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The world phosphates market: What risk for the European Union ?

Fertilizer Working Group - European Commission
Brussels – 2 June 2014

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En collaboration avec V. Chatellier (INRA) et K. Daniel (ESA Angers)

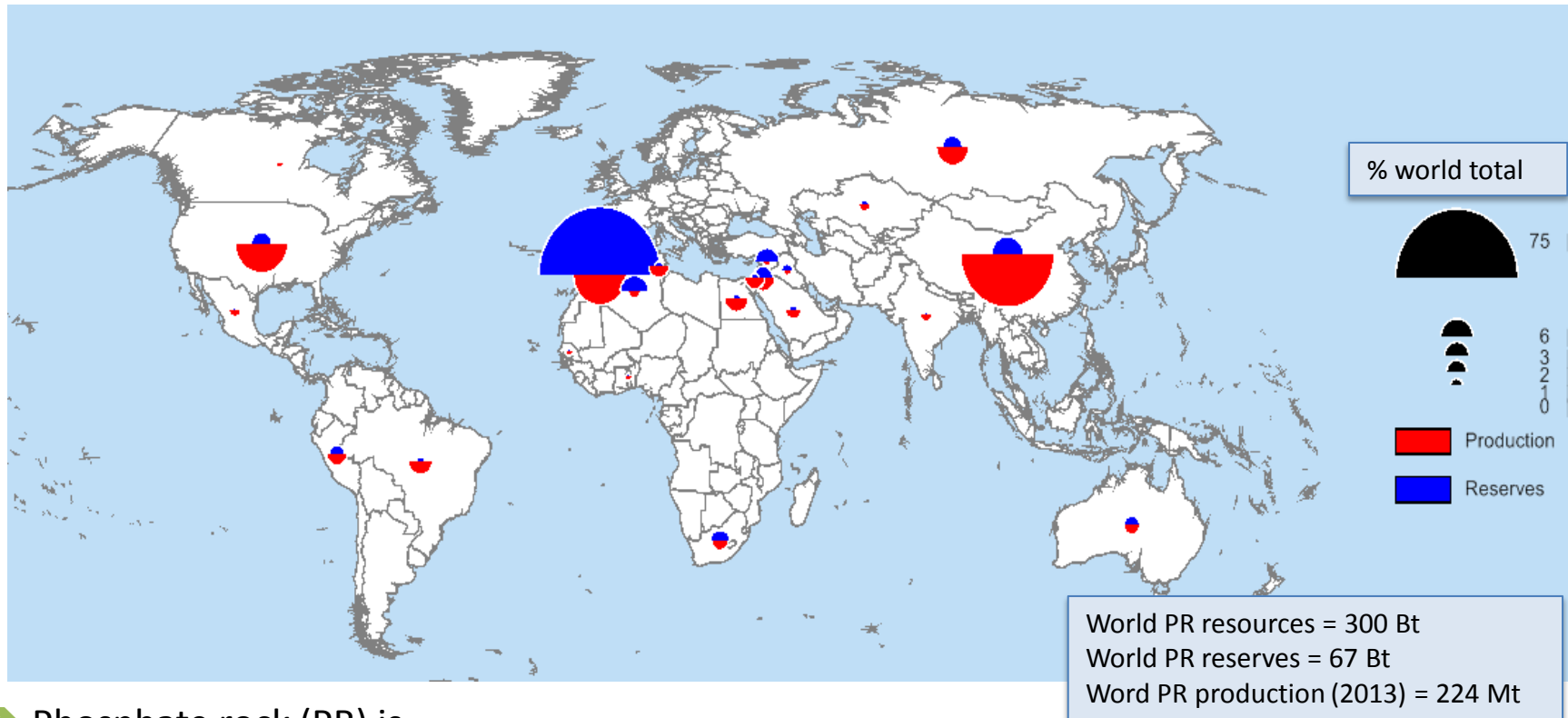
I - World supply of phosphorus

1. Reserve and production of phosphate rock
2. World exports of phosphate rock by countries
3. World exports of phosphate fertilisers by countries
4. World price of phosphate rock and phosphate fertilisers

II - Supply of phosphorus in the European Union

1. The European consumption of phosphate fertilisers
2. The supply-chain of phosphate fertilisers in EU-27
3. Net Imports of phosphate rock in EU-27 by countries of origin
4. Net Imports of phosphate fertilisers in EU-27 by countries of origin

