Title: New Strategies for Global Governance: Sustainable Energy-Related Global Policy Networks

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Abstract: Energy spurs social and economic development and has multiple effects on the ecological and social environment of societies. Energy access for socially equitable development, energy security for sustainable economic growth, and the mitigation of climate change all represent issues of long-term developments, whose effects are not fully reflected in considerations of actors maximizing short-term profits in energy markets. Consequently, this paper will distinguish six forms of market failures in energy markets impeding the sustainability of social, environmental and economic development.
International governance mechanisms are supposed to overcome those long-term problems. At the same time governance mechanisms must allow to consider short-term interests of various actors in order to incentivize and enable these actors to comply. Strategies for long-term policies, therefore, have to build in flexibility in governance mechanisms and include actors from the private sector and civil society as well. The Johannesburg World Summit 2002 produced a number of partnerships between state and non-state actors committed to sustainable development.
Based on research on five sustainable energy-related global policy networks and conducted expert interviews, this paper will analyze the effectiveness of policy networks and aim to identify political, organizational, and economic instruments of effective global environmental governance. Hence, the paper will draft a strategy how to reconcile long-term and short-term interests by creating integrative business opportunities considering social, environmental, and economic interests. This strategy will have to foster self-organizing dynamics among the network partners and deliberately avoid centralized coordination. Nevertheless, leadership is indispensable. Additionally, the paper will sketch institutionalized instruments to harness knowledge resources and good contacts contained in networks to support systematized reaping benefits of potentials for cooperation among network partners.
The resulting network governance strategy is supposed to provide actors from various groups with a scheme of action on how to contribute to global environmental governance.

Part I: Laying Out the Argument

Relevance

As a matter of fact, energy cannot be substituted and will continue to be necessary for all physical activities of all sectors of social and economic development. The hunger for energy of the biggest economies in transition has driven the oil price from one peak to another, the price of gas followed. The dangers and future costs of nuclear energy are uncertain and hardly to calculate, but will certainly impose burdens on future generations, and represent a high risk technology in times of international terrorism. After all, these sources of energy will decrease, the costs of their exploitation as well as of their external effects on the global climate, for instance, will go up. Today's energy economy is therefore "compromising the ability of future generations to meet their own needs", (Brundtland-Report 1987) thereby violating the definition of sustainable development as defined by the World Commission on Environment and Development. Thus, energy policies, traditionally a national issue, have entered the agenda of international policies, and energy policies must consider completely new questions. However, the negotiation process on international conferences to hammer out an international regime on sustainable development came to a deadlock at the end of the millennium. States failed to agree on effective treaties on sustainable development as conventional outcome of intergovernmental negotiations between governments; while problems of global environmental change became more and more pressing, a needed leap forward was overdue.

In order to change the path of global development, the world needs leadership. However, without support in international cooperation and strategic alliances, leaders might be helpless. That situation calls for a new collaborative governance model of global politics, and particularly climate politics. One that is neither about setting incentive structures rightly and let the market rule, nor about creating or empowering certain agencies to command, but it is about both: the process in which agencies and structures, organizations and markets combine in what is called **networks** – or more specifically partnerships – and develop global environmental governance: "Partnerships basically serve to connect the dynamism that we see at the local level with the commitments that Governments need to make. We need both. Not one or the other – both." (WSSD 2002) Indeed, at the World Summit on Sustainable Development (WSSD) so-called Type II Partnerships of state and non-state actors were recognized as official conference outcomes. Apart from water, health, agriculture and biodiversity, energy was one major issue those type II partnerships focus on and will be in the center of research interest of this paper.

As international governance based on networks cannot substitute for conventional intergovernmental negotiation and contract based governance, both must play complementary roles. The more flexible forms of international collective action of partnerships or – in a broader sense – of global policy networks can become the supplement to fixed international regimes. However, to come to efficient solutions, this global governance must not crowd out self-organizing dynamics producing spontaneous order. The new governance model roots in **global policy networks** and their governance through *self-organizing dynamics* and *strategic management* interventions. Thereby, these networks promise to organize *knowledge* and *social capital* as managerial resources for action for sustainable development more effectively and efficiently.

