functional. The operation of these organisations is limited by lack of resources. District environment committees are foreseen but do not really function.

Vertical cooperation between organisations at local and higher level is seen in operational management, analytical support and information sharing. Districts do their own planning (District Planning Committee with no participation of the WMD. WMD offers technical advice, supervising and capacity development, through the CAO in the District. There is little integration of wetland ecosystem requirements into river basin plans. There are a few examples of RBM plans where wetlands are considered but are not yet strong enough.

Horizontal cooperation between organisations at local level is seen in planning, operational management, analytical support and information sharing. For example all NGOs are supposed to take part in district planning where focal persons are at sub county level (for wetlands, environment, fisheries etc).

An active partnership with wetland-related conventions, organizations and initiatives exists. These include:

- Ramsar
- CBD (Convention on Biological Diversity)
- MEAs (Multilateral Environmental agreements)
- NBI
- Kagera Basin
- GWP
- Lake Victoria Basin Organisation
- LV-Environmental program
- World Resources Institute
- International Livestock Resources Institute
- Mount Elgon Regional Environmental Conservation

Financial resources for communication and coordination between water and wetlands sectors are external through grants and subsidies. Water management does get some of its funding from extraction/discharge fees. Wetlands will have similar system proposed in the new law but for now both water and wetlands management are to a large extent funded by donors.

3. Adaptive capacity of organisations Involved in wetland management

The level of capacity to address perceived threats to the wetland in the future is medium to low, considering the different drivers (climate, population pressure, oil & gas extraction etc).

For example in the landslides of Mt. Elgon, the Ministry of Disaster Preparedness could not cope because they had been dealing with drought and famine. They have a policy but not a plan. The policy committee on the environment has not been meeting in 3 years thus; preparedness for disasters is very poor. As such there is capacity to respond in the short term but no long term plans are in place. WMD should have a technical role in the preparedness strategy/plan e.g. maintaining buffer capacity of wetlands.

NAPA is being popularised as one undertaking to be reported on in the Joint Technical Review, by the climate change unit which is under the Meteorology Department.

Sufficient relevant information regarding possible changes to the wetland is not there but can be obtained. The information now is not sufficient, because detailed assessments have not been done widely. WMD depends on studies done by others and is now working on a research strategy to improve its capacity in this area. Information exists where PhD research and other studies have been done but it does not take into consideration all wetlands in the country and not all are up to date. Wetland coverage is known for 2009 which indicates a decrease of wetland area but new details on

the wetland resources are not available.

Organisations have strong external networks through which they can access information regarding changes in the wetland. Examples of external links are Nature Uganda, Makerere University, IUCN, Uganda Wild Life Society and Uganda Bureau of Statistics (UBOS) (which now has an environment desk officer) UBOS employs data collectors on the districts to get information (e.g. wetlands poverty mapping was done together with UBOS), NWIS and Kawanda Research Institute.

From line ministry to line ministry the information is given with ease but programs such as Biomass Study although payment is required since it is a commercialised service, analysis of water quality is also charged. Changes in plans and in operational management take time to be implemented because involvement of many actors is a time consuming process. The financing for planning and operational management is low and as such emerging issues are not budgeted for.

The ability to get new emerging issues on board (e.g. oil and gas) is low, time is needed for capacity building / training while the issues are already pressing.

The human resources in the organisations responsible for wetland management needed for addressing new challenges facing the wetland is low but has been improving over the last decade. The situation is also expected to improve in the coming decade. While the WMD has staff, it is not optimal to fulfil the mandate and to address the pressures and challenges facing the wetlands. There has been an improvement from four to sixteen staff in the WMD, of which three positions are not yet filled. If all positions are filled it would be better as an optimal figure would be thirty. At district level there are efforts to appoint wetland officers since before the istricts were in place, wetlands were under the environment officer.

Expanding to 30 people is possible in the next decade as long as the structure can be justified because approval by the Ministry of Public Service as a function of available budget and motivation is required. There is a capacity gap as districts are being created, currently they are 120, which leaves many new positions unfilled.

