

THE RESEARCH PROGRAM OF THE ENVIRONMENTAL POLICY GROUP (ENP)

1. Environmental Governance and Management: in search for new policy arrangements contributing to sustainable development worldwide

The ENP-research program contributes to sustainable development by developing the theoretical and empirical tools to analyze, evaluate and (help) design democratic processes of environmental transformation from the local up to the global level. Analysing and designing (new) arrangements for environmental governance and management is at the centre of the ENP-research program which is built around three core themes i) Sustainable Consumption and Production (SCP), ii) Sustainable Natural Resource Use (SNRU), and iii) Global Environmental Change (GEC). When analyzing and designing (new) arrangements, we draw especially on sociology and on political sciences. While being social scientific in nature, the research program contains many projects that are conducted on a multi-disciplinary basis, making use of the high quality technical and natural science expertise available in the WUR-environment of the ENP-group. The research program forms part of the WIMEK/SENSE research school in the environmental sciences and of the Mansholt Graduate School in the Social Sciences (MG3S). Two defining characteristics of the ENP-research program are its broad geographical scope and the use of an international, comparative approach. To make this international outlook work, the (PhD)researchers executing the ENP program are recruited worldwide, and several international research networks are actively supported and directed by the ENP-group. The three core themes which define the ENP- research program are depicted in Figure 1.

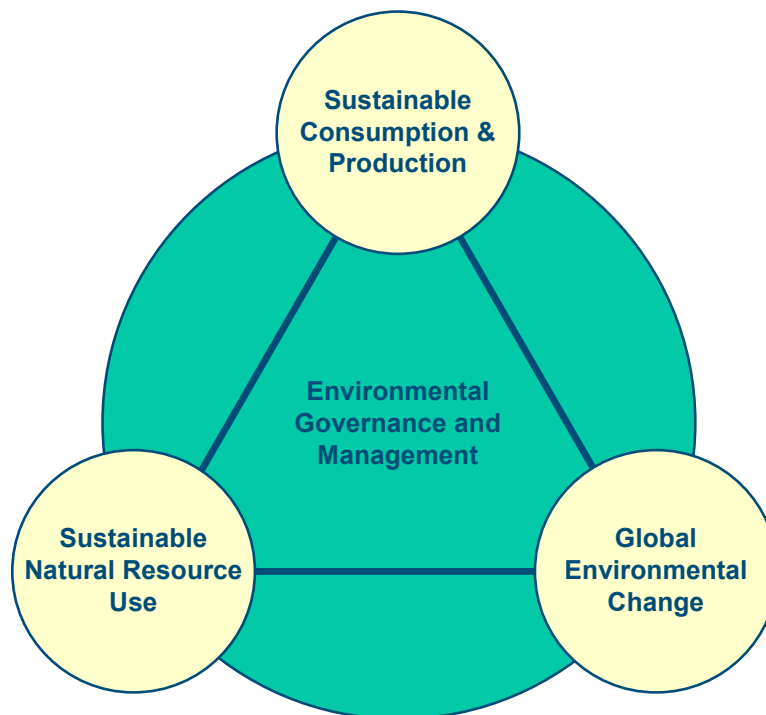


Figure 1: Three Core Themes of the ENP-research program

1.1 The Core Research Themes explored in more detail

The three research themes will be elaborated with respect to the staff-members involved, the key topics under study, the major content and character of the research conducted under the theme, and some core data on the PhD- and staff-projects under the theme.

Theme SCP: Sustainable Consumption and Production

Staff-members:

Gert Spaargaren, Bas van Vliet, Peter Oosterveer, Kris van Koppen, Arthur Mol, Dries Hegger, Gábor Szántó, Zhang Lei.

Key words:

Cleaner Production; Industrial Ecology, Environmental Management Strategies of TNCs and SMEs; Environmental Infrastructures; Systems of Provision; Sustainable Lifestyles; Labeling and Certification Schemes; Trust and Risk; Globalizing Food Chains; Domestic Consumption; Environmental Behaviours; ENGO-Strategies.

General description of the SCP-research topics:

This theme addresses the greening or ecological modernization of production and consumption chains and networks. Studies on the ‘greening of industry’ are conducted on a worldwide basis, addressing the environmental management efforts as developed by Transnational Corporations (TNCs) as well as Small and Medium Size Enterprises (SMEs). Especially in China, Vietnam, Malaysia and Thailand the role of SMEs in environmental governance within agro-industrial sectors is explored in some detail. When analyzing the significance of technology in environmental transitions, a social science perspective is used which emphasizes the key roles of local and transnational actors and institutions in the management of environmental change. The strategies of Environmental Non-Governmental Organizations (ENGOS) are given explicit attention in several projects.

Next to globalizing production-consumption chains (for food; fuels, textiles etc.) also networks for the provision of water, energy and waste-services are included in this research theme. The public-private networks providing these goods and services are often referred to as the ‘infrastructures of consumption’ and they are demonstrated to be very powerful in shaping domestic practices of consumption to a considerable extent.

In both Africa and Asia, special projects are implemented to study the access of poor people to (key) environmental infrastructures for the provision of water, energy and sanitation facilities. In these projects, the perceptions, commitments and interests of end-users and their access to environmental goods, services and infrastructures are highlighted while the need for new, flexible, locally adapted socio-technical arrangements is emphasized.