The question is if global policy networks might be able to keep the promise of organizing effective global governance and global policies, and if yes how they achieve that. Therefore a *microeconomic, common but decentralized network governance strategy*, to be followed by autonomous network partners, on how to execute certain governance functions to deal with *macroeconomic failures* to produce sustainable outcomes is supposed to reflect the final outcome.

Research Interest

The ambition of this paper is to systematically analyze which problems in energy markets global policy networks must address, how they do that, and which capacities and limits global policy networks have. Energy access for socially equitable development, energy security for sustainable economic growth, and the mitigation of climate change all represent issues of long-term developments, whose effects are not fully reflected in considerations of actors maximizing short-term profits in energy markets. Consequently, this paper will distinguish six forms of market failures in energy markets impeding the long-term sustainability of social, environmental and economic development.

In conclusion, research shows that global policy networks can be an effective leverage depending on an effective network governance strategy and on the development of solutions by network partners and in the surrounding field of sustainable development. Beyond this finding, the analysis will produce conclusions on (i) the effectiveness of the governance functions of five sustainable energy related networks, (ii) the efficiency of the activities of these given networks, and (iii) the success factors for cooperation among the partners in these networks. Thereby, effective mechanisms of governance *in* networks will be identified which define how to organize effective mechanisms of governance *through* networks on global issues. Combined these findings feed into a network governance strategy.

The Subject of Analysis: Defining Networks

Networks and partnerships are not always clearly distinguished by definition, and in reality type II partnerships combine characteristics from according to definition differentiated organizational forms. (Suding, Lempp 2007: 5/6) Kenis and Schneider provided an initial definition of policy networks as "*decentralized concept of social organization and governance*", (Kenis, Schneider 1991: 26. Italics in original) "characterized by the predominance of informal, decentralized and horizontal relations", as Marin and Mayntz explain (Marin, Mayntz 1991: 15)

Networks are often understood as partnerships because networks manifest often only as partnerships and through partnership action. Projects represent concrete strategic action implemented in partnerships which emerge from networks. The networks as such can hardly act. Networks and partnerships differ in their governance. Networks are themselves too complex and harness resources, like knowledge and good contacts, too complex to be managed in a top-down manner. Therefore, networks rather instigate certain action by fostering self-organizing processes, whereas partnerships base on clear-cut contracts and well-defined management systems. Nevertheless, even those partnership projects benefit from self-organizing dynamics in networks and cannot, in fact, function without.

Annan gave a definition of partnerships and their relation to networks in his report on partnerships for sustainable development: "Partnerships for sustainable development are collaborative initiatives focused on finding innovative solutions to sustainable development challenges. By pooling their knowledge, skills and resources, these partnerships are working to develop knowledge networks to contribute to an environment of informed decision-making." (Annan 2006: 1) This definition points out that partnerships are not like new organizations, but that partners keep their resources and autonomy, pooling their knowledge about how to access which resources and skills in networks and share them in concrete partnership action. Therefore actors from all sectors can join networks without running the risk of impairing future opportunities for action, investments etc. Indeed, many definitions of networks extend on the exchange and sharing of *resources*. (compare Nölke 2000: 336; or Klijn 1997: 30)

Method of Analysis

The empirical research, this paper bases on, explored the cases of five sustainable energy related partnerships as the subject of analysis. Approximately 40 energy-related type II partnerships of different scope, regional focus, technology focus, and participating sectors were launched as outcome of the WSSD in 2002. Among those 40 partnerships three features separate the GVEP (Global Village Energy Partnership), EUEI (EU Energy Initiative for poverty eradication and sustainable development), GNESD (Global Network on Energy for Sustainable Development), and REEEP (Renewable Energy and Energy Efficiency Partnership) from all others. These networks are the only ones which aim to apply their activities *globally*, have set *technology-neutral* goals to increase access to sustainable energy for the poor, not regarding the particular purpose for energy use, and whose partners come from *all sectors* and all world regions. In 2004 another global policy network and type II partnership in the field of sustainable energy was founded at the renewables2004 – International Conference on Renewable Energies, Bonn, and finally launched one year after. This Renewable Energy Network for the 21st century (REN21) will be taken into account additionally as it meets all the criteria of the selected type IIs.

