

## (Re)Allocating responsibilities and risks

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## 1 Description work package

### 1.1 Problem definition, aim and central research questions

Natural scientists play a dominant role in the discussion about climate adaptation. Water safety, for instance, is a field in which the technology of building dikes and water-control structures play a crucial role. Yet, while natural science research may inform us *what* has to happen, it cannot answer the questions *who* has to do it and *what* kind of policy instruments should be developed.]

This work package aims at developing and testing new governance arrangements and instruments in order to increase adaptation capacity. Specific attention is paid to the allocation of responsibilities to public and/or private organizations, and to the application of specific economic instruments like taxes, markets, compensation schemes, and auctioning contracts.

The central research question is: *What kind of re(allocation) of responsibilities, burdens and benefits are useful for increasing adaptive capacity?*

To answer this question the project addresses two research questions:

1. What kind of considerations can play a role in the allocation of responsibilities to public and/or private parties when taking measures in the field of climate adaptation and what kind of

governance arrangements can be developed on the basis of these considerations for a number of climate adaptation themes?; and

2. What kind of economic instruments can be developed to stimulate the supply of climate adaptation services, taking into account efficiency, legitimacy and fairness considerations?

One of the most pressing questions is who is responsible for the adaptation to climate change. In the present discussions on adaptation to climate change, this question is hardly addressed at all. The government may be the obvious candidate to take responsibility for a broad and complex social problem like climate change. Clearly, the issue is vast in scope, affects all sectors of our society, and calls for collective action. Still, past experience teaches us that we cannot assume that the government will take the lead every time and in every instance, and hence the question arises what role private parties can and should play in developing adaptation strategies.

In this work package insights from public administration, law, psychology and economics will be combined in the following two projects.

Project 3.1 is concerned with the scope of public responsibility for climate adaptation and thereby conversely with the scope of private responsibility. The project focuses on the development of an evaluation framework to identify which governance arrangements are best suited for a number of specific adaptation issues. A governance arrangement encompasses the responsibilities that are allocated to public and/or private parties, the rules and regulations pertaining to these responsibilities, the policy instruments and other resources that the parties can mobilize, and the structure of policy processes toward climate adaptation. The framework will be applied to two specific adaptation themes for two of the hotspots.

Project 3.2 aims to analyze how climate service policies should be designed optimally, exploring to what extent acceptability (operationalized as legitimacy and fairness) is achieved at the expense of efficiency, and vice versa. It identifies two important characteristics of climate services. First, all stakeholders benefit from these services, but almost all stakeholders have, at the same time, the ability to provide them – rendering the issue of targeting supply and demand of services highly complex. Second, typically the stakeholders have better information about the benefits they derive from climate services and about the costs of supplying them than the government. This project assesses the implications of these two characteristics for the relative efficiency and acceptability of a range of policy instruments.

## 1.2 Interdisciplinarity and coherence between the projects

This work package will combine insights from public administration, law, psychology and economics. To realize coherence between the projects, two (but possibly three) case studies will be elaborated.

The case studies regard the availability of fresh water resources and the provision of water storage facilities – how can we cope with temporary fresh water shortages and with floods? Adaptation measures directly benefit the agents undertaking them, but also – in many instances – other agents in the vicinity. Water storage services are hence an impure public good, and this gives rise to two important (and in this

case closely related) behaviours: some agents may free-ride on the adaptation measures undertaken by others, and some agents may not undertake the preventive actions society would like them to undertake because they expect to be “bailed out” in case of adverse events taking place (moral hazard). The key question in case of such impure public goods is how the responsibilities of undertaking preventive action are to be allocated among the various stakeholders – public, private and societal actors – and how the costs and benefits need to be shared.

### 1.3 Stakeholders

This work package addresses the questions regarding the allocation of responsibilities and the provision of climate services as raised by the following Hotspots: Wadden Sea, The Haaglanden Region, The Rotterdam Region, and South-West Netherlands Delta.