Within the ENP research program, consumption is studied in close connection to the networks and systems of provision which support our daily consumption routines. The greening of lifestyles and consumption practices is investigated in different domains of consumption like housing, food, leisure and tourism, clothing and personal care, and mobility. In all consumption domains, the development of new policy arrangements and instruments is investigated, for example the wide range of environmental labels, certification schemes and brands are given special attention since they are important vehicles for information and regulation strategies in the context of globalizing (f.e. food-)chains.

The research under this core theme is rooted in and makes substantial contributions to the theory of Ecological Modernization of production and consumption (EMT) in particular, while also using the Triad Network Approach, the Social Practices Approach and the theory of Modernized Mixtures.

Staff- and PhD-projects under the SCP-theme:

Staff-projects and programs:

CONTRAST: studying the governance of transitions in consumption routines (see <http://www.contrast-research.nl>) – Contact-person: Gert Spaargaren

PROVIDE: towards the provision of sustainable sanitation infrastructure for the urban poor in East Africa (see <http://www.provideafrica.org>) – Contact-persons: Peter Oosterveer, Gábor Szántó, Gert Spaargaren

EMCABU: Environmental Management Capacity Building in Uganda (see <http://www.emcabuproject.org>) – Contact-person: Bas van Vliet

PhD-projects:

1. **Castro, Walter** mailto: Walter.Castro@wur.nl
Role of non-governmental organizations (NGOs) in the environmental reform of small and medium-sized enterprises (SMEs) in Latin America
Supervisors: Prof.dr.ir. C.S.A. van Koppen and Prof.dr.ir. A.P.J. Mol
Expected year of completion: 2010
2. **Ching, Kim** mailto: Kim.Ching@wur.nl
Water Services Reform in Malaysia
Supervisors: Prof.dr.ir. A.P.J. Mol and Dr.ir. B.J.M. van Vliet
Expected year of completion: 2012
3. **Feng, Yan** mailto: Yan.Feng@wur.nl
Environmental Risk Management and Emergency Response in China: Principles, Challenges and Innovations (ERMER)
Supervisor: Prof.dr.ir. A.P.J. Mol & Prof.dr.ir. C.S.A. van Koppen
Expected year of completion: 2013
4. **Glin, Laurent** mailto: Laurent.Glin@wur.nl
Greening Agriculture in the Global Economy: Networks and Policy Perspective in West Africa
Supervisors: Prof. Dr. Ir. A.P.J. Mol and Dr. Ir. P.J.M. Oosterveer
Expected year of completion: 2012
5. **Kantamaturapoj, Kanang** mailto: Kanang.Kantamaturapoj@wur.nl
Emerging sustainable food consumption in newly industrializing economies: the case of Thailand.
Supervisors: Prof.dr.ir. G. Spaargaren and Dr.ir. P.J.M. Oosterveer
Expected year of completion: 2011
6. **Katusiimeh, Mesharch Walto** mailto: Mesharch.Katusiimeh@wur.nl
Assessing national policies in East Africa on urban environmental infrastructures and the consequences of different types of public private partnership-based management systems for urban waste and sanitation on access for the poor.
Supervisors: Prof.dr.ir. A.P.J. Mol and Dr. C.P.J. Burger
Expected year of completion: 2010
7. **Krom, Michiel de** mailto: Michiel.deKrom@wur.nl
Transformations in food safety governance in Europe.
Supervisors: Prof.dr.ir. A.P.J. Mol and Dr.ir. P.J.M. Oosterveer
Expected year of completion: 2010
8. **Letema, Sammy** mailto: Sammy.Letema@wur.nl
Urban environmental governance: review the implementation of national policies and solid municipal waste management at urban level: institutions, regulations, and practices.
Supervisors: Prof.dr.ir. J. van Lier and Dr.ir. B.J.M. van Vliet
Expected year of completion: 2010
9. **Maciel, Carolina Toschi** mailto: Carolina.Maciel@wur.nl
Animal well-being and global food markets
Supervisors: Prof.dr.ir. A.P.J. Mol & Dr.ir. P.J.M. Oosterveer
Expected year of completion: 2013
10. **Majale, Christine Lucy** mailto: Christine.Majale@wur.nl
Developing an integrated conceptual and methodological approach to develop mixed-modern urban environmental infrastructures that fit in the conditions and needs of communities in East African cities.
Supervisors: Prof.dr.ir. G. Spaargaren and Dr. P.J.M. Oosterveer
Expected year of completion: 2010
11. **Nguyen Thi Anh Tuyet** mailto: hoasuahn2001@yahoo.com
Environmental planning in Vietnam
Supervisors: Prof.dr.ir. A.P.J. Mol and Prof.dr.ir. C.S.A. van Koppen
Expected year of completion: 2010
12. **Nguyen Thi Phuong Loan** mailto: Loan.Nguyen@wur.nl
Environmental reform of textile industry: between cleaner production and end-of-pipe

