



# Applying economic incentives to stimulate the market to adopt eco-technology and create a society with zero emissions of phosphorous.

## BACKGROUND

The phosphorous challenge to the resilient society is immense. Understanding of its significance is rather limited, however. For example during the work for the Nordic Council of Ministers on flexible fees as approach to managing phosphorous and nitrogen the team of economists, at one point during the conference, wondered why the Nordic Council of Ministers had chosen phosphorous and not something that involved a more significant number of consumers or industrial actors. One of the systems ecologists replied that they were correct in that the issue only involves those who eat and pee, and food is only nowadays 10-12% of the average monthly budget.

Equally significant is that phosphorous is one of the planetary boundaries we are in danger of crossing.

An overhaul of the economic system has been called for by many stakeholders, and the calls are becoming more frequent as problems with the financial system come to light. To encourage entrepreneurship and discourage externalisation, a fee taken out when natural resources enter the commercial system appears to many to be simpler and fairer, rather than taxing the things we want to encourage, like work and consumption.

Working with flexible fees, as we from the Foundation have seen in the last three rounds of investigations, raises a lot of interesting issues that come up cross-discipline.

We are therefore excited to have colleagues from the national economic policy fields, alongside with eco-systems specialists, behaviourists, technology experts and more join us on this exciting innovative venture.

## AIM OF STUDY

The study aims to, given an island municipality, innovate (preferably) one flexible tariff mechanism on import of phosphorous-containing products into the commercial chain with the view to stimulate the market to close the loop to the extent that phosphorous is not emitted to the surrounding sea. The proposed mechanism will be explored using a multi-disciplinary approach, to draw out recommendations firstly from the main actors and later from a wider audience and members of the public.

## WORK-PACKAGE APPROACH

We envisage an approach that centres on the economy, people, machines and systems and the main elements required to change them: new technology, system changes, behaviour changes or information.

We will establish a baseline which will identify the behaviour that imports phosphorous into the commercial chain and emits into the eco-system. We then go on to identify the systems and stakeholders affecting and controlling this behaviour. The workpackage develops an economic analysis as the final layer of the baseline analysis.

As input to workpackage 4, we will also need the technology road map. This map shows possible routes using known technology that could “close the loop” where no phosphorous is either emitted nor imported.

Based on this material we will hold a multidisciplinary workshop where a flexible fee mechanism will be proposed. This mechanism will contain the four main elements: a fee levied high up in the supply chain, a redistribution mechanism, an expert group that sets the fee regularly and a free market.

This proposal will be evaluated from the four change aspects as to where the barriers and drivers would arise, the various attitudes of the stakeholders that might affect their behaviour. If possible various scenarios could be identified that could be presented at the public workshop.

The purpose of the public workshop is to present the initial findings, gain more feedback from stakeholders but also to test assumptions from the scenario work. We know for example that people are very different in what they say they are willing to spend on organic produce and the decisions they make on the spur of the moment in the shop. In a more ordered form we can test some of the assumptions in this public forum.

Finally, all input will be summarised in the final report for dissemination to all interested stakeholders. If media can be persuaded, the public forum would provide a place to present preliminary results to gain public attention.