1. Reserves and production of phosphate rock



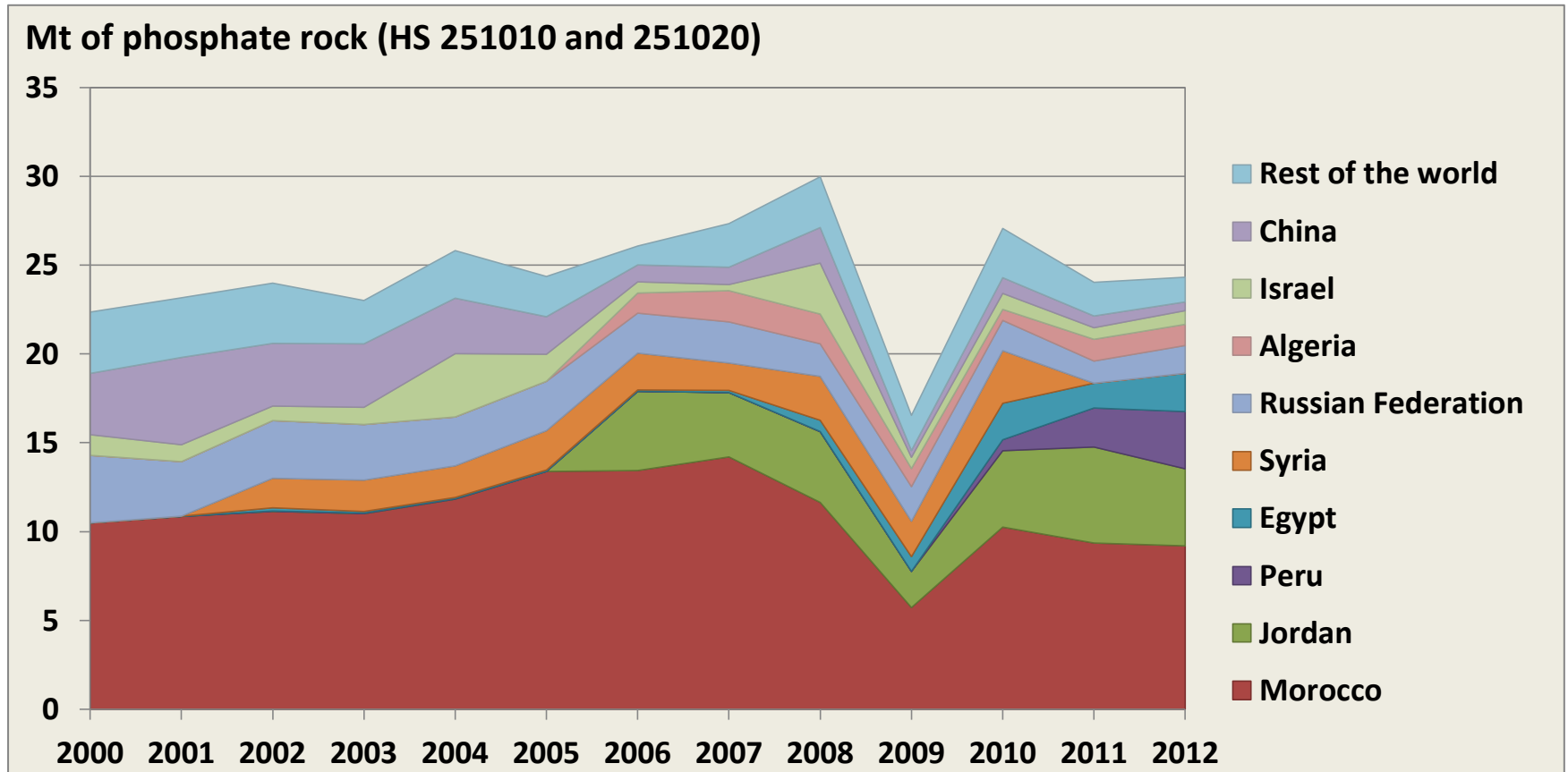
➔ Phosphate rock (PR) is

- Finite and non-renewable: world resources of PR are in total 300 billion tons
- Highly concentrated among countries: 85 to 90% of world's remaining reserves are controlled by only five countries (Morocco, China, Algeria, Syria and Jordan)