Financial resources to implement changes quickly are low to very low, the change in the financial resources has been declining over the years. The environment is not one of the key priorities in government. Priority in the budget for environmental issues is low thus the budget has been declining over the past decade. Furthermore, financial resources have been rapidly declining over the past year due to thinner spreading of resources across the increasing number of districts.

The ability to make budget changes quickly is low as funds are already largely dedicated to other priorities therefore shifting budgets for emerging challenges is difficult. The budget is approved according to vote functions, shifting from one to another is difficult although there is a provision to propose changes. Since budgets come earmarked by donors; they cannot be shifted to other priorities.

Documentation of learning from past experiences and improving routines are produced through yearly reports, which propose measures for improvements. Publication of data gaps and uncertainties, external reviews for projects and SWOT analyses for sector performance are also produced although the use of these documents in operational management is limited.

Because of limited resources, documents may not always be available and the ability to use documents is low e.g. rice growing guidelines for wetlands are widely distributed but few apply them. Actions of players in the wetland are mostly defined by experience and lessons, rather the application of guidelines.

4. Performance

The condition of the wetland is bad and is degrading. Developmental pressure is high as there are a lot of unplanned developments. There has been a decline in wetland coverage which is accelerated by human activities. Certain animal species are also declining.

The restoration of wetlands is low but planned (even with military enforcement after long campaigns of awareness, but the process is made difficult by political interference. Political interference in Uganda is a very serious issue which should be considered when assessing capacity and performance. Currently, it is difficult to say anything or do anything because of upcoming elections. If the restoration process can be continued and intensified, then the notable degrading trend can be reversed.

Appendix 3: Overview of institutional capacity in GaMampa wetland, South Africa

1. Enabling environment

Formal instruments: Water and environment policy, institutional and legal framework, planning regulations, financing

IWRM principles are well integrated into the water legislation (National water Act 1998). South Africa is a signatory of the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) and their plight with respect to water and sanitation is well acknowledged.
Wetland strategies, programmes and plans are implemented as part of water policy. There are nationwide campaigns on wetlands which are part of the water policy for example the Working for Wetlands programme. However local initiatives and responsibilities on wetland management are not clear.

An enforcing body and enforcement mechanisms exist to ensure compliance with water legislation, but it lacks power and authority. This is because a road was built through the GaMampa without an EIA which shows some lack of coordination between the local governments in charge of economic development and the national regulatory authorities.

Wetland ecosystem requirements are implicitly mentioned and taken into account in basin plans. The situation is however improving as the DWA acknowledges the issues and it held a workshop in February 2010 to address developing reserve methods for wetlands. The Wetlands Management Strategy for Upper Olifants (DWF / Oryx 2007) was formulated to be incorporated into the Olifants Catchment Management Strategy.

The level of integration of environmental assessment into national law is to a large extent. SA has a well developed environmental assessment structure through EIAs, SEAs and Basic Assessment Reports (BARs). It is well integrated in the National Environmental Management Act 1998 (NEMA).
Legally, an Environmental Impact Assessment (EIA) is always required for developments having potential impact on the wetland. In terms of regulations, wetlands development is a listed activity requiring an EIA for projects likely to affect wetlands. Regulation of activities with the potential to affect wetlands are either explicitly indicated or implicitly implied. Nevertheless, the implementation of these instruments on the ground still lags behind this elaborate legislation.

The NEMA Act states that 'Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands. and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure' however this is not seen on the operational level. The level of integration of wetland objectives into spatial planning is such that priority areas (priority over other land uses) and action objectives for wetlands can be found in land use plans and programmes at regional and local scale.

Public participation is regulated by law. As stated in the National Water Act of 1998 as 'community participation' and in the NEMA Act 1998 as 'public participation' with respect to environmental impact assessments the government had in place ''Izimbizo' which are fora for enhancing dialogue and interaction between government and the people. These have been replaced by a new public participation programme which was launched in all provinces. The deputy Minister visited the Limpopo province for the launch of this program in August 2010. These programs are run by the GCIS (Government Communication and Information System). Unfortunately, very often public participation activities are organized more to comply with the legislation than to really involve people

in the decision making process. An example is the ongoing project to rehabilitate irrigation schemes in GaMampa where a technological option is being imposed on farmers without their consent.