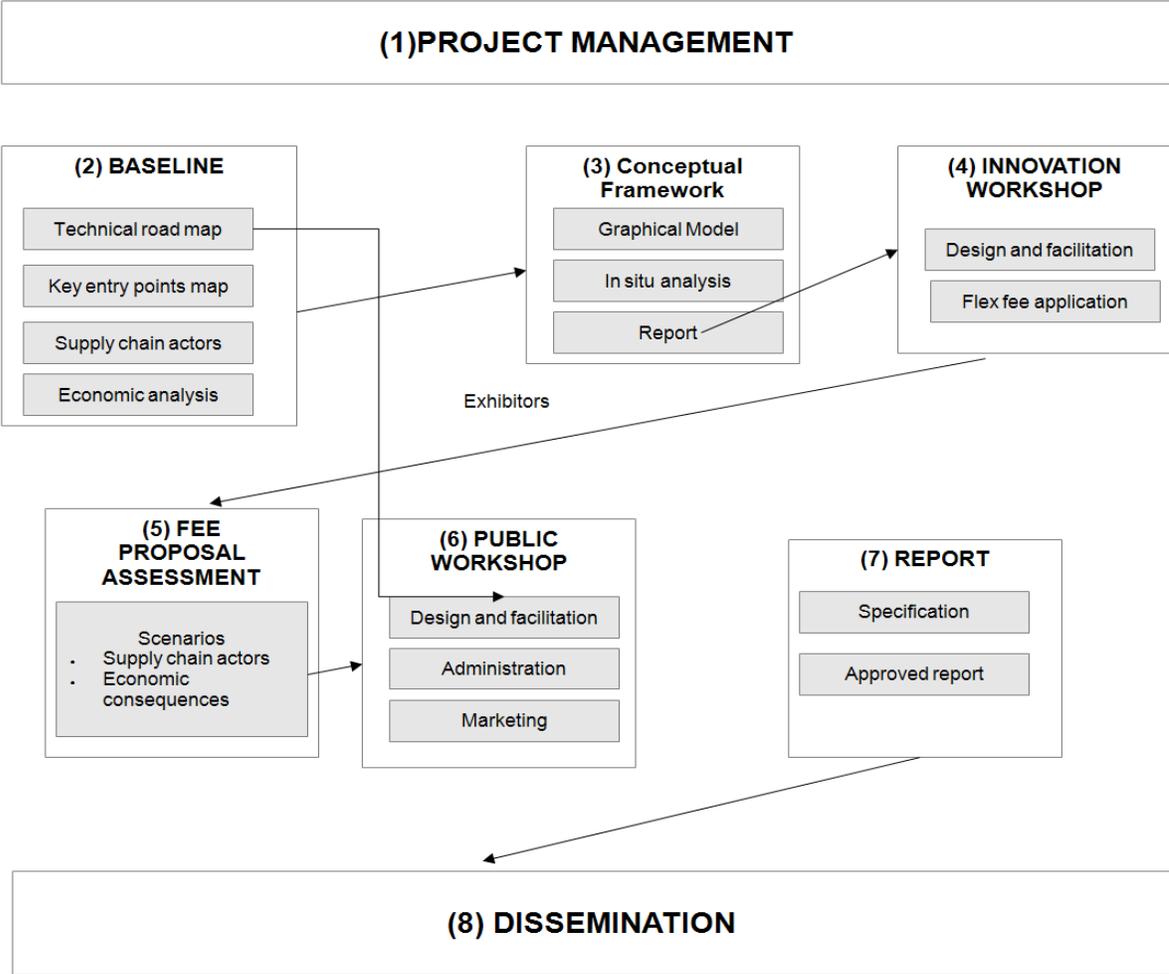
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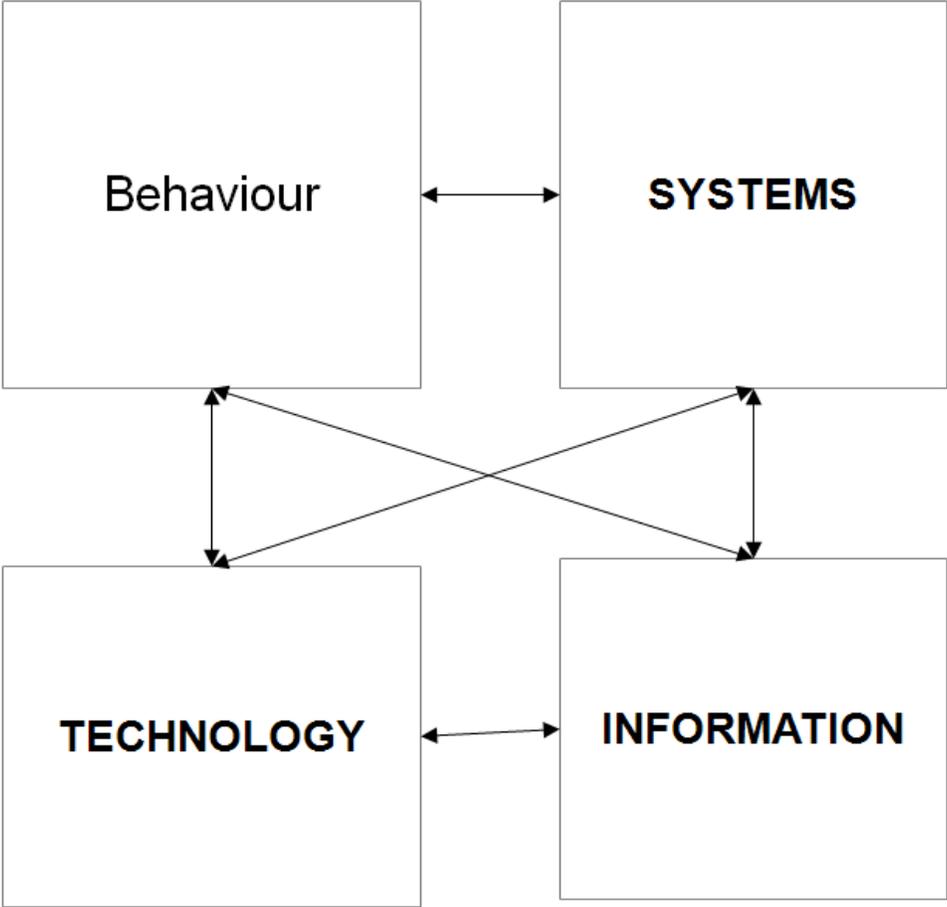
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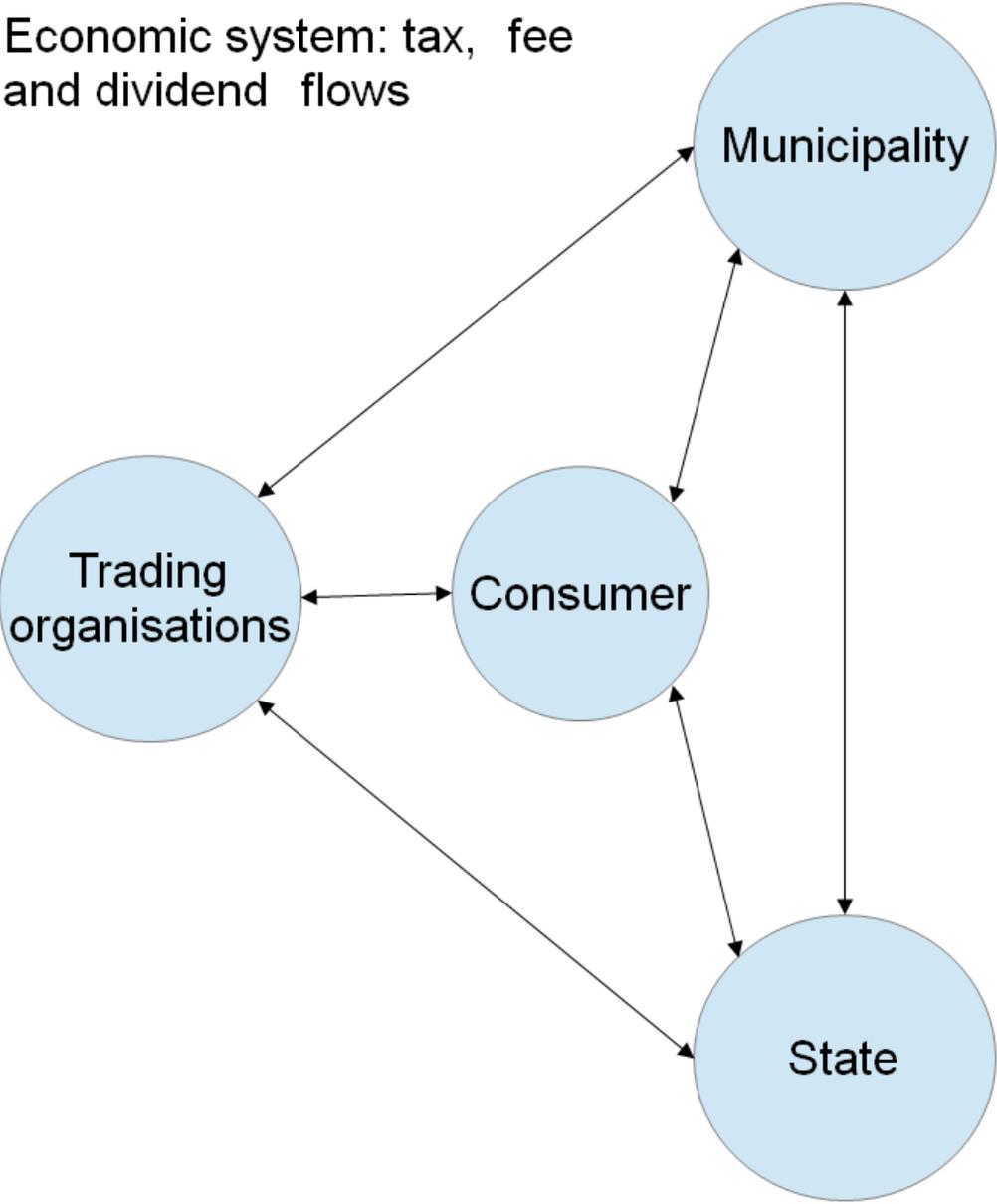
Illustration 1: DIAGRAM OF WORK PACKAGES



