Water Emissions Trading

reach emission targets at lowest possible costs

In spite of several EU-directives and costly measures taken, water quality targets will not be met in many water bodies. Water Emissions Trading (WET) is the policy instrument of emissions trading applied to discharges to water. If dischargers reduce emissions, they can sell surplus permits, and use the revenues to pay for the reduction measures. Buyers can avoid taking too costly reduction measures. In this way everybody saves money, while the overall reduction target is reached. In the USA and elsewhere it is acknowledged that WET saves money and environment, but in the EU this seems to be overlooked or misunderstood.

Problem and solution

Some water quality problems, such as eutrophication, are difficult and expensive to solve. Market based (financial, economic) policy instruments can help to reach targets in the most cost-effective way. Water Emissions Trading (or 'water quality trading') has been widely experimented with and implemented in the USA and elsewhere. WET is theoretically the same as the EU emissions trading scheme for greenhouse gasses (EU-ETS), but in practice WET is very different: for water quality, trading schemes are often small scale (down to a handful of emitters), and local pollution effects ('hot spots') may require additional or existing regulation.

How WET works

Within a watershed or water body, total allowable discharge is fixed, taking into account water quality goals. All dischargers (emitters) receive tradable permits, giving the right to discharge a fixed quantity of pollution. They can then buy or sell permits as long as overall water quality objectives will still be met. See figure 1.

Dischargers' decisions to trade depend on what is cheaper for them: paying for emission reduction measures, or buying permits from others, who can use part of the money to reduce their own emissions more cost-effectively.

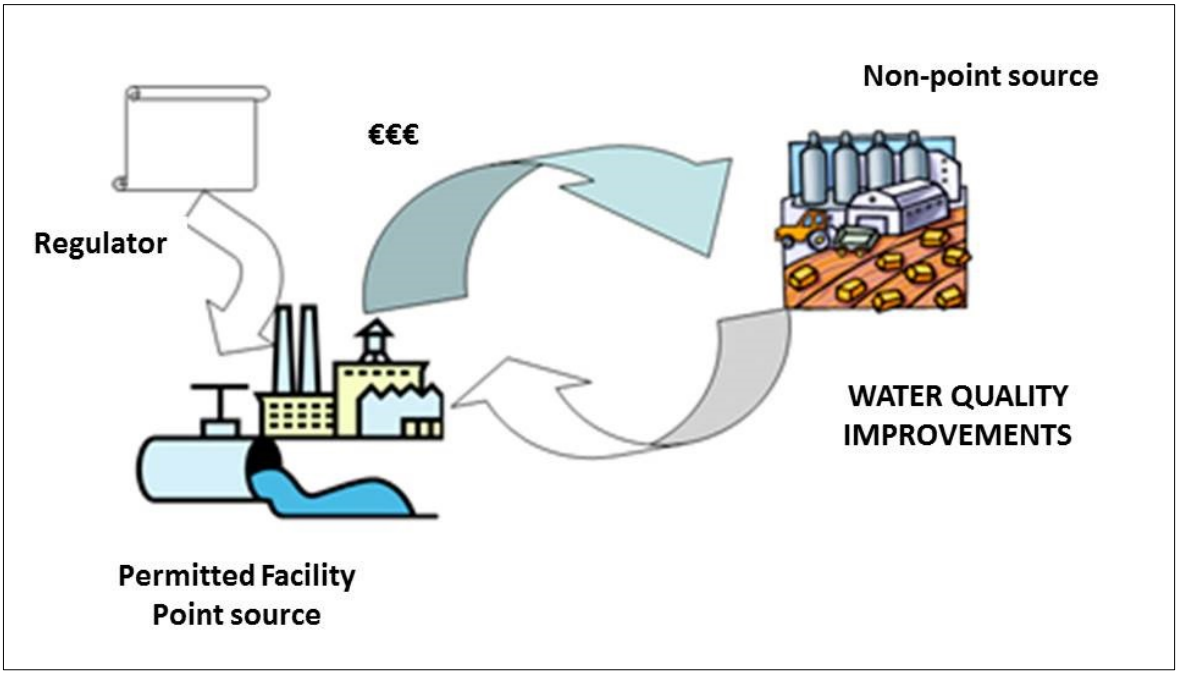

Figure 1. WET may for example imply reduction measures at a farm, paid for by point sources such as wastewater treatment plants. (http://bearriverinfo.org)

In this way reduction measures will be taken with improved overall cost-effectiveness, which in turn will speed up achieving water quality objectives. If necessary, total allowable discharges (the emissions cap) can gradually be lowered over the years in order to raise water quality. Lowering total discharges is made easier by the improved cost-effectiveness and innovations resulting from the financial incentives from the market based (economic) policy instrument WET.