Funds are allocated for the implementation of wetlands management. Funds for wetlands research is allocated through the Water Research Commission. The Working for Wetlands programme was allocated R75 million for wetlands management. Both local government and donor funds are allocated for local wetland management in the case of GaMampa but this is done on a project basis, which means that there is no permanent line of credit for day-to-day management of wetlands especially the small ones. As an example funds were planned at some point in the Integrated Development Plan for building a wetland management plan in GaMampa but as nobody really took care of the process the funds were not disbursed and then the credit line disappeared from the IDP the next year.
Currently there are two projects planned in GaMampa funded by UNEP through the Landcare programme (provincial government) and another potential project under the Working for Wetlands programme. Both projects focus on once-off operations such as physical rehabilitation or fencing (interventions that are visible). Less attention is given to softer types of interventions such as farmers' training or adapted extension services.

A separate budget for restoration and nature protection measures exists as instituted through the South African National Biodiversity Institute. While a national budget exists, this does not guarantee allocation of funds at regional or river basin level. In reality, funds at regional level are limited. Also funds at regional level are not specifically targeted at wetland conservation but more generally at environment conservation. The sufficiency is difficult to assess because wetlands given high priority are those of international significance, small rural wetlands are largely neglected.
Water prices, payment for environmental services and environmental taxes are in force, but require enhancement. The South African government strongly considers economic incentives in its policies but examples of implementation are still rare except with regards to water prices. First pilot cases of Payment for Environmental Services are about to start in Drakensberg area to protect water resources (this will be studied in a new EU research project, Afromaison, which will start in 2011).

Informal instruments: planning culture and traditions, participation

Level of recognition of informal institutions by formal government organisations involved in wetland management is high. These structures can even be used by government should they wish to drive Public Participation. The level of public awareness of functions and services of the wetlands is medium. Currently, with the research work that has gone on in the wetlands with the involvement of traditional leaders and community members, the level of awareness has risen from its previous state as has the level of public recognition and valuation of functions and services of the wetlands.

2. Organisations involved in wetland management

Assessment and enhancement of wetland functions

In general, assessments are made for the wetland functions and services. Assessments have been made by research agencies such as the University of KwaZulu Natal, IWMI and Cemagref. the assessments were focused on the use, function and valuation of the wetland and stakeholder perceptions. Governmental efforts are still to be realised in GaMampa.

Accessibility, use and maintenance of an environmental information system is limited. This information is available but limited to those expressing interest enough to find it; there is no active dissemination of information.

A competent agency exists and is functioning for the monitoring of water quality and ecosystem status. DWA and DEAT have inspectorate bodies in this regard. In the DEAT, the Environmental Management Inspectorate is mandated to monitor and enforce regulations pertaining to water quality and ecosystem status. There is regular monitoring of low quality as some information is missing in

areas of no international / national significance; the efficiency of monitoring is also dependent on the provinces' capacity. If considering GaMampa specifically, then the only monitoring is the flow monitoring downstream – there are no on-going programs on water quality and ecosystems in the wetland, though at the level of the Olifants catchment there is medium quality monitoring .

It is unclear if monitoring data is used in wetland planning and management. As there is currently no wetland planning and management in GaMampa, use of such information is unlikely. Cemagref is using all the available information to propose a wetland management plan for GaMampa but it is not certain if and how this will be followed up.

Integration of data on current and future water supply and demand in wetland planning

Current and future water availability has been assessed for all quaternary catchments (WP90); and estimates of current and future demand has been assessed at tertiary catchment or finer and are currently being updated under the Internal Strategic Perspective (ISP) program. For GaMampa, there is a limited assessment of hydrology in IWMI study.

Assessment of water demand/supply for domestic use is done under Water Services Development Plan (WSDP) at district level. The new WSDP is available at http://www.dwaf.gov.za/dir_ws/WSDP/WSDP/WSDPList.aspx). There has been assessment by DWA of ecological management class for quaternary catchments and preliminary reserve at tertiary catchments or finer.

