

Water markets: why are they considered by NEFCO as policy options?

Markku Ollikainen
University of Helsinki

WHY INTERNATIONAL TRADING IN NUTRIENTS?

1. Background: pollution of the Baltic Sea as a social problem

- **Baltic Sea:** the most polluted Sea in the world
- **The role of hydrography of the Baltic Sea:**
 - Brackish water, stratification, hypoxia, the vicious cycle of the Baltic Sea and *transfer of nutrients*
 - There is a great threat that eutrophication problems emerge
- **The role of social institutions**
 - The Baltic Sea is a **common property resource**: coastal states have no supranational obligatory body: countries are free to pollute and none can legally prevent them from doing so

2. Background: Pollution... a social problem

- Hydrographic features create an **economic asymmetry**:
 - the loads of polluters (Poland, Russia) transfer to other countries (Finland, Sweden),
 - polluters do not find (**perceive**) eutrophication a big problem
 - polluters profit from purifying less

The **non-simultaneous nature of social development** strengthens asymmetry:

- Polluting countries are poor, while the countries suffering damage are well-off

Inversely for policy: hydrography and non-simultaneous social development mean that the poor countries carry the costs of reducing nutrients, while the rich countries reap the benefits

- **Example:** Baltic Sea Action Plan allocates the highest reduction requirements to Poland, Russia and Latvia

3. The case for nutrient trading

Three observations:

1. Difference in the abatement costs across countries is huge (municipal sewage water treatment plants):
 - Finland & Sweden: €28/kg N-eq.
 - Poland & Russia: €0.9 – 4.5/kg N-eq.
2. The rich countries have much higher willingness and greater interests to protect the Baltic Sea than the poorer countries
 - Valuation studies
3. There is much private money available for investments in nutrient load abatement
 - Examples in Russia and Poland

4. Advantages of nutrient trading

International trading program in nutrients could:

1. transfer private money to most productive investments – building and renovating sewage water treatment plants in Russia, Baltic countries and Poland
2. start a closer monitoring and reporting process than is used for water protection in the absence of economic instruments
3. help to achieve a more binding and complete international agreement than the Baltic Sea Action Plan in the long run

Note: Trading can be expected to work better than an international nutrient tax

WHAT KIND OF TRADING PROGRAM?

5. NEFCO Report

- The Nordic Environmental Finance Corporation (NEFCO) Report:

“Framework for a Nutrient Quota and Credits’ Trading System for the Contracting Parties of HELCOM in order to reduce Eutrophication of the Baltic Sea”
- NEFCO Report:
 - **Prerequisites** for nutrient trading in the Baltic Sea region
 - **Suitability** of nutrient trading with current legislation
 - **Feasible design** of a nutrient trading system for the Baltic Sea

6. Challenges for establishing nutrient trading in the Baltic Sea

- Problem # 1:** No binding international agreement to reduce nutrient loads
- Problem # 2:** Lack of reliable monitoring data on all countries
- Problem #3:** Control of nonpoint sources – a well-known and difficult problem
- Problem #4:** nitrogen and phosphorus – eutrophication depends on both

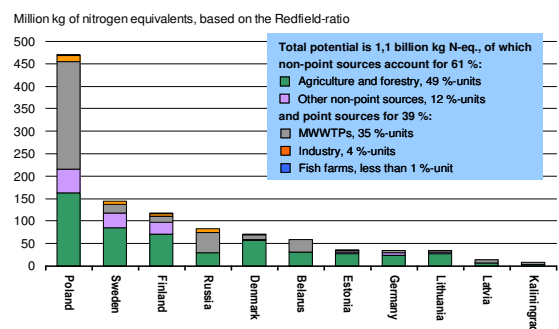
7. Meeting the challenges

1. Voluntary *baseline and credit* approach that is built on current legislation (such as directives) is a feasible frame for nutrient trading
2. Data and reliable monitoring systems for point sources need to be developed before for a full nutrient trading program can take place
3. Nonpoint sources should be included only when the most basic information has been developed
4. Focus on both N & P using nitrogen equivalents
5. No increase in the discharges of installations allowed due to trading

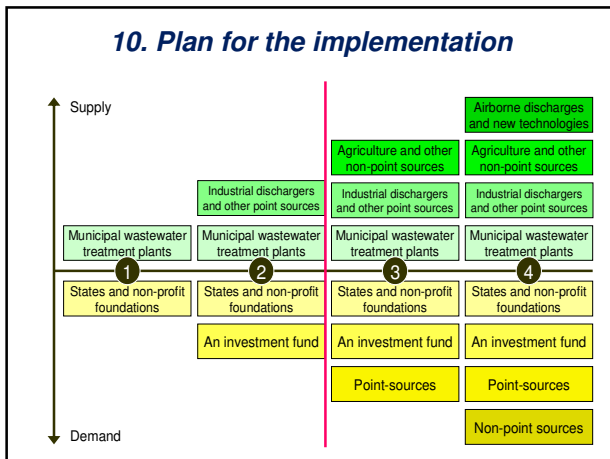
8. Proposal for the nutrient trading system in the Baltic Sea Region

1. **Trading unit: Nitrogen equivalents**
 - Both nitrogen and phosphorus (using Redcliff ratio)
2. **Trading system: Baseline and credit**
 - Existing regulation implies the baseline abatement
 - Credits are obtained by reducing loads below this level
3. **Trading area: The catchment area of the Baltic Sea**
 - Special requirement: no source is allowed to increase its discharged as a result of trading
4. **Trading: On the voluntary basis**
 - The only way of starting the system now
 - unless countries make a binding agreement and decide to use a trading system
5. **Liquid markets: By gradual evolvement**
 - Start by increasing the demand for nutrient reductions, improve and harmonize monitoring systems and create liquid trading markets

9. Trading potential



10. Plan for the implementation



11. Conclusions

- International nutrient trading:
 - Provides a cost-efficient measure to combat eutrophication at the Baltic Sea
 - Can promote more efficient international agreement
- Challenges:
 - Starting by tendering system is easy but steps from comprehensive trading may be difficult
 - The non-global nature of nutrient discharges requires that elimination of hot spots must to be taken into consideration in designing the scheme