Geopolitics and Governance of Phosphorus

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Little progress on P governance

- Common perception: Food & fertilizer have no limits – just water is limiting
- EU’s mammoth agro-subsidy (1 billion Euros/wk) creates false security – now fragile
- No government will lead the dialogue – food price increases would be a political disaster
- Industry has taken a very low profile
- UN is not pro-active
- No geopolitical crisis yet like 1972 oil
- Duncan Brown’s empty gas tank analogy still prevails
Turning point 2010

- Until 2010 USGS P-rock data showed peak P possible in 30-40 years
- IFDC 2010 report quieted the peak phosphorus debate & Morocco “given” global monopoly status
- USGS changed its way of estimating commercial P reserves; resources can be commercial reserves
- UNEP showed interest in the peak phosphorus debate but backed off after 2010
What happened since 2010

- IFDC report produced very little discussion but was criticized fundamentally by Dutch researchers in 2013 (Edixhoven et al)
- European Sustainable Phosphorus Platform launched
  - Interest in recycling P has intensified
  - P-rock now on the EU Critical Raw Materials List
- Moroccan OCP expanding rapidly now in order to meet future global demand
World phosphate rock resources

IFDC, 2010
<table>
<thead>
<tr>
<th>Country</th>
<th>Reserves (‘000 tons)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morocco</td>
<td>50,000,000</td>
<td>74.6</td>
</tr>
<tr>
<td>China</td>
<td>3,700,000</td>
<td>5.5</td>
</tr>
<tr>
<td>Algeria</td>
<td>2,200,000</td>
<td>3.3</td>
</tr>
<tr>
<td>Syria</td>
<td>1,800,000</td>
<td>2.7</td>
</tr>
<tr>
<td>Jordan</td>
<td>1,500,000</td>
<td>2.2</td>
</tr>
<tr>
<td>South Africa</td>
<td>1,500,000</td>
<td>2.2</td>
</tr>
<tr>
<td>USA</td>
<td>1,400,000</td>
<td>2.1</td>
</tr>
<tr>
<td>Russia</td>
<td>1,300,000</td>
<td>1.9</td>
</tr>
<tr>
<td>Peru</td>
<td>820,000</td>
<td>1.2</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>750,000</td>
<td>1.1</td>
</tr>
</tbody>
</table>

Changes in 2014 tonnage:
- 1,300,000 down
- 1,100,000 down
- 211,000 down

97% in 11 countries
Sulphuric acid production

Few countries have both P and S, requiring trade agreements.
Geopolitics causing price hikes in phosphorus

- Oil price increases due to conflicts (1973/2008)
- China export embargo
- P cartels
- Northern Africa
  - Morocco-Algeria conflicts
  - Arab Awakening
- Preferential free trade agreements with Morocco – eg US, India, EU

P-Rock since 1960, World Bank
EU Imports of Phosphates

75% from 5 countries

Source: Eurostat-Comext Database, CN 2510 1000 and CN 2510 2000 [accessed August 2013]
Challenges to governance systems

- speculation & raw material cartels
- national stockpiling
- state companies
- trade tariffs & quotas
- lack of transparency
  - revenue streams
  - due diligence in supply chains
Political Stability and Absence of Violence/Terrorism 2013
Phosphate rock now on EU List of Critical Raw Materials
What is the EU List of Critical Raw Materials?

- Started in 2011 by DG Enterprise
- Centred on gross value added to the EU GDP
- Centered on supply risk linked to WGI (World Governance Indicators)
- Focuses on non-energy and non-food or non-agriculture materials
- Phosphate rock is therefore an anomaly since it is essential to agriculture
- Phosphate rock requires a special category and status
So what to do we need to prioritize?
P value chain – multiple components to govern

- Rock phosphorus (apatite)
- Sulfuric acid - 5 parts $H_2SO_4$ give 3 parts $H_3PO_4$ in the wet extraction process
- Phosphorus products (MAP, DAP, SP, etc)
- Agro and food system - soil, food and animal feed
- Manure, excreta, solid waste
Phosphorus sustainability to be governed

- **Reduce**
  - Improved efficiency in mining and extraction
  - Improved fertilizer use and technology
  - Less consumption of meat and dairy products

- **Recycle**
  - Improved recycling of food production wastes, sludge, manure, struvite, polonite, etc.

- **Economic instruments and flexible fees**
  - Large users pay more tax fees than smaller users
Data governance of P rock still lacking

- P-rock reserves/resources (USGS)
  - No UN agency involved
  - Open to influence (e.g., IFDC 2010 report)
- Fertilizer production and consumption (FAOstat)
- Commercial sources of data (IFA, CRU, etc.)
- Need for a neutral agency to monitor P-rock data
Possible track ahead

- White paper on phosphorus
  - Building on the GPRI Blueprint for Global Phosphorus Security

- Global conference and Global convention
  - Transparency on data regarding P-rock extraction and trade
  - Independent monitoring agency
  - National reporting systems on use and reuse
  - Best practices optimizing reuse
  - Economic instruments promoting reuse & taxing waste
  - Linkage to global food security strategies
  - Communications programme