Consideration of impacts of land use and water development projects on wetlands

It is not clear if operational activities are in line with spatial plans. However there is an Integrated Development Plan which is drafted by the municipality with the input of the Community Development Forum. There is no specific spatial planning defining priority zones attached to the IDP.

Policies are considered in terms of service provision (drinking water and sanitation) as for wetland management this is unclear. There is no knowledge in the case of GaMampa of EIAs in wetland management activities but in other wetland cases this may have been considered. The same applies for SEAs. In the case of Ga-Mampa, the on going irrigation rehabilitation project does not consider potential impacts on the wetland although there seems to have hydraulic connection between Irrigation Scheme and wetland.

Vertical and horizontal coordination and cooperation

Vertical coordination between organisations at local and higher level is limited although it has improved in the last years in the case of GaMampa, mainly thanks to IWMI's intervention, this coordination is mainly formal.
There is some coordination in terms of hierarchical coordination, passing on of policies and objectives from higher to lower levels.

At national level some tools of horizontal coordination exists (the Working for Wetlands program, the national wetland indaba, an annual conference and network of wetland specialists from government, NGOs and research organisations.

Horizontal coordination between organisations at local level is quite extensive and is of a formal nature considering the high level of interaction between the CDF, ward councillor and local municipality. Vertical cooperation between organisations at local and higher level is mainly for planning, analytical support and information sharing particularly with respect to policies and legislation. However this coordination suffers from lack of resources by local authorities to coordinate the various departments

There is average level of integration of wetland ecosystem requirements into river basin plans. The

DWA acknowledges the importance of this integration and has taken some steps towards it as mentioned earlier.

There is necessarily no cooperation between different sector departments at local level (e.g. between water management and environmental conservation or agricultural development)

Information on financial resources for communication and coordination between water and wetlands sectors is not available.

3. Adaptive capacity of organisations involved in wetland management

The level of capacity to address perceived threats is currently low due to the fact that representation of governmental agencies at local level is still lacking within the wetland to effectively implement policies.

Much information / guidelines exist now at national level. At GaMampa level, a lot of research has been done and was handed over to village leaders, but municipal people who take decision on local development are not necessarily all aware of this information. Things have improved since the beginning of the project thanks to stakeholder meetings organized by IWMI. Internet coverage to access information is not too bad in South Africa but municipal managers are not always used to using it.

Local people in GaMampa do not have a strong external network and they are also very isolated because of lack of cell phone network. No NGO is currently working on GaMampa. Only CRCE, an outreach body within the University of Limpopo can make the link with the outside world.

Changes in plans and in operational management may take time to be implemented; due to limited capacity (financial, human resources, technical expertise).

Human resources capacity to implement changes quickly is low but is expected to improve in the coming decade. The Department of Agriculture is the one player who is significantly represented in the wetland. The DEAT and DWA are not entirely visible with respect to the management of the wetland. If catchment management agencies (CMAs) are established, this may be a positive move for human resources capacity as the resources will spread over a smaller area.

Financial resources for wetland management are also considered low Organization in charge of day to day management of wetland (village organizations) have no financial resources at all on their own. Municipal government can provide funds on a case by case basis (project based) but there is little follow up on the projects (e.g. a tourism facility built in 2005 is still not operating). In any case municipal budget also very limited. The financial status in The GaMampa within the next decade is uncertain.

From the information gathered in the assessment of management structure and practices in the wetland the production of documentation of learning from past experiences and improving routines is minimal.

4. Performance

The present condition of the wetland is medium but it is perceived that its future may not be too bright if the current trend in management practice continues. The situation can still be sustainably managed. If conversion of the wetland to agricultural use continues coupled with negative effects of climate change on rainfall then the condition of the wetland is likely to deteriorate.