## 2 Project 3.1 Allocating public and/or private responsibilities for climate adaptation

**Project leaders: Dr. R. Runhaar and Prof. dr. P.J. Driessen**

### 2.1 Problem definition, aim and central research questions

This research is concerned with the scope of public responsibility for climate adaptation and thereby conversely with the scope of private responsibility. The objective is to develop an evaluation framework on which to base a wellfounded choice for a certain governance arrangement for a number of specific adaptation issues (see below). Governance arrangements encompass the responsibilities that are allocated to public and/or private parties (at various geographical and administrative levels), the rules and regulations pertaining to these responsibilities, the policy instruments and other resources (money, knowledge) that the parties can mobilize, and the structure (hierarchical, participatory, interactive) of policy processes directed toward climate adaptation. The project will centre round adaptation measures for which no clear distribution of public or private intervention has been arranged so far and for which no specific instruments are available yet. The evaluation framework will be based on three disciplinary but partly overlapping perspectives: juridical, public administration, and economic.

The juridical perspective is concerned with the guarantees that governments must offer their citizens and the guidance they have to give to certain societal processes by setting rules and norms. From the juridical angle, it will turn out that in certain cases the government cannot evade taking on specific responsibilities in the area of climate adaptation.

From a public administration perspective, administrative reasons for public and/or private interventions are explored. These include the production of collective goods, the regulation of external effects, the control over merit goods, and the compensation of distributive effects. Yet, responsibilities may also be placed upon market actors because of political preference, effectiveness, efficiency, or legitimacy. Another relevant issue is the optimal allocation of responsibilities over central and decentral

administrative tiers depending, among others, on what is considered an adequate balance between harmonization/equity and customization.

From the economic angle the government should not be willing to pay any price for the adaptation to climate change. Based on efficiency considerations (Lipsey et al., 1987; Callaway, 2004) a choice should be made between guaranteeing everyone maximum safety or only to a limited degree; between investment in prevention measures or in the recovery of losses. Another issue is whether or not adaptation measures must be funded entirely from government budgets, or (in part) be recouped from those who benefit from such measures. In addition, the risks of free-rider behaviour and the risks of passing on external effects to other actors are economic reasons to assign certain tasks to either the government or to private parties.

In this research project it is assumed that the way public and private responsibilities are allocated can differ among the various adaptation themes as well as by the stage in the policy process. It is expected that, in most cases, responsibility will not be allocated to one single actor but rather to a network of various public and/or private players (Rhodes, 1996; Kickert, 1997; Pierre, 2000; Driessen et al., 2001; Driessen & Glasbergen, 2002; Teisman et al., 2009)

The design of a particular governance arrangement will not only depend on the above considerations but also on the extent to which it meets a number of commonly accepted criteria for 'good governance' (Adger et al., 2003). First of all, it must be legitimate, both in a strictly legal sense and in its political and social acceptability. Secondly, the arrangement must be fair. This means that there must be built-in guarantees that contribute to a fair distribution of the costs and benefits. Thirdly, the arrangement must lead to an effective and efficient implementation of the adaptation measures.

The above considerations and criteria may be complementary but also contradictory. In addition the design of a governance arrangement will be limited by constraints such as political preferences and available budgets. The envisioned evaluation framework will facilitate the optimization of governance arrangements for climate adaptation by making such trade-offs and constraints explicit.

Next to this the evaluation framework will facilitate the assessment of the extent to which public and private actors are equipped to fulfil the allocated responsibilities. For this purpose we will assess 'institutional capacity', consisting of, among other things, organizational capacity, legal capacity, political capacity, and resource capacity (Fukuyama, 2004; Willems & Baumart, 2003; Arts & Leroy, 2006).

The main research question is: *What kind of considerations can play a role in the allocation of responsibilities to public and/or private parties when taking measures in the field of climate adaptation and what kind of governance arrangements can be developed on the basis of these considerations for a number of climate adaptation themes?*

Central questions in this research are the following:

1. What juridical, policy-scientific, and economic considerations are relevant for the allocation of responsibilities to public and/or private parties when taking measures in the field of climate adaptation? And to what extent are these considerations complementary or conflicting?
2. What governance arrangements for a number of specific adaptation themes are in line with these considerations as well as with commonly accepted criteria for 'good governance'?
3. What institutional capacity is needed so that the governance arrangements, given a specific allocation of public and/or private responsibilities, will actually perform in practice?

## 2.2 Approach and methodology

This research will be carried out in three stages.

First, a literature survey will be conducted in order to explore considerations for the allocation of public and/or private responsibilities for climate adaptation as well as trade-offs between these considerations. To validate it, this theoretical evaluation framework will be presented to an expert panel (month 3).