➔ The distribution of production among countries is not the same as of reserves

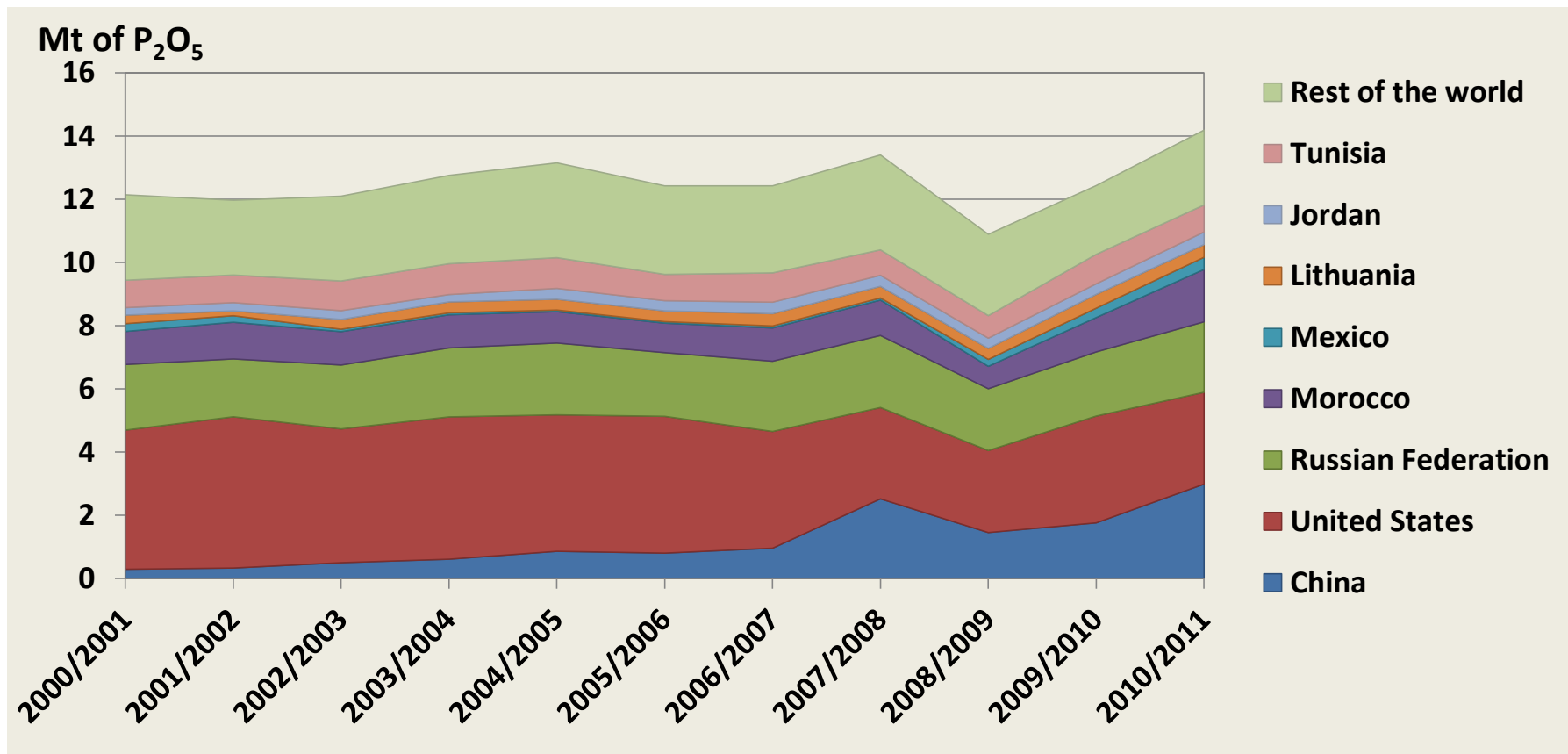
- China, the United-States and Morocco account for 70% of world PR production
- China, the U.S. and South Africa keep their mined phosphorus for their own use