Appendix 4: Framework for institutional capacity

Theme	Indicators (*italic*) and assessment criteria (bullets). Select one or more criteria by **underlining**.	Explanation for scoring	Data source
I) Enabling Environment			
a) Formal instruments: water and environmental policy, institutional & legal framework, planning regulations, financing			
1 – Integration and enforcement of IWRM principles into wetland planning	IC 1.1 – *Level of integration of IWRM principles into the national water policy, regulations and budget* - IWRM principles (holistic view, participation, role women, water as economic good) are integrated in the national water policy, regulations and budget. - IWRM principles are partly integrated in the national water policy, regulations and budget. - IWRM principles are not integrated in the national water policy, regulations and budget. - No data/no knowledge is available.		
	IC 1.2 – Implementation and compliance level of wetland strategies, programmes and plans - Wetland strategies, programmes and plans are implemented and complied with. - Wetland strategies, programmes and plans are implemented, but not complied with. - No wetland strategies, programmes and plans exist. - No data/no knowledge is available.		
	IC 1.3 – Level of enforcement of water policies and legislation - An independent control body and instruments for sanctions exist to supervise the compliance with water legislation - A control body and instruments for sanctions exist to supervise the compliance with water legislation, but is not independent or lacks power. - No control body and instruments for sanctions exist to supervise the compliance with water legislation. - No data/no knowledge is available.		
	IC 1.4 – Level of integration of precautionary, polluters pays and liability principles into wetland planning - Precautionary measures (e.g. buffer zones; guidance values) polluters pay and liability principles (e.g. restoration and compensation measures) are integrated into wetland planning. - Precautionary measures (e.g. buffer zones; guidance values) polluters pay and liability principles (e.g. restoration and compensation measures) are only integrated into river basin planning. - Precautionary measures, polluters pay and liability principles are not integrated into wetland planning. - No data/no knowledge is available.		
2 – Integration of wetland ecosystem requirements into river basin plans	*IC 2.1 – Level of integration of wetland ecosystem requirements into river basin plans* - Wetland ecosystem requirements* are presented with site-specific objectives (e.g. protection or restoration zones; restriction of land use) and priority measures (e.g. monitoring of water quality and water allocation) in the basin plans. - Wetland ecosystem requirements are presented without site-specific objectives or priority measures in the basin plans. - Wetland ecosystem requirements are not presented in the basin plans. - No data/no knowledge is available. -		

Theme	Indicators (*italic*) and assessment criteria (bullets). Select one or more criteria by <u>underlining</u>.	Explanation for scoring	Data source
3 – Integration of wetland objectives into environmental assessment	*IC 3.1 – Level of implementation of environmental assessment in national law* - Large - Limited - Low - Do not know *IC 3.2 Is an EIA required for the developments threatening the wetland.* - Always - Only large developments - Do not know *IC 3.2 Is an SEA system in place for the developments threatening the wetland.* - No - Yes - Do not know		
4 – Integration of wetland objectives into spatial planning	*IC 4.1 –Level of Integration of wetland objectives into spatial planning* - Priority areas (priority over other land uses) and action objectives for wetlands can be found in land use plans and programmes at regional and local scale. - Reserve areas (land use still to be weighted/compromised with other land uses) and strategic objectives for wetlands can be found in land use plans and programmes at regional and local scale. - No priority or reserve areas or objectives for wetlands can be found in land use plans and programmes at regional or local scale. - Spatial plans or programmes do not exist. - No data/no knowledge is available.	-	-
5 – Enforcement of public participation	IC 5.1 – *Level of legal ratification and regulation of public participation* - The Aarhus Convention was ratified and implemented in the National Water Act and other sectoral laws. - SEA for (policies), plans and programmes is legally fixed - The Aarhus Convention was not ratified, but public participation is implemented in the National Water Act - A regulation for SEA exists - The Aarhus Convention was not ratified and public participation is not implemented in the National Water Act. - SEA is not legally fixed nor regulated - No data/no knowledge is available.	-	-
6 – Financial resources for the implementation of wetlands conservation	IC 6.1 – *Source of financial resources for the implementation of wetlands conservation* - Funds are allocated from the water sector/users - Financial support from Ramsar Small Grants Fund - Funds are allocated fom the central budget - Funds are not allocated, or given from external donors only - No data/no knowledge is available.		
	IC 6.2 – *Distribution of budget for the implementation of wetlands conservation at national, district and local scale* - National budget for wetlands conservation - Regional/district budget for wetlands conservation - River basin/local budget for wetlands conservation - No data/no knowledge is available.		
	IC 6.3 – *Levels of budget for restoration and nature protection measures*		