- Supervisors: Prof.dr.ir. A.P.J. Mol and Prof.dr. W.H. Rulkens
Expected year of completion: 2010
13. **Nijhuis, Jorrit** mailto: Jorrit.Nijhuis@wur.nl
Access and provisioning in the eco-modernization of day-to-day-mobility
Supervisors: Prof.dr.ir. G. Spaargaren and Prof.dr.ir. J.T. Mommaas
Expected year of completion: 2010
 14. **Ombis, Leah** mailto: Leah.Ombis@wur.nl
Development of sustainable plastic waste management strategy for Nairobi.
Supervisors: Prof.dr.ir. A.P.J. Mol and Dr.ir. B.J.M. van Vliet
Expected year of completion: 2012
 15. **Oyoo, Richard** mailto: Richard.Oyoo@wur.nl
Integrated modelling of the environmental flows of sanitation and waste at district and city levels in East African urban centres.
Supervisors: Prof.dr. R. Leemans and Prof.dr.ir. A.P.J. Mol
Expected year of completion: 2010
 16. **Pham Thi Anh** mailto: anh2.pham@wur.nl
Environmental management of sea product processing industries in Vietnam
Supervisors: Prof.dr.ir. A.P.J. Mol, Dr. S.R. Bush, Prof.dr. R. Leemans and Dr. C. Kroeze
Expected year of completion: 2010
 17. **Putman, Lenny** mailto: Lenny.Putman@wur.nl
Access and provisioning in the eco-modernisation of social practices of Home Maintenance and Repair
Supervisors: Prof.dr.ir. G. Spaargaren and Prof.dr.ir. J.T. Mommaas
Expected year of completion: 2010
 18. **Sargant, Elizabeth** mailto: Elizabeth.Sargant@wur.nl
Access and provision in the eco-modernization of social practices of food consumption
Supervisor: Prof.dr.ir. G. Spaargaren
Expected year of completion: 2010
 19. **Scheinberg, Anne** mailto: ascheinberg@antenna.nl
Change and choice in the modernisation of urban environmental system.
Supervisor: Prof.dr.ir. A.P.J. Mol
Expected year of completion: 2010
 20. **Soer, Laila** mailto: L.Soer@rd.bmdadvies.nl
Promoting SME eco-innovation from a regional perspective
Supervisors: Prof.dr.ir. A.P.J. Mol and Prof.dr.ir. C.S.A. van Koppen
Expected year of completion: 2014
 21. **Solomon, Aisa** mailto: Aisa.Solomon@wur.nl
Review the socio-technical systems for solid waste and excreta and wastewater collection, treatment and reuse at urban level used in East Africa.
Supervisors: Prof.dr.ir. G. Spaargaren and Prof.dr.ir. W.H. Rulkens
Expected year of completion: 2010
 22. **Son Thanh Tung** mailto:
Integrating poverty reduction into environmental solutions in Hochiminh City
Supervisor: Prof.dr.ir. A.P.J. Mol
Expected year of completion: 2014
 23. **Tukahirwa, Judith** mailto: Judith.Tukahirwa@wur.nl
The Role of Non-Governmental Organizations and Community Based Organizations in Public-Private arrangements in Urban Sanitation and Waste Management
Supervisors: Prof.dr.ir. A.P.J. Mol and Dr.ir. P.J.M. Oosterveer
Expected year of completion: 2010
 24. **Wagemans, Frank** mailto: FWagemans@hotmail.com
The influence of shareholders on corporate environmental management
Supervisors: Prof.dr.ir. A.P.J. Mol and Prof.dr.ir. C.S.A. van Koppen
Expected year of completion: 2014

25. **Wertheim, Sigrid** Sigrid.Wertheim@wur.nl

Exploring the window of opportunity for sustainable fresh produce consumption in Vietnam. Beyond the western paradigms of consumption

Supervisors: Prof.dr.ir. G.Spaargaren and Dr.ir S.R. Vellema

Expected year of completion: 2012

26. **Zhang, Yuan** Zhang.Yuan@wur.nl

Eco-labeling and the greening of Chinese textile and clothing industry

Supervisors: Prof.dr.ir. A.P.J. Mol and Prof.dr.ir. C.S.A. van Koppen

Expected year of completion: 2010

Theme GEC: Global Environmental Change

Staff-members:

Kris van Koppen, Aarti Gupta, Kristine Kern, Arthur Mol, Jan van Tatenhove, Sander van den Burg

Key words:

Climate Change; Adaptation and Mitigation Policies; Renewable Energy; Biofuels; International Environmental Regimes; Trade and Environment; EU-Environmental Policies; Environment and Development; Global Environmental Flows

General description of GEC-research topics:

This theme addresses the nature and dynamics of global environmental change from a social science perspective. Three current sub-themes of GEC research can be identified.

The first sub-theme addresses climate change mitigation and adaptation policies. Research under this theme currently focuses on the promise and perils of biofuels, including assessing trade-offs between energy security and food security. Another focus is the provision of incentive structures underpinning renewable energy initiatives in diverse regions of the world, including Europe, Asia and Africa. Research under this theme endeavors to bridge local livelihood and community based concerns with analysis of global environmental and trade flows, in order to understand the nature and implications of global-local linkages in climate change mitigation and adaptation policies.

The second sub-theme analyzes multilevel and multi-actor environmental governance arrangements, against the backdrop of a rapidly changing global order. Research focuses on (new) actors and mechanisms in environmental governance, including the sources of accountability, legitimacy and effectiveness of existing and new governance arrangements. Specific topics include the central role of information and transparency in governing global environmental change and stimulating environmental reform (also termed informational governance or governance-by-disclosure); global regime interlinkages, such as between the multilateral trade regime and international environmental regimes; and greening of international trade through private governance initiatives such as labeling and certification. Additional areas of interest include formal and informal policy arrangements underpinning multilevel environmental governance in the European Union, and analysis of public-private-partnerships (PPPs) as an innovative new global environmental governance mechanism.

The third sub-theme analyzes the role of science and diverse perceptions of risk in governing specific areas of global environmental change, with a current focus on global governance of biosafety (safe use of genetically modified organisms) and food safety.