The five type II partnerships differ in their respective foci and which parts of societies in sustainable development they address. Some of their activities overlap, but they complement one another to engage in all compartments of societal development by and large quite perfectly. GVEP focuses on social development and immediate poverty reduction through access to sustainable modern energy for communities particularly in rural areas. All partnerships have this focus on poverty reduction but REEEP promotes market development, EUEI fosters dialogue on policies and builds on activities of governments and other already existing actors from the field of sustainable development to attain immediate impacts, and GNESD comprises actors from the academia to cooperate with the other partnerships, and consults and addresses energy policy reforms. Due to the special history of REN21, being the outcome of an official Political Declaration of an international conference of the international community of nations, it differs from the other global policy networks, and might turn out to be less active at the operational level and rather complementing the activities on sustainable energy of the other four networks.

The research based partly on documents and project reports of the different networks and partly on more than 35 semi-structured expert interviews with staff and experts from the network secretariats, network members, and external experts.

In principle, the problem of rating the effectiveness of network governance comes from two angles: (i) due to countless intervening factors and the young age of the type IIs, it is difficult to ascribe any impact clearly to their activities, and (ii) as type IIs emerged in a situation when no international sustainable development regime could be established, there is nothing the effectiveness of network governance can be compared to.

Both problems are addressed by harnessing expert knowledge accessed through qualitative, open, and semi-structured interviews. Those experts provide knowledge and experiences on if and how the networks in question contribute to effective global environmental governance and energy policies for sustainable development. And they will sort of generate from their expertise a counterfactual to compare the actual network governance and the effects thereof to.

The interviewees were selected as representatives from three spheres of the sustainable energy and development community: The inner circle comprises interviewees from the secretariats as the core of the networks of the study. The wider circle contains network partners, who are partners of at least two of the explored networks. In the outer circle are experts from the field of sustainable development, or sustainable energy, who are experienced with partnerships and networks in global environmental governance. The selection of interviewees should represent the public sector, the private sector, the civil society, academia, and international

organizations in approximately the same variety and number of considered organizations, but the selection is by no means representative in terms of quantitative studies. Hence, conclusions on effectiveness of network governance will be based on anecdotal evidence drawn from the qualitative interviews.

The evaluation of **effectiveness** of network governance bases on the following: (i) progress towards a priori set objectives, (ii) the assessment of network effectiveness by interviewees, and (iii) a comparison of what network partners from different sectors consider commonly a success factor anyway, for, only if partners can consider and anticipate one another's action appropriately, successful collective action might emerge.

Starting from my basic assumption regarding **efficiency** of network governance that management interventions must not crowd out self-organizing dynamics to keep the system working smoothly and efficiently, the analysis examined constitutive features and mechanisms of networks and the strategy how to execute network functions. If the overall network governance in general and the effective execution of network functions in specific applies to the characteristics of self-organizing dynamics, network governance is likely to be efficient. The analysis of collected information on the explored networks tested if self-organizing processes and a spontaneous order emerge, if the potential to organize strategic action is distributed over the whole system or if a central hub has an overruling leadership role, and if the strategies of the individual actors connect their individual activities so that these activities complement one another in overcoming market failures.

The analysis of effectiveness of the explored networks is supposed to explain which mechanisms contribute how to the overall effectiveness. This paper will present the findings of the above described empirical research and result in the draft of strategic principles for governance in and through networks.