2. Word exports of phosphate rock by countries



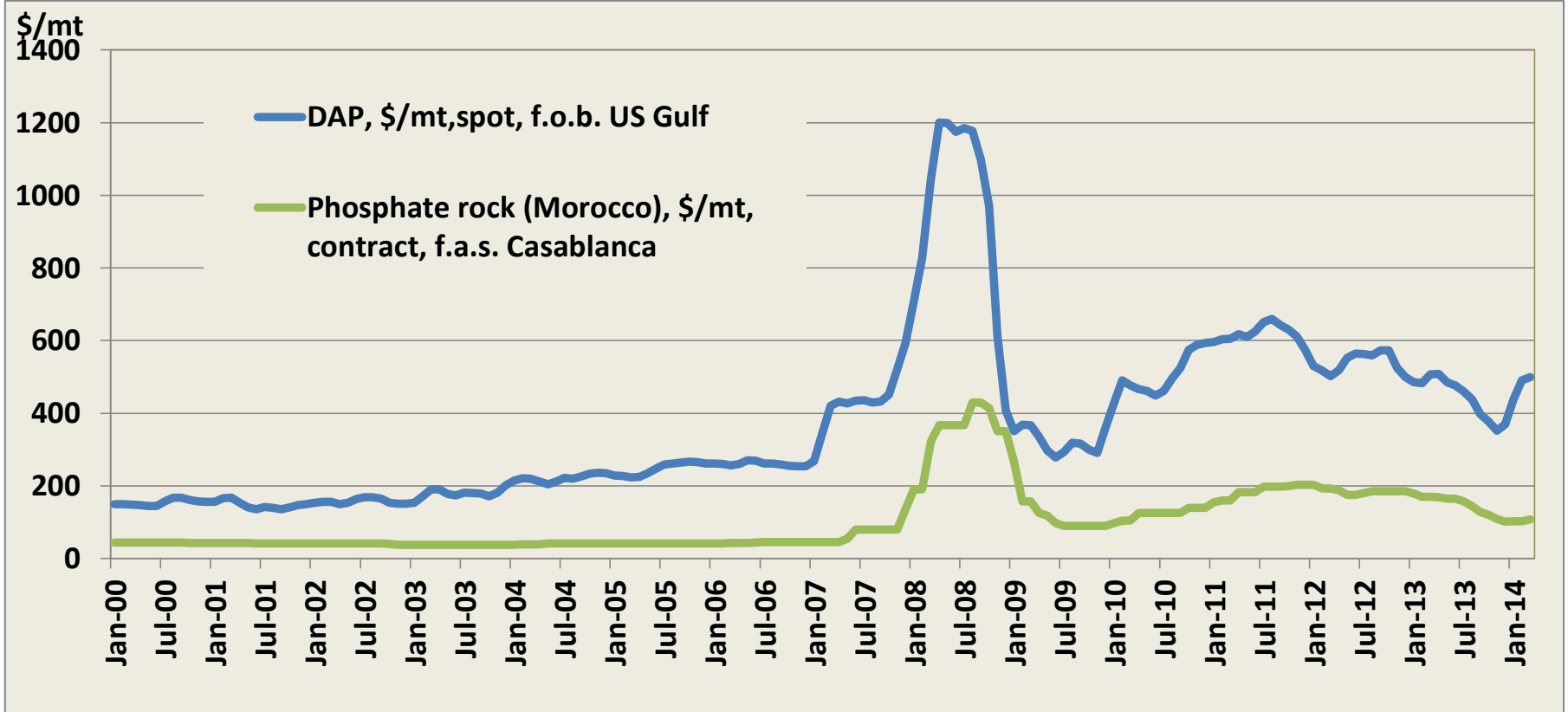
- ➔ Morocco is the leading PR exporter (35-40% of world total export). The main phosphate rock mines are state-owned that involves the danger of an unexpected/extraordinary price-setting.
- ➔ On an other hand, new exporting countries (Jordan, Peru, Egypt) are competing with Morocco since 2006
- ➔ Some exporting/production regions of PR are subject to political crisis or instability (cf. Syria) that could shut down their mined production or limit investments

3. Word exports of phosphate fertilisers by countries



- ➔ China, United-States, Russia and Morocco are the leading exporters of phosphate fertilizers with 70% of total world exports.
- ➔ Exports from China are increasing but this situation is uncertain since China imposed a 135% export tariff on phosphates after the 2008 global phosphorus price spike