The research under this core theme is rooted in and makes substantial contributions to the theory of 'political modernization and policy arrangements', while also using the Risk Society theory, the theory of Informational Governance and Transition Theory.

Staff- and PhD-projects under the GEC-theme:

Staff-projects and programs:

Climate mitigation and adaptation: assessing incentive structures and governance mechanisms underpinning renewable energy provision and biofuels, globally and in specific national contexts. –

Contact persons: Kristine Kern, Kris van Koppen, Arthur Mol

Informational governance: analysis of the role of information and transparency in governing global environmental change and stimulating environmental reform. – Contact persons: Arthur Mol, Aarti Gupta

International regimes and interlinkages: analyzing global level conflicts of trade versus environmental norms and principles, and transnational policy arrangements for regulating environmental flows, in specific areas of global environmental change. – Contact persons: Aarti Gupta, Arthur Mol

Multilevel governance in the European Union: analysis of formal and informal policy arrangements in multilevel environmental governance in the EU – Contact person: Jan van Tatenhove

PhD-projects:

1. **Barnes Dabban, Harry** mailto: Harry.BarnesDabban@wur.nl
Regional environmental governance for port authorities: the case for West and Central Africa.
Supervisors: Prof.dr.ir. A.P.J. Mol and Prof.dr. C.S.A. van Koppen
Expected year of completion: 2012
2. **Carballo Cardenas, Eira** mailto: Eira.Carballocardenas@wur.nl
Global data sets on marine protection
Supervisors: Prof.dr.ir. A.P.J. Mol, Prof.dr. H. Lindeboom & Dr. H. Tobi
Expected year of completion: 2013
3. **Han, Jingyi** mailto: Jingyi.Han@wur.nl
Environmental auditing and renewable energy policies in China
Supervisors: Prof.dr.ir. A.P.J. Mol and Dr. Zhang Lei
Expected year of completion: 2009
4. **Leeuwen, Judith van** mailto: Judith.Vanleeuwen@wur.nl
Transformations in the environmental governance of maritime activities in the North Sea
Supervisors: Prof.dr.ir. A.P.J. Mol and Dr.ir. J.P.M. van Tatenhove
Expected year of completion: 2009
5. **Stattman, Sarah** mailto: Sarah.Stattman@wur.nl
The battlefield of knowledge and governance of energy farming
Supervisors: Prof.dr.ir. A.P.J. Mol and Dr.ir. O. Hospes
Expected year of completion: 2012
6. **Tysiackniouk, Maria** mailto: Maria.Tysiackniouk@wur.nl
Governance beyond the state. Protecting Russian forests in international perspective
Supervisors: Prof.dr.ir. A.P.J. Mol and Prof.dr.ir. G. Spaargaren
Expected year of completion: 2010

Theme SNRU: Sustainable Natural Resource Use

Staff-members:

Jan van Tatenhove, Simon Bush, Arthur Mol, Kris van Koppen, Bettina Bluemling, Marieke Verweij, Zhang Lei

Key words:

Marine Governance; Sea- and Coastal zone management; Sustainable Fisheries; Transnational ENGO's strategies; Forestry and Nature Conservation Policies; Community-based Natural Resource Management; Biodiversity; Environmental Education; Eco-labeling; Trust and Risk; Material Flow Analyses.

General description of the SNRU-research topics:

This theme focuses on new institutional arrangements for the use, management and politics of nature and natural resources. Central questions address social, economic and political configurations for sustainable use of nature and natural resources in Europe and the transitional economies of Asia and Africa. Special attention is given to the role of actors and institutions and their compatibility and conflict across multiple levels or scales of governance.

Substantive areas of research include: the management and use of marine and coastal resources, with a particular focus on aquaculture and fisheries; the emergence of new public-private governance

mechanisms including monitoring, labeling, certification and verification of nature and natural resources; social movements and nature protection organizations; community-based management in transition to adaptive forms of co-management; the politics of policy formulation, monitoring and evaluation in Europe and Asia.

The research under this core theme is rooted in and makes substantial contributions to the theory of networks and flows, while also using the theory of Political Modernization and Policy Arrangements, concepts from Political Ecology, and the Arcadian view on Nature.

Staff- and PhD-projects under the SNRU-theme:

Staff-projects and programs:

RESCOPAR – governance of mangrove coastal environments in Southeast Asia: research on the interactions between decision-making processes around shrimp farming at different socio-political and spatial levels and how in turn these decisions affect shrimp farming practices as well as the management, use and conservation of coastal aquatic resources. –

Contact-persons: Simon Bush, Arthur Mol

Pro-poor Pangasius: IDRC funded investigation of social and environmental certification of Pangasius aquaculture in Vietnam. – Contact-person: Simon Bush

Patterns, process and participation: Accounting for different perceptions on North Sea fisheries management. – This post-doc project focuses on communicative problems between stakeholders of the Dutch beam trawl fleet. – Contact-persons: Marieke Verweij, Jan van Tatenhove

Sustainable Natural Resource Use in Rural China (SURE): research on the institutions which govern land, water and bio-energy in the rural parts of China. – Contact-persons: Arthur Mol, Bettina Bluemling

PhD-projects:

1. **Goldsborough, David** mailto: David.Goldsborough@wur.nl
Ecosystem-based marine governance in the North Sea.
Supervisors: Prof.dr.ir. A.P.J. Mol and Prof.dr.ir C.S.A. van Koppen
Expected year of completion: 2010
2. **Hendriksen, Astrid** mailto: Astrid.Hendriksen@wur.nl
Evaluation and impact assessment of knowledge dissemination in sustainability projects
Supervisors: Prof.dr.ir. A.P.J. Mol
Expected year of completion: 2010
3. **Hoof, Luc van** mailto: Luc.vanHoof@wur.nl
Towards new institutional arrangements: Dutch fisheries management in the context of the EU playing field.
Supervisors: Prof.dr.ir. A.P.J. Mol and dr.ir. J.P.M. van Tatenhove
Expected year of completion: 2010
4. **Javed, Haider Ali** mailto: Haider.Javed@wur.nl
The Role of Institutional and Policy Framework in Payment for Ecosystem Services (PES) Schemes
Supervisors: Prof.dr.ir. A.P.J. Mol and Prof.dr.ir. C.S.A. van Koppen
Expected year of completion: 2013
5. **Jin, Shuqin** mail to: Shuqin.Jin@wur.nl
Water governance in Rural China
Supervisor: Prof.dr.ir. A.P.J. Mol and Dr. N. Heerink
Expected year of completion: 2012
6. **Korbee, Dorien** mailto: Dorien.Korbee@wur.nl
Understanding ecodynamic designing in different governance settings
Supervisors: Prof.dr.ir. A.P.J. Mol and Dr.ir. J.P.M. van Tatenhove
Expected year of completion: 2013

7. **Liang, Dan** mailto: Dan.Liang@wur.nl
Governmental environmental auditing on ecological programs in China
 Supervisors: Prof.dr.ir. A.P.J. Mol, Dr.ir. J.P.M. van Tatenhove and Dr. Zhang Lei
 Expected year of completion: 2010
8. **Li, Jia** mailto: Jia.Li@wur.nl
Determinants of large-scale tree oil crop plantation in China: an institutional analysis
 Supervisor: Prof.dr.ir. A.P.J. Mol, Dr. T. Herzfeld (AEP) and Dr. B. Bluemling
 Expected year of completion: 2013
9. **Liu, Wenling** mailto: Wenling.Liu@wur.nl
Policy Options and Incentive Structures Promoting Rural Biomass Renewable Energy Development in China
 Supervisors: Prof.dr.ir. A.P.J. Mol and Dr. B. Bluemling
 Expected year of completion: 2014
10. **Mahonge, Christopher** mailto: Christopher.Mahonge@wur.nl
Impact of indigenous management systems and utilization practices on wetland sustainability at Lake Jipe Tanzania
 Supervisors: Prof.dr.ir. A.P.J. Mol and Dr. S.R. Bush
 Expected year of completion: 2010
11. **Motyka, Katarzyna**
Scaling biodiversity data to serve governance needs: A sociological investigation of the transformation of biodiversity records into usable knowledge and its implications for environmental governance
 Supervisors: Prof.dr.ir. G. Spaargaren, Dr.ir. J.P.M. van Tatenhove and Dr. E. Turnhout
 Expected year of completion: 2012
12. **Mutekanga, Fiona** mailto: Fiona.Mutekanga@wur.nl
Participatory policy development for integrated watershed management in the Uganda
 Supervisors: Prof.dr.ir. A.P.J. Mol, Prof.dr.ir. C.S.A. van Koppen, Prof.dr. L. Stroosnijder, Dr. S. Faye-Visser
 Expected year of completion: 2010
13. **Nguyen Thi Kim Dung** mailto: Nguyen.Dung@wur.nl
Community forestry management in protected areas in Vietnam
 Supervisors: Prof.dr.ir. A.P.J. Mol and Dr. S.R. Bush
 Expected year of completion: 2011
14. **Pastoor, Martin** mailto: Martin.Pastoor@wur.nl
Science, advice and decision making in fisheries management
 Supervisors: Prof.dr.ir. A.P.J. Mol and Prof.dr.ir. C.S.A. van Koppen
 Expected year of completion: 2012
15. **Pham Van Hoi** mailto: Pham.Vanhoi@wur.nl
Pesticides governance through agro-food networks: public – private cooperation in the greening of vegetable production in Vietnam
 Supervisors: Prof.dr.ir. A.P.J. Mol and Dr.ir. P.J.M. Oosterveer
 Expected year of completion: 2010
16. **Toonen, Hilde** mailto: Hilde.Toonen@wur.nl
Informational governance on marine environmental protection: fishing and pollution from shipping at the North Sea
 Supervisors: Prof.dr.ir. A.P.J. Mol, Dr.ir. J.P.M. van Tatenhove and Prof.dr. H. Lindeboom
 Expected year of completion: 2012
17. **Tran Thi Thu Ha** mailto: Ha.Tranthithu@wur.nl
Global and local governance of shrimp farming in the Mekong Delta, Vietnam
 Supervisors: Prof.dr.ir. A.P.J. Mol, Prof.dr.ir. H. van Dijk and Dr. S.R. Bush
 Expected year of completion: 2011
18. **Vos, Birgit de** mailto: Birgit.devos@wur.nl
Mechanisms of trust within the Dutch fisheries sector: the role of institutional arrangements.
 Supervisors: Prof.dr.ir. A.P.J. Mol and Dr.ir. J.P.M. van Tatenhove
 Expected year of completion: 2010

19. **Zheng, Chaohui** mail to: Chaohui.Zheng@wur.nl
Water pollution from peri-urban landuse in China
Supervisor: Prof.dr.ir. A.P.J. Mol
Expected year of completion: 2012

1.2 Geographical scope of the ENP research program

Research locations focus on, but are not limited to, the EU, the North-American continent, Southeast and East Asia (China, Vietnam, Thailand, Indonesia, Malaysia), East (Uganda, Tanzania, Kenya) and West (Ghana, Benin) Africa, and Latin America (Brazil, Peru, Surinam). Regional networks and conferences are used to support groups of researchers working in certain regions. These include: ERNASIA, ERNAFRICA and Glogov.org.