Second, the evaluation framework will be applied to five selected adaptation themes specified below.

This stage has an analytical element and a design element:

- ▽ Analysis: we will explore and assess existing governance arrangements for climate adaptation on the basis of the evaluation framework. In particular the UK, Germany, and Scandinavian countries are expected to be interesting because they are the most advanced in the field of climate adaptation.
- ▽ Design: alternative governance arrangements will be refined and assessed according to the method of 'collaborative action research'. Therefore, focus groups will be organized which will bring together participants into a setting of a guided interview. Focus groups have the advantage over individual interviews in that the participants can respond to one another's input and can discuss topics with each other in an effort to arrive at a common view (Greenbaum, 1998). Participants will be asked to (a) reflect upon the various governance arrangements; (b) if possible, refine these options in light of knowledge grounded in practice; (c) present arguments in support of the choice of the most suitable governance arrangement; and (d) indicate what kind of institutional capacity is needed to make the governance arrangements work.
- ▽ Cases: The following KfC adaptation themes will be covered in the research (at least four out of five): (a) regulation of water safety for areas lying outside the dikes; (b) supply of fresh water for agriculture; (c) water storage facilities in rural areas; (d) realization of green roofs in urban areas; (e) protection of underground networks and infrastructure.

Third, findings from the focus groups will be translated to the hotspots in order to explore constraints in the design of governance arrangements and to develop a systematic approach to assess institutional capacity (Driessen et al., 2010). Two adaptation themes will be elaborated upon for two hotspots, namely the availability of fresh water resources and the provision of water storage facilities.

### 2.3 Scientific deliverables and results

Month 3:

Assembly of expert panel on governance and final selection of (four) adaptation themes

Month 8:

**Deliverable 3.1.1:** Paper with evaluation framework based on literature review and expert panel

Month 12:

**Deliverable 3.A:** Position Paper: (Re)allocating responsibilities and risks for climate adaption

Month 14:

**Delivarble 3.1.2:** Paper with governance arrangement for adaptation theme 1

Month 20:

**Deliverable 3.1.3:** Paper with governance arrangement for adaptation theme 2

Month 29:

**Deliverable 3.1.4:** Paper with governance arrangement for adaptation theme 3 and specification for hotspot A

Month 38:

**Deliverable 3.1.5:** Paper with governance arrangement for adaptation theme 4 and specification for hotspot B

Month 48:

**Deliverable 3.1.6:** Concluding paper

**Deliverable 3.1.7:** Ph.D. thesis

**Deliverable 3.B:** Synthesizing article on (re)allocating responsibilities and risks for climate adaption

During the implementation of the research we will submit at least three papers to international peer-reviewed journals on the above subjects.

### 2.4 Integration of general research questions with hotspot-specific questions

Up to now, the hotspot South-West Netherlands Delta wants to specify this research project for the fresh water supply problems in the Volkerak-Zoommeer Region.

### 2.5 Societal deliverables and results

Month 48:

**Deliverable 3.1.8:** Report with main findings & recommendations

As its most important societal result, this research project will provide guidance for the choice of a suitable governance arrangement for each of the above-mentioned adaptation themes. Representatives of the hotspots and relevant public and private parties will be engaged in the process of developing and

evaluating the evaluation framework. As far as possible, the evaluation framework will be tailored to the needs and requirements of the hotspots. The outcome of the research will be communicated with the hotspots.