13. World price of phosphate rock and phosphate fertilisers



➔ Since 2007, the price of phosphate rock and phosphate fertilisers is suffering from tight conditions that result from a combination of factors including a strong increase in demand in emerging countries, higher energy prices, insufficient investment in the industrial sector, price-setting power (Morocco), implementation of exports tax (China),

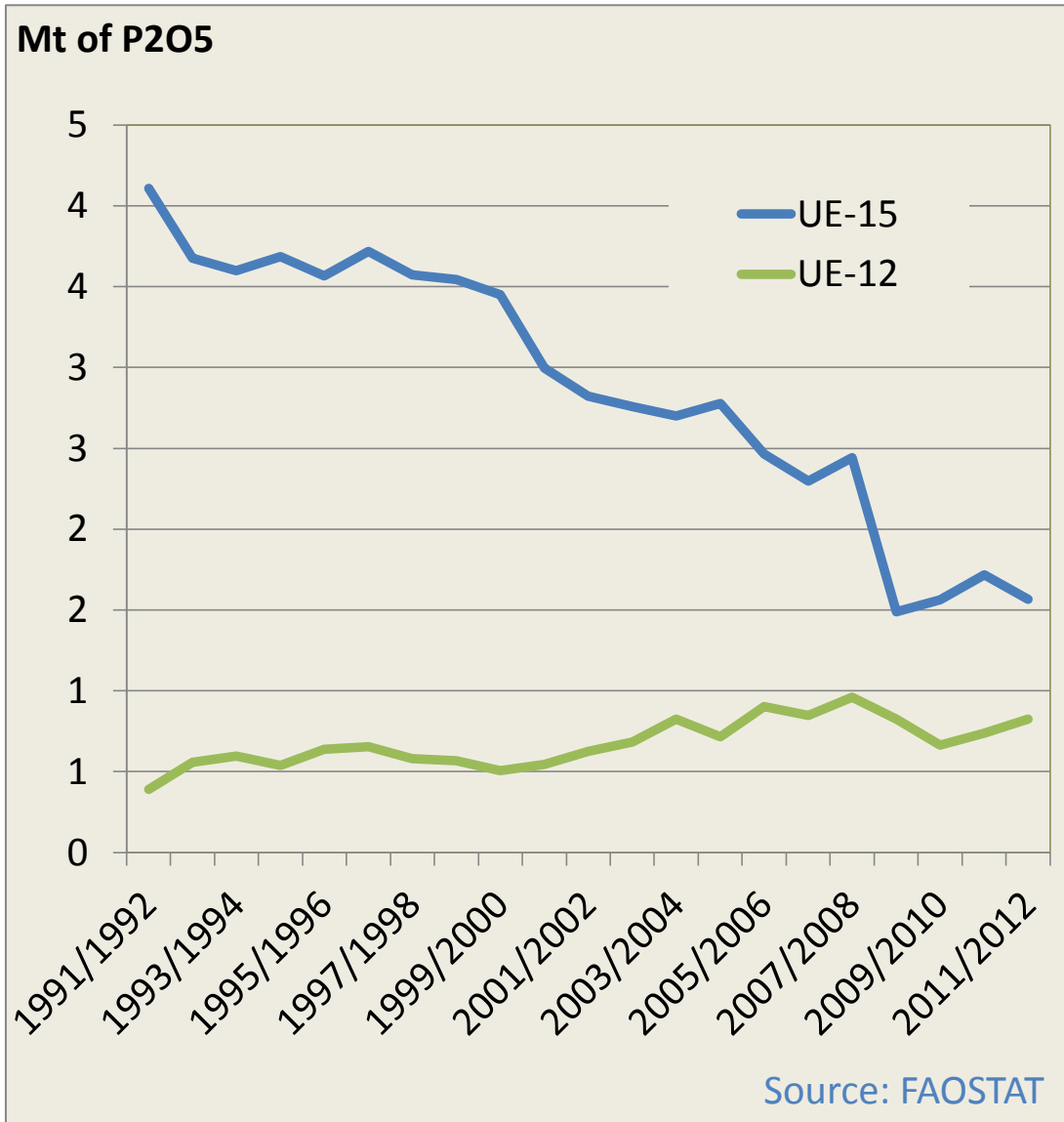
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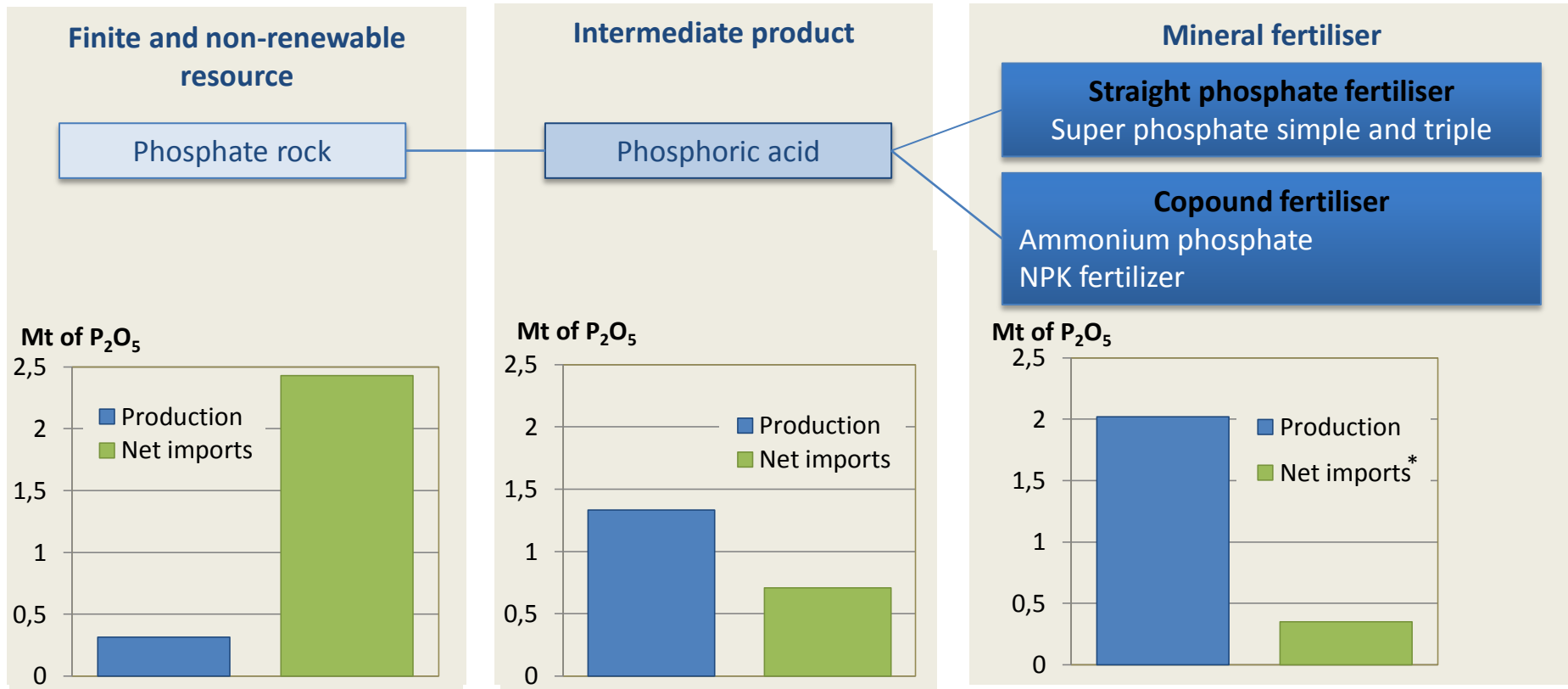
1. The European Consumption of phosphate fertilizers