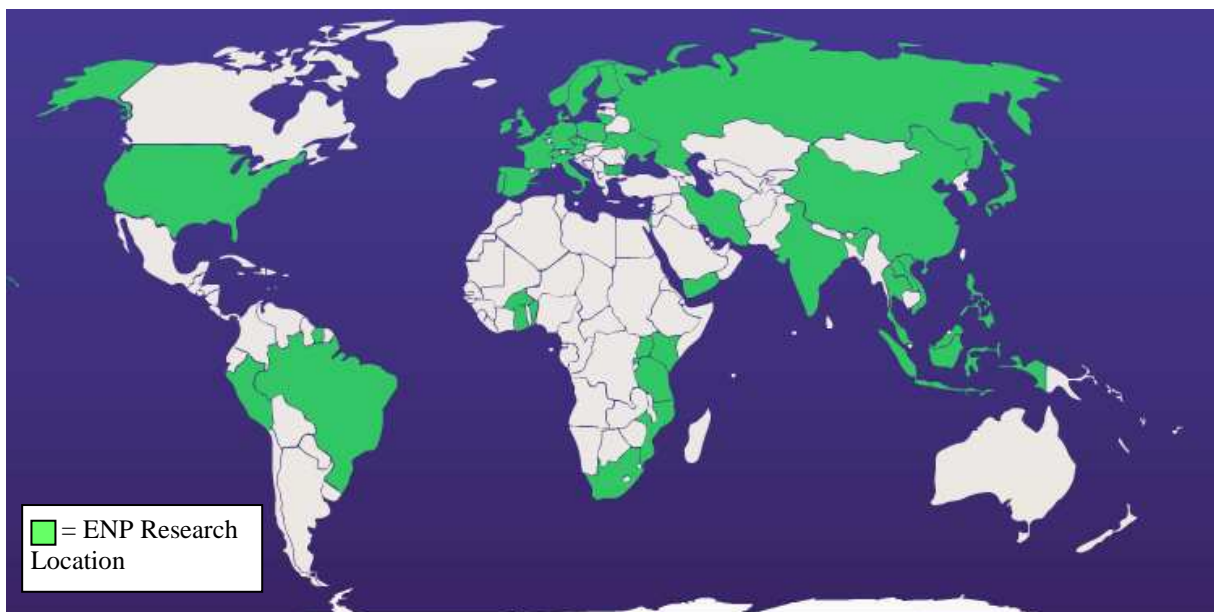


Figure 2: ENP research locations

1.3 The Theoretical Outlook of the ENP-research program

ENP-research is strongly anchored in social theory. Not only does the group use theoretical concepts and perspectives from sociology and political sciences, it also aims to actively contribute to the development of new theories and concepts useful for analyzing environmental governance and management. Training of the PhD-researchers in Social Theories is organized on a regular basis.

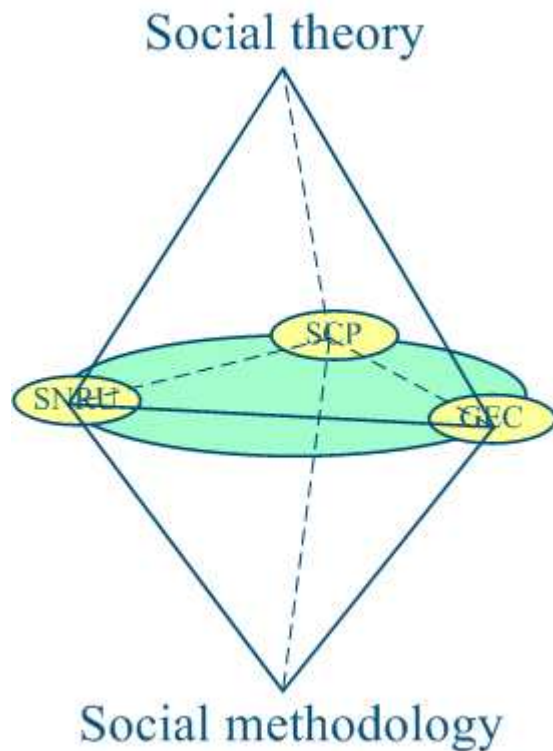


Figure 3: Theory and methodology in relation to the research themes

In investigating these research themes and topics various theories and models are applied. But at the same time our research also focuses on contributing to the further development and articulation of a limited number of theories and models (cf. Figure 4). At the moment two more overarching theories have a central place in general theory development within ENP: Ecological Modernization Theory and the Sociology of Networks and Flows. A larger number of more specific research models and theories (the wider circle in Figure 4) have been and are (co-)developed within ENP.