Part II: Needs and Incentives in Sustainable Development

Background: Global Energy and Climate Governance

Nicholas Stern rated climate change the "greatest and widest-ranging market failure ever seen". (Stern 2006: 1) Hence, global climate governance must address market failures to produce sustainable market outcomes. Market failures signify a situation where self-organizing dynamics do not produce the outcomes, which are desirable from a societal point of view. Governmental regulation is supposed to overcome market failures and set up agencies to regulate the market, set right incentives, and design framework conditions for an effective and efficient sustainable development. These governmental interventions, however, fail sometimes, too, to produce better results. Government failures, as mirror image of market failures, are differentiated by Jänicke (1991: 1053) into political government failure, i.e. the lack of capacity to intervene, functional government failure, i.e. the ineffectiveness of interventions respectively the decision not to intervene, and economic government failure, i.e. the inefficient ratio of price and quality of the produced public good.

Sustainability must be understood in a threefold sense of the term. Every sense again corresponds with two sorts of possible *market failures*, respectively one government failure:

(i) *Social sustainability* means that all societal groups have the opportunity to meet their needs and no group aims to change practices of allocation, or to exclude certain actors and interests, or even to dissolve the own or other societal groupings. In economies of scale as, for instance, in grid-industries *monopolists* gain market power to raise prices above an socially efficient level, thereby excluding certain actors from access to certain goods, while investment costs for potential competitors are prohibitive. Moreover in developing countries monopolists are often privileged by legislation for political ends, thus prohibiting competitors to enter the market. The overall welfare of the economy and the consumers' benefit is impaired by highly monopolized energy markets, which often go together with corruption and patronage. Another form of social exclusion results from *misallocated resources*, allowing certain groups to push through their vested interests while other actors are hardly able to meet their basic needs. Questions of social equity, redistribution, and safety nets touch on social sustainability, and in the context of energy markets, the provision of the poor with energy services for vitally necessary appliances to purify water, for cooking, heating, cooling vaccines and for lighting to prolong hours of labour and education after sunset.

Jänicke describes the government failure to intervene and regulate in such socially unsustainable markets as political weakness or inability to organize the development of issues which are considered problematic and unacceptable. (Jänicke 1991: 1053)

Distributed and decentralized energy systems of small independent power producers, diversified in their dependence on certain energy commodities and their suppliers, avoid natural monopolies of grid owners and allow competition with big companies enjoying an advantage of economies of scale. Thereby, energy security can increase, the energy system can become more efficient because electricity is generated closer to the place of consumption, which reduces costs and losses of distribution. That is particularly true in developing countries where there are no – or compared to industrialized countries less – sunk costs of already established energy infrastructure like those of electricity grids, and decentralized and distributed energy systems can be more competitive despite their high upfront investment costs.

(ii) *Environmental sustainability* refers to practices that allow eco-systems to persist their natural processes or at least to maintain the assets of existing eco-systems. Energy systems must not exploit certain natural resources or emit substances that prevent stable processes in the natural environment of human societies to continue in the way they did before human interference. For, such changes in complex systems like the natural environment might cause unpredictable and detrimental effects and thereby incur high risks. If the exploitation of energy commodities and industrial interferences with the living environment, or the

anthropogenic changes in nature to convert energy like in large hydro power facilities, or through the emissions of carbon dioxide that cause the climate to change, destroy living spaces, the interference of man's energy systems with his natural environment is not sustainable.

The challenge of environmental sustainability is that all detrimental effects on the environment have only indirectly detrimental effects on the satisfaction of human needs: economic practices might deteriorate the environment, which compromises certain actors' ability to meet their needs, however, their interests are not touched immediately by the respective economic practices but only through environment at a far away place and/ or far away time. Additionally, sustainable energy technologies, which could solve the problems of unsustainable industrial interferences with the natural environment, are highly diverse and depend on local conditions. Hardly any actor can have perfect information on technology options, potential partners or investment opportunities, "(…) size of local markets, the presence of other producers, and the availability of inputs, both domestic and imported. Consumers may be unsure about the quality and availability of products and their substitutes." (Todaro 2000: 644) Hence, the lack of environmental sustainability may be due to the simple fact that causal connections are not understood properly and to a *lack of information*.