*Illustration 2: MAIN CHANGE FACTORS*



*Illustration 3: ECONOMIC FLOWS FOLLOWING PHOSPHOROUS*



## APPENDIX: THE PROPOSAL TEXT

### PROPOSAL ACRONYM

### PHOSMARK

### TITLE

Applying economic incentives to stimulate the market to adopt eco-technology and create a society with zero emissions of phosphorous.

### SUMMARY

Taking the Island of Gotland as a Sweden in miniature, and starting from recent studies that inventoried relevant Eco-technology commercially available, as well as studies on flexible fee mechanisms, the project will, using a multi-disciplinary approach, develop and test the feasibility of putting tariffs and dividends in place to stimulate the entire supply chain, including residents in general, to invest in technology and adapt behavior to recycle phosphorous, thus breaking dependence on imports and stemming the pollution of the Baltic.

Initial work will produce a technical road-map showing routes to complete independence and zero emissions. The map will show where commercially available and for Gotland suitable technology is available. To the map will be added possible upstream tariff points at municipal level and national level as well as potential dividend sharing routes.

The project will explore possibilities - using the flexible fee approach - to (a) place tariffs on import of phosphorous/entry into the supply chain/waste stream, (b) return revenue to society to stimulate eco-technology and (c) further explore how to stimulate the market and engage citizens and other supply chain actors by connecting changes in tariff to emission reduction rates.

Based on a series of pilot studies, the research will show ways to engage society using tariff prices connected to emissions and how to stimulate existing technology into mass use.

the key theme that the proposal addresses is

2.4. Eco-technological approaches to achieve good ecological status in the Baltic Sea

(the others)

5.2. Innovative measurements techniques

5.3. User-driven ICT services