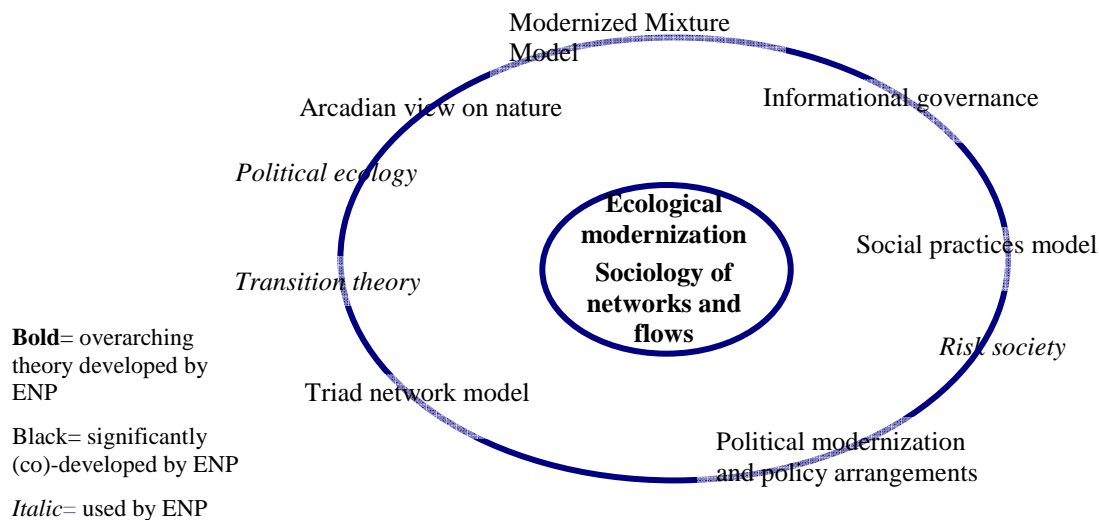


Figure 4: Theories and conceptual models for ENP-research

Empirical research takes place on the basis of these theoretical perspectives, applying various methodologies and methods.

Theories and models of ENP

Ecological Modernization Theory (EMT) starts with the recognition of ecological interests, ideas and considerations taking central place in social practices and institutional changes in many (predominantly OECD) countries since the 1980s. Based on the observation that in most of the ecologically advanced nations a de-linking occurred between the long established trend of parallel economic growth and increasing ecological disruption, EMT studies the social dynamics behind this emergence of actual environment-induced transformations of institutions and social practices. The ecological perspective becomes an independent force challenging the monopoly of economic rationality in the political, institutional and socio-cultural domains, as well as in the domain of production and consumption. EMT offers a conceptual framework to study the social mechanisms, dynamics and actors through which social practices and institutions are transformed by the incorporation of environmental interests and considerations. Whereas EMT concentrated initially on studying environmental changes in the OECD countries, this is supplemented since the mid 1990s with research in Eastern Europe, Southeast Asia, Latin America and Africa.

Major Sources/Key Publications on EMT

- Spaargaren, G. and A.P.J. Mol (1992), Sociology, Environment and Modernity. Ecological Modernization as a theory of social change, *Society & Natural Resources*, 5 (4): 323-344
- Mol, Arthur P.J. and David A. Sonnenfeld (eds.), *Ecological Modernisation Around the World: Perspectives and Critical Debates*. Essex: Frank Cass & Co.
- Zhang Lei, A.P.J. Mol and D. Sonnenfeld (2007), The Interpretation of Ecological Modernization in China, *Environmental Politics*, Vol. 16, No. 4, pp. 659-668
- Mol, Arthur P.J., David A. Sonnenfeld and Gert Spaargaren (2009), *The Ecological Modernization Reader*. London: Routledge

Sociology of Networks and Flows constitutes the other part of ENPs theoretical core and is essentially based on the understanding that the structure and governance of (material) environmental flows is fundamentally changing in the context of globalization. The networks characteristic for global modernity constitute a new way of organizing time and space in social practices next to the more

familiar place-based organization of social life. The different dynamics between the global networks and flows and locally structured social practices is addressing environmental governance in previously unknown ways.

Studies in particular empirical fields apply this theoretical core in combination with one or more of the following complementary theoretical perspectives:

Major Sources/Key Publications on Networks and Flows

- Spaargaren, Gert, Arthur P.J. Mol, and Frederick H. Buttel (eds.) (2006), *Governing Environmental Flows: Global Challenges to Social Theory*. Cambridge Mass.: MIT
- Mol, Arthur P.J. and Gert Spaargaren (2005), From Additions and Withdrawals to Environmental Flows: Reframing Debates in the Environmental Social Sciences. *Organization Environment*, 18, pp. 91-107
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Political modernization and policy arrangements: the (environmental) political domain of society is undergoing a comprehensive process of change. Top-down, centralized and hierarchical styles of environmental governance are being replaced by decentralized, flexible and consensual ones. In combination with the inclusion of different non-state actors in tasks that were conventionally considered governmental and the shift towards sub- and supranational levels of governance, innovative policy arrangements are emerging. Political modernization theory studies the actors and their coalitions, the division of power, the rules of the game, and the discourses and programs in these innovative policy arrangements. This approach combines analyzing these changes in the political arena with an understanding of the more comprehensive developments in the wider economic, social and cultural arenas.