In developing countries the actors necessary for certain development policies are simply missing. Their endowments and capacities are not adequate, they are not sufficiently educated in sustainable energy technologies and their application, they have neither the knowledge nor the trusted contacts to knowledgeable and capable actors to bridge that gap. In the long-term capacities lack, in the short-term partners for immediate action are missing. The switch to a sustainable energy system lacks knowledge and local human, technological, economic, and institutional capacities to adequately address global environmental issues. Due to this lack of capacities among local actors and trusted partners *transaction costs are prohibitive*.

Imperfect information and prohibitive transaction costs lead to unsustainable markets, products, practices, and technologies and thereby to solutions which are inefficient from a societal viewpoint. If governmental interventions are not successful in curing these inefficiencies to provide the needed knowledge and capacities for sustainable development, Jänicke speaks of economic government failure. (Jänicke 1991: 1053)

The development of markets for sustainable, i.e. efficient and renewable energy technologies as well as carbon capture storage technologies will minimize industrial interferences with natural eco-systems and thus minimize risks of unsustainable economic practices and the destruction of livelihoods – even without absolute consensus on global environmental cause-effect-chains. Additionally, the development of local capacities, necessary for the development of local markets, will spur economic and social development and contribute to the solution of global environmental problems.

(iii) *Economic sustainability* means that practices and the related costs are financed by the actors, who benefit from these practices, and allow to proceed with these practices even in the long-term. Energy systems are economically sustainable if their prices cover all costs, can be financed by current energy consumers, and secure the energy provision even in thirty years and more. Energy systems, which rely on energy sources that produce costs through climate change or through radioactive wastes that must be looked after to avoid leakages and that must be protected from terrorist attacks or abuses even by future generations, are not sustainable by definition. Those costs are negative *external effects*, while positive external effects like a stable climate can be enjoyed by free riders not contributing to the financing of necessary economic changes and changes in energy systems.

Besides of external effects, *long-term effects* are not included in market prices either, and, therefore, cause underinvestment in technologies, products, or industrial practices, desirable from a societal point of view, or overinvestment in what is detrimental to the society. For, certain investments are only profitable in the long-term and thus beyond the time horizon of

private actors. This applies to investments in long-term changes as, for example, the switch of a country's energy system to sustainable energies. Such investments imply high economic costs and are perceived as relatively high risks which deter private investors. On the other hand, energy systems can cause negative long-term effects. Energy systems are not sustainable if they rely on limited energy commodities which will be fully exploited at some point in time and strip future generations from the use of those resources. If energy commodities are imports from foreign world regions where political upheaval denies a secure provision, this insecurity raises the price of energy and determines costs for the heirs of such import-dependent energy systems.
External and long-term effects and the corresponding under- and over-investments could be subject of international regimes and national regulation. However, so far governments failed to effectively intervene or decided intentionally not to govern this issue which represents a case of functional government failure in the terms of Jänicke. (1991: 1053)
Energy security, i.e. the affordable and reliable provision of energy in the future, is a central element of economic sustainability because of the crucial role of energy for every economy, which is why energy commodities are often subject to power politics. Long-term effects of today's investments in energy infrastructure can impair economic sustainability. Therefore energy systems should be diversified in their dependence on certain energy commodities and their suppliers.

Concluding, sustainable energy market development requires the change of energy systems to sustainable energy. The term "'(s)ustainable energy' refers to the combination of renewable energy and energy efficiency, although they are not the only energy options through which sustainable development can be achieved", as the World Bank defined it. (World Bank 2004: 3) This definition will be used throughout the paper.

Short-term vs Long-term Benefits of Sustainable Energy for Development

The rationale for voluntary, so called 'early' action of autonomous actors may originate from various long-term as well as short-term benefits for themselves and the society at large. External costs have long-term impacts on social development and will hurt mainly the poor who cannot afford to adapt to a deteriorating environment.