## 2.6 Most important references

1. Adger, W.N., Brown, K. Fairbass, J., Jordan, A., Paavola, J., Rosendo, S., & Seyfang, G. (2003). Governance for sustainability; towards a 'thick' analysis of environmental decision-making. *Environment & Planning A*, 35, 1095-1110.
2. Arts, B., & P. Leroy (Eds.) (2006). *Institutional Dynamics in Environmental Governance*. Dordrecht: Springer.
3. Driessen, P.P.J., Glasbergen, P., & Verdaas, C. (2001). Interactive Policy-making; a Model of Management for Public Works. *European Journal of Operational Research*, 128, 322-337.
4. Driessen, P.P.J., & Glasbergen, P. (2002). *Greening Society. The Paradigm shift in Dutch Environmental Politics*. Dordrecht: Kluwer Academic Publishers.
5. Driessen, P.P.J., Leroy, P. & Van Vierssen, W. (2010). *From Climate Change to Social Change; Perspectives on Science-Policy Interactions*. Utrecht: International Books.
6. Callaway, J. M. (2004). Adaptation benefits and costs: are they important in the global policy picture and how can we estimate them?. *Global Environmental Change*, 14(3), 273 - 282.
7. Fukuyama, F. (2004). *Sate Building. Governance and World Order in the Twenty-First Century*. London: Profile Books.
8. Greenbaum, T.L. (1998). *The Handbook for Focus Group Research*. Newbury Park, CA: Sage Publications.
9. Jordan, A.J., Huitema, D., Van Asselt, H., Rayner, T., & Berhout, F. (Eds.) (2010). *Climate Change Policy in the European Union: Confronting the Dilemmas of Mitigation and Adaptation*. Cambridge: Cambridge University Press.
10. Kickert, W.J.M., Klijn, E.H., Koppenjan, J.F.M. (1997). *Managing Complex Networks: Strategies for the Public Sector*. London: Sage Publications.
11. Lipsey, R.G., Steiner, P.O., & Purvis, D.D. (1987). *Economics (chapter 22: Benefits and Costs of Government Intervention)*. New York: Harper & Row.
12. Pierre, J. (2000). *Debating Governance: Authority, Steering, and Democracy*. Oxford: Clarendon.
13. Rhodes, R. A. W. (1996). The new governance: governing without government. *Political Studies*, 44(4), 652.
14. Teisman, G.R., Van Buuren, A., & Gerrits, L. (Eds.) (2009). *Managing Complex Governance Systems*. New York: Routledge.
15. Willems, M., & Baumert, K. (2003). *Institutional Capacity and Climate Change*. Paris: OECD.



### 3 Project 3.2 Implementing climate adaptation policies: Public policies and private initiatives

**Project leader:** Prof. dr. D.P. van Soest

#### 3.1 Problem definition, aim and central research questions

This project focuses on how policies should be designed to stimulate the supply of climate adaptation services by private parties so that they are efficient, flexible (or resilient), legitimate and fair. Here, efficiency and flexibility refer to the extent to which policies are able to induce a certain provision level at the least societal cost in a world characterized by uncertainties. The perceived legitimacy and fairness of policies are relevant because they determine, to a large extent, whether stakeholders are willing to support and comply with them.

The design of such climate service policies is challenging because of two reasons. First, because the stakeholders in climate adaptation policies cannot easily be separated into suppliers and demanders of climate services. On the one hand most of the stakeholders involved are able to provide climate services (at different costs and in different quantities), on the other hand they are tempted to free-ride on the services provided by other agents. For example, citizens living in urban areas benefit from the supply of water storage services because of the reduction in the risk of floods, but they can also provide water storage services by installing water retention systems on their roof tops. This complicates policy making because it is unclear which potential suppliers should be targeted. The second reason why designing climate service policies is difficult is because the regulatory authorities usually have less information about the benefits and costs of climate service projects than the stakeholders involved. Hence, regulation necessarily takes place under asymmetric information.

This research project aims to analyze how climate service policies should be designed optimally, exploring to what extent acceptability (legitimacy and fairness) is achieved at the expense of efficiency, and vice versa. The main instruments considered include traditional instruments like taxes (cf. Baumol & Oates, 1988), but also more innovative ones such as the creation and implementation of water markets (cf. Crocker, 1966), incentive-compatible compensation schemes (Harris & Townsend 1981; Wu & Babcock 1996), and auctions of climate service provision contracts (Latacz-Lohmann & Van der Hamsvoort, 1998; Stoneham et al., 2003, Latacz-Lohmann & Schilizzi, 2006; Rolfe et al., 2009). The approach will be generic for many different types of climate services, but the practical implementation of the methodology will focus on the case of water storage services. Regarding the efficiency and acceptability of any policy aimed at increasing a region's capacity to store water, key considerations are (1) the extent to which each stakeholder is a net beneficiary of the policy; (2) the fairness of the distribution of the costs and benefits (across stakeholders, but also over time); and (3) the extent to which redistribution mechanisms are in place that force net beneficiaries to contribute to the costs of water storage provisions and that allow the suppliers of storage services to recoup at least part (if not all) of their costs. The main research question is: *What kind of economic instruments can be developed to stimulate the supply of climate adaptation services, taking into account efficiency, legitimacy and fairness considerations?*