Theme	Indicators (*italic*) and assessment criteria (bullets). Select one or more criteria by **underlining**.	Explanation for scoring	Data source
	- A separate budget for restoration and nature protection measures exists and is accessible by the public - A separate budget for restoration and nature protection measures exists - No separate budget for restoration and nature protection measures exists/budget is not transparent - No data/no knowledge is available.		
	IC 6.4 – *Level of enforcement of economic incentives for a sustainable water and wetland use* - Water prices, payment for environmental services and environmental taxes are in force and effective - Water prices, payment for environmental services and environmental taxes are in force, but require enhancement - Water prices, payment for environmental services and environmental taxes are in force. - No data/no knowledge is available.		
b) Informal instruments: planning culture and traditions, participation			
7 – Integration of informal instruments for public participation	IC 7.1 – *Level of recognision of informal institutions by formal government organisations involved in weland management* - High - Medium - Low - Do not know	-	-
8 – Awareness, recognition and valuation of products, functions and attributes of the wetlands by the public	IC 8.1 – *Level of public awareness, recognition and valuation of products, functions and attributes of the wetlands* - High - Medium - Low - Do not know		
II) Organisations Involved in Wetland Management (e.g. wetland authority, RBO, MoE, NGO) and their Methods of Operations			
a) Assessment and enhancement of wetland functions			
9 – Identification and assessment of the functions and benefits which a particular wetland provides	IC 9.1 – *Actuality of research themes, objectives and activities* - High - Medium - Low - Do not know		
	IC 9.2 – *Accessibility, use and maintenance of an environmental information system* - High - Medium - Low - Do not know		
10 – Regular monitoring of at least water quality and ecosystem status and functions of a wetland.	IC 10.1 – *Existence of competent agency for monitoring of water quality and ecosystem status* - Yes - No - Do not know	-	-
	IC 10.2 – *Frequency of monitoring of water quality and ecosystem status* - High - Medium	-	-

Theme	Indicators (*italic*) and assessment criteria (bullets). Select one or more criteria by <u>underlining</u>.	Explanation for scoring	Data source
	- Low - Do not know		
11 – Implementation of follow-up after monitoring of at least water quality and ecosystem status and functions of a wetland.	IC 11.1 – *Level of influence of data from monitoring and assessments on wetland function and area to be restored* - High - Medium - Low - Do not know	-	-
	IC 11.2 – *Validity of measures for restoration of wetland functions based on environmental data* - High - Medium - Low - Do not know	-	-
12 – Identification and assessment of the biodiversity in wetlands.	IC 12.1 – *Actuality, availability and accessibility of data on fauna, flora and biodiversity* - High - Medium - Low - Do not know	-	-
	IC 12.2 – *Level of development and implementation of nature protection measures to enhance the biodiversity in wetlands.* - High - Medium - Low - Do not know	-	-
b) Integration of data on current and future water supply and demand (water allocation)			
13 – Assessment of current and future water supply and demand	IC 13.1 – *Actuality, availability and accessibility of data on current and future water supply and demand change* - No data on supply and demand available - Data available - Available and accessible - Available, accessible and actual - Do not know	-	-
14 – Assessment of the environmental flow required to maintain the wetland ecosystems.	IC 14.1 – *Actuality, availability and accessibility of data on environmental flow requirements* - No data available - Data available - Available and accessible - Available, accessible and actual - Do not know		
c) Consideration of impacts of land use and water development projects on wetlands			
16 –Consideration of priority zones for precaution in spatial planning.	*Operational activities are in line with spatial plan* - Never - Sometimes - Often - Always - Do not know		
18 – Integration of national environmental	*Integration of policies in wetland management activities*		