From the FP7-project Economic Instruments for Water[1]:
"The ultimate advantage of WET is that it offers some flexibility for economic growth without compromising the environmental goals."
"In practice, the text book advantages of the WET are really realized."

WET:

- Fits well within the Water Framework Directive, because cost-effective sets of measures will be taken without contributing to disproportionally high costs. Quantifying and addressing the magnitude (cost-effectiveness) and distribution (cost disproportionality) of compliance costs are explicit requirements of the WFD (Articles 3-b, 4-a-ii, 5, 5-a, 7-d, 16-6). In other words: WET helps keeping the costs low, and distributing the costs fairly among dischargers (polluters). Basically, WET respects the Polluter Pays Principle (Article 9, WFD).
- Provides flexibility and freedom to dischargers.
- When implemented rightly, ad-hoc permitting can be changed into a generally applied regulatory framework, using modern ICT – software is available from the USA.
- Stimulates permanent innovation towards cleaner technology through price incentive: polluters pay, innovators cash in
- Recommended by International Water Association resolution in 2012[2].
- Bridges cost-effectively the gap between existing regulation (level 2, see figure 2) and WFD-targets (level 1).

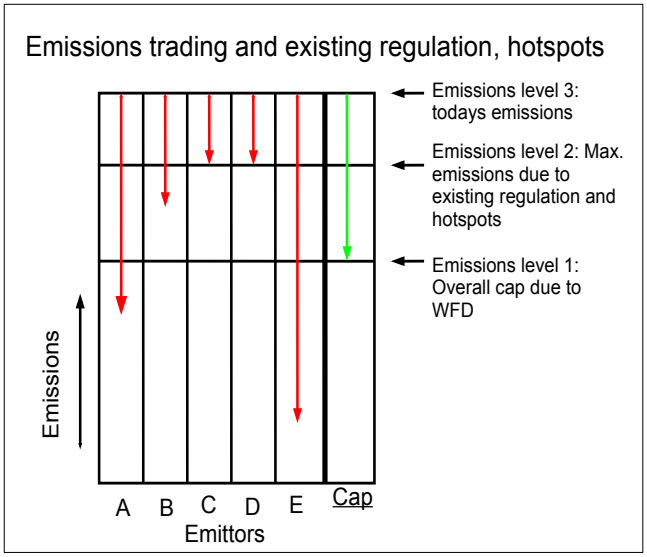

Figure 2. How WET fits into and supplements existing regulation (such as IPPC -, Nitrates - and Urban Wastewater directives): Existing regulation is not sufficient to reach set ambient ecological targets. WET ensures that overall total reductions end up under the emissions cap (level 1). Dischargers (emitters) that can only reduce at high costs, C and D, do so only to level 2, while buying credits from emitters that can reduce cost-effectively to lower than required levels: A, B and E). Overall result is that the cap or target is reached precisely and at lowest possible costs.

Status in Europe

In Europe, apart from isolated initiatives, WET is still unknown. Studies into water (quality) trading have been done or are being done in Belgium, Sweden, Northern Ireland, Poland, Germany, Italy, Finland-Baltic countries (nutrient trading for the Baltic Sea), and The Netherlands (several studies, including nutrients and cooling water). Sweden is

[1] FP7 project EPI-Water: www.feem-project.net/epiwater/pages/download-public-deliv.html, part 5-1 (p. 7 and 8) and part 5-2 (p. 46 – 48).

[2] www.eco-consult.nl/images/pdf/IWA%20Resolution%20Water%20Emisisons%20Trading.pdf

planning to start WET for wastewater treatment plants by 2016[3].

Proposal

1. Research questions:
   a. What is present situation and status of WET in Europe and worldwide?
   b. Is WET a beneficial policy instrument in the European policy context?
   c. Do cost savings sufficiently outweigh transaction and policy costs?
   d. How does WET fit into existing EU legislation, are there legal problems for implementation and if so, how could they be overcome?
   e. How could EU directives be adapted to facilitate or stimulate WET?
   f. What are differences and similarities compared to USA and other international experience with WET, and what can Europe learn?

2. Implement (a) pilot project(s).
   a. What trading platform, online, ICT, is needed?
   b. What modeling of water and pollutants propagation in water body is needed?
   c. Stakeholder involvement: needs special attention!
   d. Does WET deliver the expected advantages?

3. Develop European guidelines for WET as part of the Common Implementation Strategy series of the WFD.

4. Disseminate and communicate project results to relevant parties, such as policy-makers, industrial and agricultural sectors, universities and research institutes, water boards and non-governmental organisations.

[3] CEASAR: Nitrogen credit trading programme: www.naturvardsverket.se/Nerladdningssida/?fileType=pdf&downloadUrl=/Documents/publikationer6400/978-91-620-6521-8.pdf, Ch. 2, from p. 13.

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