The central research objectives are the following:

1. To identify the key stakeholders regarding water storage services in the Netherlands;
2. To explore how the various policy instruments should be designed to ensure efficient provision of water storage services;
3. To implement an ex-ante assessment of the acceptability of the various policy instruments by assessing their distributional consequences, how they differ with respect to the risks and uncertainties remaining (for example regarding the likelihoods of draughts and floods), and how they differ regarding the timing of the cost and benefit flows; and
4. To design climate service policies that provide an optimal trade-off between efficiency and acceptability, and to test the proposed policies in the field.

Note that while the project focuses on the case of the provision of water storage services, the insights are applicable to a wide range of other adaptation measures as well.

### 3.2 Approach and methodology

This research project combines multiple theories and techniques to assess the efficiency and acceptability of policy instruments aimed at stimulating the provision of climate services. The first step in the research strategy is to use mechanism design to develop policy instruments that are efficient in the presence of asymmetric information (cf. Dasgupta et al., 1979; Guesnerie & Laffont, 1984). The first component of efficiency is that those climate services (e.g., water storage projects) should be implemented that can be offered at least cost – depending on the total amount of services needed, projects should be implemented with the cheapest first. Because typically stakeholders have better information about the costliness of their investment options than the regulator, they have an incentive to overstate their costs to secure more generous compensation (either from the government, or from those private parties that benefit from the services offered). That means that the second component of efficiency is that any windfall profits accruing to the suppliers of services should be minimized (cf. Wu and Babcock, 1996; Arguedas & Van Soest, 2009). The design issues are most challenging in case of so-called smart subsidies and auctions, and we focus on these first.

The second step in the research strategy is to assess the acceptability (ex ante) of the policy instruments. The acceptability of any new policy crucially depends on the costs and benefits it entails for all stakeholders involved. Here, the instantaneous financial flows of revenues and costs associated with specific climate services are just one component of the stakeholders' evaluation of the desirability of any new policies. Other considerations include the uncertainties associated with these financial flows, the timing of the costs and revenues, and the distribution of the costs and benefits – as issues of fairness and inequity aversion also affect a stakeholder's propensity to support a policy measure. As part of our collaborative action research, we use standard games as developed in the psychological and experimental economics literature to elicit stakeholders' preferences regarding efficiency and equity (using Liebrand's (1984) Decomposed Game approach) and their attitudes towards losses, risks and discount rates (based on Andersen et al., 2008).

The third step is to combine the insights from the first two steps to design a policy that is both efficient and acceptable. We then proceed with the fourth step – testing the proposed policy’s performance in practice. We propose to set up small scale applications of the proposed policy in the real world, in close cooperation with the interested hotspots. By implementing a policy (in a specific subregion) and evaluating its performance in comparison with a control group in the same region where no policies are being implemented, we can gain insight into the proposed policy’s performance in terms of both efficiency and acceptability. We carefully pretest any proposed policy’s performance by a series of economic laboratory experiments, evaluating stakeholders’ decision making in a controlled computer environment that closely mimics the decision environment present in the field (cf. Aalbers et al., 2009; Zetland, 2010).

### 3.3 Scientific deliverables and results

Month 4:

Review of the literature on asymmetric information, auctions and incentive-compatible compensation schemes

Month12:

**Deliverable 3.2.1:** Paper for submission to scientific refereed journal on the design of auctions and incentive compatible compensation schemes to stimulate the supply of climate services

**Deliverable 3.A:** Position Paper: (Re)allocating responsibilities and risks for climate adaption

Month15:

Finalizing the design of the economic experiments to elicit preferences of the various stakeholders, and start implementation of the experiments

Month 24:

**Deliverable 3.2.2:** Paper for submission to scientific refereed journal on the risk attitudes, fairness preferences and time preferences of the various stakeholders

Month 29:

Finalization of choice of field case study, and start design of economic experiment

Month 32:

Finalization of the design of the economic experiment to be implemented in the lab

Month 36:

Completing the economic experiment with student subjects

**Deliverable 3.2.3:** Paper for submission to scientific refereed journal

Run experiments with stakeholders from the field

Month 40:

**Deliverable 3.2.4:** Paper for submission to scientific refereed journal

Month 48:

**Deliverable 3.2.5:** Final paper on the optimal design of climate services (assessing efficiency, acceptability and flexibility)

**Deliverable 3.2.6:** Ph.D. thesis

**Deliverable 3.B:** Synthesizing article on (re)allocating responsibilities and risks for climate adaption

### 3.4 Integration of general research questions with hotspot-specific questions

The case studies that will be implemented, will be targeted to answer the specific questions raised by the hotspots ZWD, Rotterdam and Haaglanden regarding stimulating water storage services (for orchards, green roofs and horticulture, respectively).