In the short-term, climate change mitigation policies, promoting sustainable energy systems, benefit the social and economic development, too. Since there is no substitute to energy, the poor must pay any price, in fact "the amount they pay for energy tends to represent a much larger share of their cash income (…) than it does for the better-off." (Worldbank Energy and Mining Sector Board 2002: 9) Modern energy helps to reduce poverty through income generating opportunities, lighting, heating and cooling for health and education purposes, by enabling work after sunset, pumping and treating water, refrigerating vaccines, and reducing indoor and urban air pollution. Thereby, time for collecting fuel wood or carrying water is freed for productive and educational purposes, the situation of women and children, who suffer most from indoor air pollution and respiratory diseases caused by smoke, improves. (Worldbank Energy and Mining Sector Board 2002: 9-13) The environment as well as livelihoods is protected from deterioration and erosion which increase population pressure, environmental stress, and transboundary migration which can escalate in social, ethnic, religious as well as military conflicts over scarce resources like water, fertile soil, or energy commodities. (Brauch 2002: 25/26)

Renewable and efficient energy technologies will create local and regional value chains and thereby propel economic development in the short-term. For those sources of energy are locally based, they depend on manufacturing industries and provide energy for consumers who are distributed over wide areas, while larger power producers generate most profits when

serving urban centers or industry clusters, i.e. large consumers or clusters of them. Since the amount of energy provided by renewable sources, like wind or solar radiation, differ temporarily and locally, an intelligent and efficient management of grids, different energy sources and energy consuming facilities, and adequate energy service companies are needed. However, people do not need energy in itself but energy services, therefore development strategies of all sectors of the economy must be connected to strategies for the provision of modern energy. (DFID 2002: 5/6)

Table 1: Benefits of sustainable energy, addressing obstacles of development

	Social development	Economic development
Long-term	Avoiding future costs of climate change	Increasing competition on monopolized energy markets
Short-term	Avoiding environmental effects on health, gender issues and conflicts; freeing time and creating opportunities for education and income generating activities	Instigating local and regional value chains

Those are the reasons why the access to affordable and sustainable modern energy is pivotal for the social and economic development of societies on a global scale. However, how can we make sure that powerful and wealthy actors will obey the rationale and invest sufficiently and timely in the switch of energy systems to a global sustainable energy economy and the provision of a global environment beneficial to social and economic development? More than ever before a strategy is needed, how stakeholders from public, private and civil sectors may contribute individually to sustainable development and produce synergies in a self-organizing manner, how they may benefit from and cooperate in partnership activities without giving up any of their autonomy, and how such activities may be organized most effectively. Developing countries' economies must still be able to grow while industrialized countries are not able to mitigate climate change and finance for global development as well as social security in their own societies all on their own. Thus, there widens a gap of needed resources within and between the North and the South. Only cooperative strategies of actors from all sectors – public, private, and the civil society - can deal with that complex situation. Global network governance through global policy networks might bridge the gap.

Private actors' rationale to cooperate for sustainable development

A private actor's foremost motivation to commit to sustainable development may aim at a good reputation, (Ruggie 2002: 35) which can translate into monetary advantages in different ways. A company's sustainable development label might help it to enjoy a competitive advantage in a *second round of licensing*, as, for instance, in the case of oil companies which compete for licenses from governments to drill an oil well. These governments might rationally rank applicants for drilling licenses according to their reputation for considering social and environmental concerns, as an interviewee from a multinational oil company reported. A sustainable development label may also be helpful for companies in the competition for access to financing, technology, and opportunities to grow.

Apart from credibility, a good *reputation* and different sorts of green-, blue-, or red-washing, companies have several more reasons to invest in sustainable development. To a certain degree, such action might be due to *bounded rationality*. Companies simply follow market leaders and first movers in order to avoid to be left behind, when the market moves on. This

follower's logic of action works, too, if companies want to avoid the failures of competitors to address demands for sustainable development, as Ruggie gives example from the case of BP's commitment in Angola following Shell struggling in Nigeria. (Ruggie 2002: 35) However, there are other good reasons why fully rational actors might take care of sustainable development.