Theme	Indicators (*italic*) and assessment criteria (bullets). Select one or more criteria by <u>underlining</u>.	Explanation for scoring	Data source
policies into decision-making at wetland level.	- Never - Sometimes - Often - Always - Do not know		
19 – Consideration of EIA in wetland management activities	*EIA in wetland management activities* - Never - Sometimes - Often - Always - Do not know		
20 – Consideration of SEA in wetland management activities	*SEA applied in operational activities* - Never - Sometimes - Often - Always - Do not know		
21 – Assessment and documentation of impacts of small-scale water development projects on the wetland.	*Assessment and documentation of impacts of small-scale water development projects on the wetland.* - Never - Sometimes - Often - Always - Do not know		
d) Vertical and horizontal coordination and cooperation			
22 – Vertical coordination between organisations at local and higher level	*Level of coordination* - No coordination - Limited coordination - Extensive coordination - Do not know *Nature of coordination* - Mainly formal - Mainly informal - Do not know		
23 – Horizontal coordination (between organisations) at national level	*Level of coordination* - No coordination - Limited coordination - Extensive coordination - Do not know *Nature of coordination* - Mainly formal - Mainly informal - Do not know		
24 –Horizontal coordination between organisations at local	*Level of coordination* - No coordination		

Theme	Indicators (*italic*) and assessment criteria (bullets). Select one or more criteria by underlining.	Explanation for scoring	Data source
level	- Limited coordination - Extensive coordination - Do not know *Nature of coordination* - Mainly formal - Mainly informal - Do not know		
25 – Vertical cooperation between organisations at local and higher level	*Vertical cooperation between organisations at local and higher level* - Planning - Operational management - Analytical support - Information sharing - Other - Do not know		
26 – Horizontal cooperation between organisations at local level	*Horizontal cooperation between organisations at local level* - Planning - Operational management - Analytical support - Information sharing - Other - Do not know		
27 – Active partnership with wetland-related conventions, organizations and initiatives.	*Active partnership* - With wetland-related conventions - With organizations - With initiatives - Other - Do not know		
29 – Financial resources for communication and coordination between water and wetlands sectors	*Financial resources* - Self financing: taxes - Self financing: tariffs, charges, external financing: loans - External financing: grants / subsidies - Other - Do not know		
III) Adaptive capacity of Organisations Involved in Wetland Management			
Is the existing organisational capacity appropriate to face these perceived future threats?	*Level of capacity to address perceived threats* - High - Medium - Low - Do not know		
Do the organizations responsible for wetland management have or are able to obtain sufficient relevant information regarding possible changes	*Sufficient relevant information regarding possible changes to the wetland* - Have - Have not but can obtain - Cannot obtain		

Theme	Indicators (*italic*) and assessment criteria (bullets). Select one or more criteria by <u>underlining</u>.	Explanation for scoring	Data source
to the wetland?	- Do not know		
Do the organizations have a strong external network through which it can access information regarding changes in the wetland?	*Organisations have strong external network* - Have - Have not - Do not know		
Can changes in plans and in operational management be implemented quickly?	*Changes in in plans and in operational management can be implemented quickly* - Quickly - Takes time - Very difficult to change - No change possible		
Are the human resources in the organisations responsible for wetland management such that they can quickly address new challenges facing the wetland?	*Human resources capacity to implement changes quickly* - High - Medium - Low - Do not know *Change in human resources capacity to implement changes quickly* - Improving over past decade - Declining over past decade - Expected to improve next decade - Expected to decline next decade		
Are the financial resources in the organisations responsible for wetland management such that they can quickly address new challenges facing the wetland?	*Financial resources to implement changes quickly* - High - Medium - Low - Do not know *Change in financial resources to implement changes quickly* - Improving over past decade - Declining over past decade - Expected to improve next decade - Expected to decline next decade - Do not know		
35 – Documentation of learning from past experiences and improving routines	*Production of documents* - Yearly reports published, which proposed measures for improvement - Publication of data gaps and uncertainties - External reviews - Do not know *Use of produced documents in operational management:* - Extensive - Limited - Do not know		
IV) Performance			
Condition of wetland	*Condition of wetland*		

Theme	Indicators (*italic*) and assessment criteria (bullets). Select one or more criteria by <u>underlining</u>.	Explanation for scoring	Data source
	- Good - Bad - Modified *Direction of change* - Improving - Degrading - Do not know		