➔ In 2008/2009, consumption of phosphorus in EU-27 decreased by 30% compared with the first half of the decade and is fairly stable since there.

➔ Per year, the use of phosphorus is declining in Western Member States, while it is fairly stable in Eastern Member States.

2. Supply chain of phosphate fertiliser in EU-27



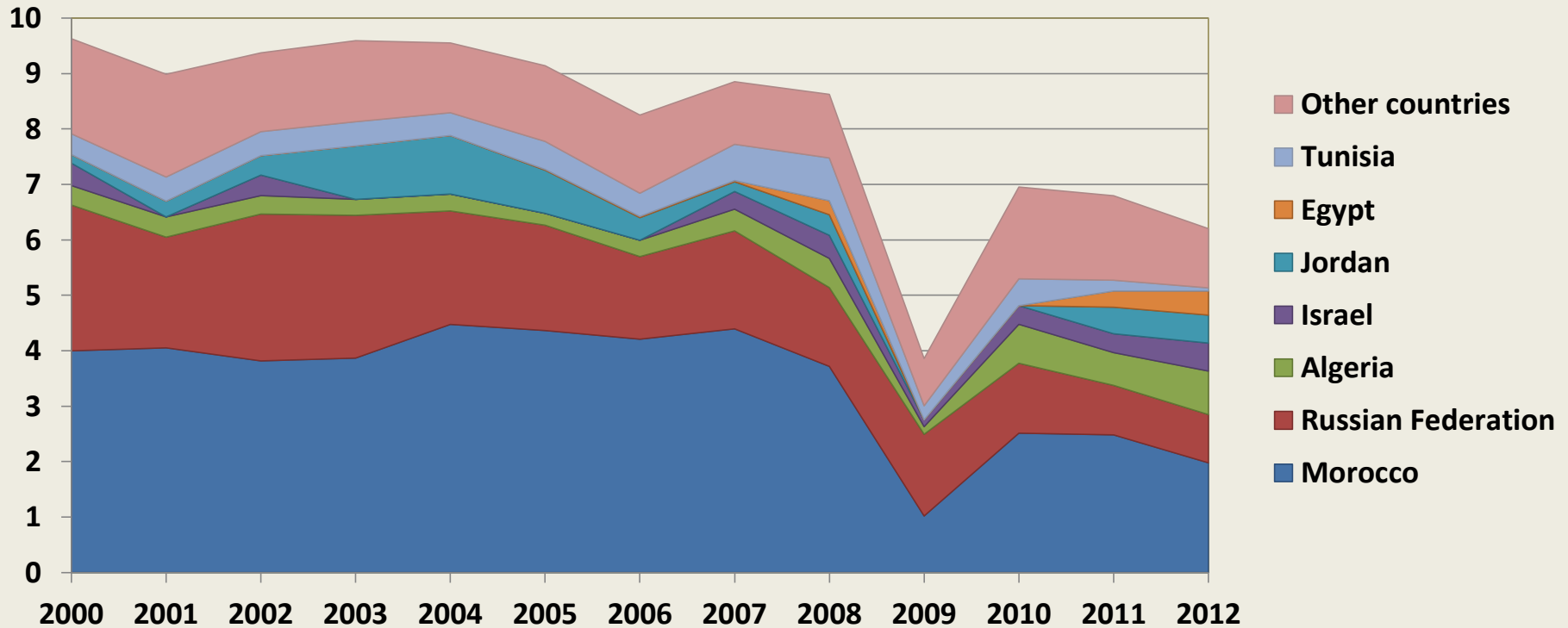
- ➔ Since reserves of phosphate rock are almost non-existent in Europe (except for very small deposits in Finland) European phosphorous requirements are supplied by imports
- ➔ Historically, the European Industry of fertilisers mainly imports PR that are then transformed in fertilizers (mainly NPK fertilizers)