### 3.5 Societal deliverables and results

The societal relevance of this project is straightforward – its objective is to inform decision-makers about the main design issue associated with policies aimed at stimulating the provision of climate adaptation services, and to develop a policy that is both efficient and acceptable to the stakeholders involved. To communicate the insights obtained, we envisage two publications targeted to an audience of non-economists:

Month 48:

**Deliverable 3.2.7:** a report detailing the outcomes of the research, making the conclusions and policy advises available to all interested parties.

**Deliverable 3.2.8:** a short summary of the report, to be published in a journal –yet to be determined– to directly inform the interested decision makers involved.

### 3.6 Most important references

1. Aalbers, R., Van der Heijden, E., Potters, J., Van Soest, D.P., & Vollebergh, H. (2009). Technology Adoption Subsidies: An Experiment with Managers. *Energy Economics*, 31(3), 431-442.
2. Andersen, S., Harrison, G.W., Lau, M.I., & Ruström, E.E. (2008). Eliciting risk and time preferences. *Econometrica* 76(3), 583–618.
3. Arguedas, C., & Van Soest, D.P. (2009). On Reducing the Windfall Profits in Environmental Subsidy Programs. *Journal of Environmental Economics and Management*, 58(2),192–205.
4. Baumol, W.J., & Oates, W.E. (1988). *The Theory of Environmental Policy*. Second edition. Cambridge (UK):Cambridge University Press.
5. Crocker, T.D. (1966). The structuring of atmospheric pollution control systems. In H. Wolozin (Ed.), *The Economics of Air Pollution* (pp. 61–86). New York: W.W. Norton & Co.
6. Dasgupta, P.S., Hammond, P.J., & Maskin, E.S. (1979). The implementation of social choice rules: Some results on incentive compatibility. *Review of Economic Studies*, 46, 185–216.
7. Guesnerie, R., & Laffont, J.J. (1984). A complete solution to a class of principal–agent problems with an application to the control of a self–managed firm. *Journal of Public Economics*, 25, 329–369.

8. Harris, M., & Townsend, R.M. (1981). Resource allocation under asymmetric information. *Econometrica*, 49, 33–64.
9. Latacz-Lohmann, U., & Van der Hamsvoort, C. (1998). Auctions as a means of creating a market for public goods from agriculture. *Journal of Agricultural Economics*, 49(3), 334–45.
10. Latacz-Lohmann, U., & Schilizzi, S. (2006). Auctions for Conservation Contracts: A Review of the Theoretical and Empirical Literature, Report to the Scottish Executive Environment and Rural Affairs Department.
11. Liebrand, W.B.G. (1984). The Effect of Social Motives, Communication and Groups Size on Behavior in an N–Person Multi Stage Mixed Motive Game. *European Journal of Social Psychology*, 14, 239–264.
12. Rolfe, J., Windle, J., & McCosker, J. (2009). Testing and Implementing the Use of Multiple Bidding Rounds in Conservation Auctions: A Case Study Application. *Canadian Journal of Agricultural Economics*, 57(3), 287–303.
13. Stoneham, G., Chaudhri, V. Ha, A., & Strappazon, L. (2003). Auctions for conservation contracts: An empirical examination of Victoria’s BushTender trial. *Australian Journal of Agricultural and Resource Economics*, 47 (4), 477–500.
14. Wu, J.J., Babcock, B.A. (1996). Contract Design for the Purchase of Environmental Goods from Agriculture. *American Journal of Agricultural Economics*, 78, 935–945.
15. Zetland, D. (2010, forthcoming). Do water managers cooperate in Public Goods games?. In M. Price and J. List (Eds.), *Handbook of Economic Experiments and the Environment*. Cheltenham: Edward Elgar.