Triad Network model: In studying socio-ecological transformations in industries (but also in other practices) the ENP groups has developed a triad network model, consisting of three interdependent networks: a policy network, and economic network and a societal network. Each of these networks constitutes a combination of a specific analytical perspective, distinctive institutional arrangements and a restricted number of interacting (collective) actors, which are considered to be most important regarding that perspective. Within policy networks, interactions between and institutions involving state organizations and industry are emphasized from primarily a political-administrative perspective. In the same way, economic networks basically focus on economic interactions via economic rules and resources between economic agents in and around an industrial sector. And societal networks aim at identifying relations between an economic sector and civil society organizations associated with the life world, both directly and indirectly via state agencies. It should be remembered that these three networks are only distinguished in order to conceptualize different mechanisms of and perspectives on environment-induced institutionalization, transformation and reproduction. In reality, the actors and institutional arrangements found in the three different networks closely interact.

Theory of social practices: social scientists study the social construction and societal embedding of environmental goals and principles and the different roles that key actors play in bringing about environmental change. By focusing on social practices they offer insights in the situated, contextual nature of individual behaviour, while at the same time acknowledging human agency. Particularly transitions towards sustainable consumption can be studied by analysing actual, practical, routinised behaviours connected to norms and values and to power relations, interdependencies and structural constraints embedded in social practices.

Modernized Mixtures Model: sustainable development of urban environmental infrastructure provision in developing countries in the 21st century should be the introduction to a mix of scales, strategies, technologies, payment systems and decision-making structures, that better fit the physical and human systems for which they are designed. When working with such organized eclecticism, or modernised mixtures, new configurations become feasible that represent the low cost, accessible and robust performance of decentralised systems with the economies of scales and high urban density/capacity

characteristics of centralised systems. Different modernised mixtures, adapted to the specific local social and technical conditions result from integrating natural and social science knowledge with respect to all relevant dimensions.

Arcadian view on nature: the point of departure is the acknowledgement of a diversity among people and on the values they attach to nature. Within this diversity, two movements can be traced. The first within a scientific-technological tradition, viewing nature as an instrumental resource, and the second as an arcadian tradition, valuing nature for emotional, moral, aesthetic and scientific reasons. Studying these approaches will contribute to improved nature conservation policy that takes seriously the different nature conceptualisations and practices in the life-worlds of people involved.

Informational governance: information and its management constitutes a crucial category in understanding processes of (failing) environmental reform in the twenty-first century. In the context of global modernity, the relation between knowledge/information and the environment becomes increasingly framed in terms of information flows as a constructing force of social processes. The modern communication tools of ICT facilitate the emergence of global information flows and thereby changes the role of knowledge/information in social theory. The way information flows and informational processes reconfigure, restructure and govern social processes and dynamics of contemporary environmental reform forms the core of this perspective.

Risk society theory: continuing scientific and technological developments in contemporary societies may result in new risks, thereby transforming what used to be considered side-effects of progress into challenges confronting the fundamental basis of society itself. These modern risks are inescapable, but the central institutions in contemporary Western societies (science, technology and the welfare state) seem increasingly incapable of dealing with them in a re-assuring manner because they are themselves responsible for creating them in the first place. People are forced to evaluate and modify their daily behaviour in the light of a continuous flow of information stemming from different (and often disagreeing) scientific experts, as well as from politicians, media and NGOs. Risk society theory reviews the way people handle risks, trust, scientific expertise and political responsibilities from the perspective of reflexive modernity.

Political ecology: based on the understanding that unequal power relations between different (parts of) societies affect the natural environment. The approach combines insights from political economy with its insistence on the need to link the distribution of power with productive activity and ecological analysis, with its broader vision of bio-environmental relationships. The perspective facilitates contributions from different sciences: ecology, social sciences and political economy. Particularly applied in studying land degradation and the management of biodiversity.

Transition theory: increasing sustainability may occur through incremental innovation and system optimisation, but also via organised transformations at the system level. Most modern technologies are embedded in larger network-bound systems combining them with social actors managing, using and regulating these systems. Studying the evolution of these systems should move away from single technological artefacts towards the whole complex socio-technical system. These large technical systems are characterised by inertia through path dependency or lock-in effects resulting from infrastructures and routines. Technological change is always the result of interactions within a network of social actors resulting in evolutions at different levels. Changing complex systems implies a transition, i.e. a multifaceted process of co-evolution involving different social actors, technological innovations and organisational settings. Transition theory draws attention to the multi-layered context of socio-technical systems which are stabilised by technological *regimes* that coordinate the activities of social actors and encompassed by the macro socio-technical *landscape* that frame their context. The presence of dynamic interaction between the multiple levels offers several options for transitions towards sustainability. At the micro-level *niches* may allow deviation from the rules in existing regimes and offer opportunities for technological and market innovations. Transitions are also possible through organised regime change by government intervention or private companies.

1.4 Social Methodological Underpinning of the ENP research program

The ENP-research program has some special characteristics when it comes to the methodologies used. Three features deserve special mentioning in this respect. First, there is special attention given to multi- and interdisciplinary research, combining social science approaches with natural science approaches to environmental change. Especially in the context of major research programs like PROVIDE, RESCOPAR or REFINE, social and technical PhD-projects are combined under the same umbrella. Second, the combined application of quantitative and qualitative research methods is preferred over an exclusive focus on either one of them. Third, the ENP-research program has a truly global reach both in its content and its geographical form. This implies that innovative solutions have to be found in the area of transnational, comparative research methodologies, resulting in new questions to be answered. The intricate (also institutional) linkages between the ENP-group and the Research Methodology Group make it possible to realize high quality supervision and guidance of researchers with respect to the methodological component of the research program.

1.5 Environmental Policy Group, key publications of staff members 2003-2009

[For a full list of ENP-publications, go to www.enp.wur.nl/UK/Publications]

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