Source: IFA, statistics DATABASE, 2012

*Net imports are calculated as the difference between consumption and production

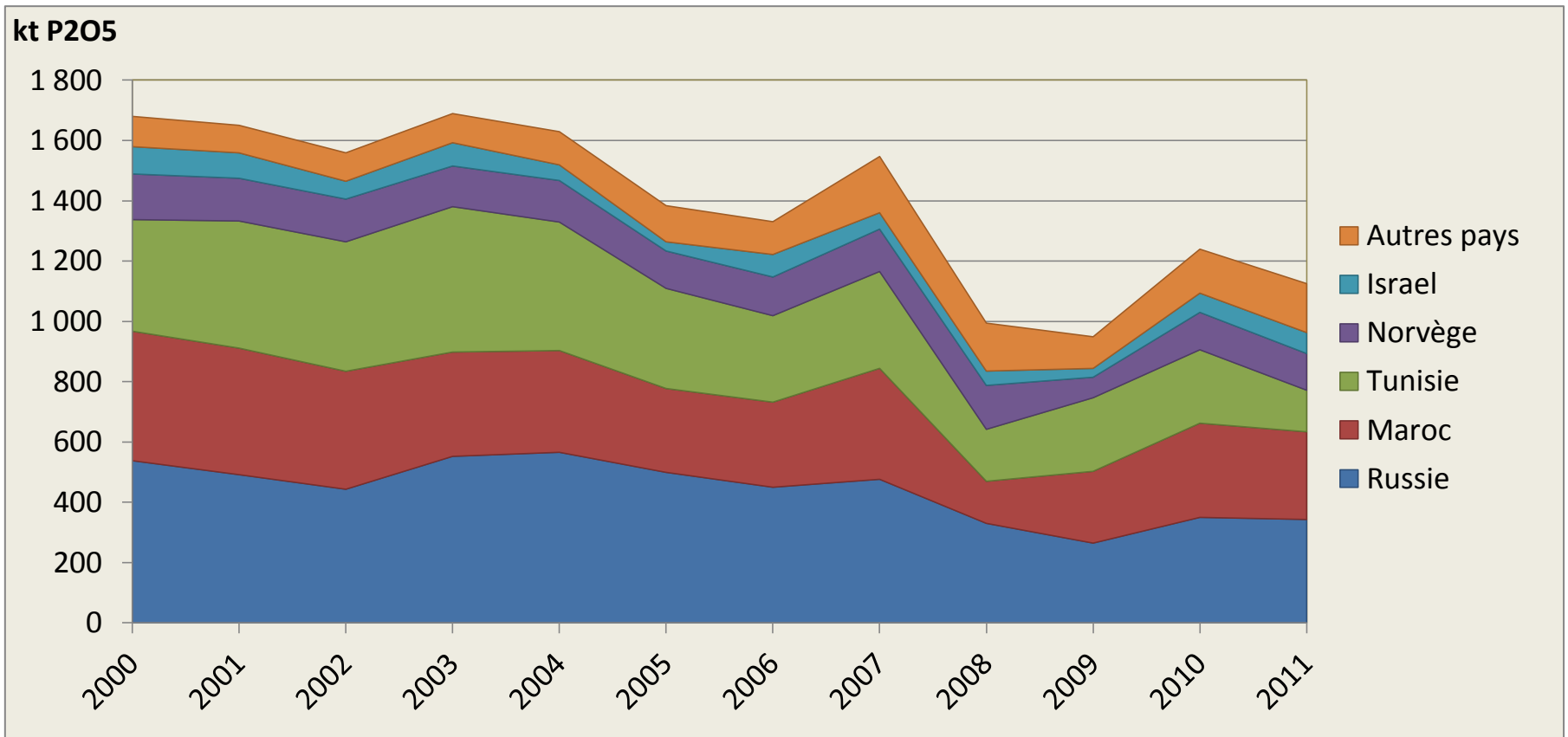
3. Net imports of phosphate rocks in EU-27

Mt of natural phosphates (CN 25101000 and 25102000)



- ➔ Per year, the EU is importing around 6 million tons of natural phosphate. Exceptionally, in 2009 only 4 million tons of phosphates were imported.
- ➔ The EU is highly dependent on regions currently subject to political crisis. Morocco covers 30-35% of all imports into the EU. Relations with Russia (14% of all imports) are unclear.
- ➔ The European industry is facing much higher production costs than in countries rich in resource : PR price strongly increased and PR transportation costs are quite high

4. Imports of phosphate fertilisers in EU-27 by countries of origin



- ➔ Last years, the EU-27 has imported between 1 and 1,2Mt of phosphate fertilisers (P₂O₅) mainly from Russia, Morocco and Tunisia
- ➔ As the EU-27 also exports phosphate fertilizers, net imports only reached 0.4/0.5 Mt each year since 2008.

Conclusion

- ➔ **Phosphate rock is finite, non-renewable and highly concentrated among countries which are sometimes politically unstable**
 - Risk of price-setting
 - Risk of a lack of investments or production shut-down
 - Risk of a resource depletion on the long run
- ➔ **Main producers of PR don't have the largest PR reserve but are the main consumers of phosphates (China and United-States)**
 - Risk of a resource depletion on the medium run in these countries and finally a higher resource concentration at the global level
 - Implementation of exports tax reduce the availability of phosphorous fertilisers on the world market
- ➔ **Reserves of phosphate rock are almost non-existent in Europe**
 - The EU is highly dependent on regions currently subject to political crisis
 - The European industry is facing higher production costs