Public pressure by NGOs might force companies to invest in sustainable development to safeguard their profits, for in markets, where consumers perceive products through marketing as increasingly homogenous and are not able to differentiate the products' quality, a positive reputation may be the crucial difference to tip the *consumer's buying decision* in favour of one supplier or the other. Thus, corporate social responsibility could be the distinctive feature.

The *motivation of employees* may be enhanced by a sustainable image of the company and opportunities to participate in activities for sustainable development. Ruggie describes as the reasons for companies to partner with the UN that companies "(…) cannot sufficiently motivate the very best people with monetary rewards alone." (Ruggie 2002: 35)

Investments in activities for sustainable development may feed into *strategies of company development*. To innovate and develop creative solutions for societal and environmental challenges might be opportunities to access new markets and develop the whole company strategically and sustainably. (Ruggie 2002: 35; compare Hoffman 2006) The telecommunication company Ericsson, for instance, started to collaborate with UNDP's Growing Sustainable Business initiative (UNDP-GSB), when Ericsson realized that they could only grow in new markets. For, the demand in developed country markets was completely met with mobile phones. Hence, they approached UNDP-GSB to create new markets for ICT in developing countries and, thereby, propel pro-poor growth. (Gandhi 2005)

The WBCSD's Tomorrow's Leaders group, a group of distinguished executives from leading international companies, elaborated in 2007 "A manifesto for tomorrow's global business", stating: "We believe that the leading global companies of 2020 will be those that provide global goods and services and reach new customers in ways that address the world's major challenges – including poverty, climate change, resource depletion, globalization, and demographic shifts." (WBCSD The Tomorrow's Leaders group 2007: 4) They define a general strategy based on understanding of global issues turning this understanding into business opportunities, integrating these opportunities into core business strategies, and defining business success in long-term measures. (WBCSD The Tomorrow's Leaders group 2007: 4)

Challenges of sustainable development, which "(…) alter existing markets or create new ones (…)", (Hoffman 2006) can always be understood as investment opportunities. Commitment to sustainable development can thus create business opportunities. Hence, the private focus on early action to mitigate climate change shifts from risk management to the core business strategy in order to position themselves for emerging opportunities and to gain competitive advantage. (Hoffman 2006) "If action to address (global) issues is to be substantial and sustainable, it must also be profitable. Our (the Tomorrow's Leaders group's, S.W.) major contribution to society will therefore come through our core business, rather than through our philanthropic programs." (WBCSD The Tomorrow's Leaders group 2007: 4)

Although, in fact, many companies are interested in action for sustainable development predominantly in order to manage risks. They regard *risk management* only as avoiding to run into economic, social, or environmental costs, but not as overcoming market failures at the roots of respective risks. The integration of certain actors and the mediation of conflicting interests are supposed to manage the risk of potential future social upheaval or to avoid that certain partnership relations might turn hostile. Knowledge sharing and partner selection make businesses more sustainable by informing about and managing future potential environmentally costly risks and by developing capacities for own activities. The coordination of activities with other actors and the implementation of certain private policies decrease the

risk of costly and perhaps less efficient public regulation, or simply the disadvantage of implementing sustainable practices and technologies later than competitors, and coordination and implementation manage demands of other actors. Collaboration with local partners is thereby used as possibility to sort of outsource those risks or share them. Nevertheless, in global policy networks partners must consider interests of other actors and address the overcoming of market failures directly to make a sustainable impact.

The fear in the top level management in companies of *future liabilities* for climate change might be another reason to commit to and invest in voluntary and cooperative sustainable development activities, as Brian Storms, CEO Marsh (insurance broker for private companies), observed. (FAZ 2007) Actors from the private sector are willing to cooperate, even if this collaboration impairs their profits, or free-riding might be a cheap opportunity. For, their understanding is that certain public interests *will* be served by policy makers through *regulations* which may cause distortions that would be worse than the lost profits through cooperation and commitment to sustainable development. (Ruggie 2002: 35) For instance, many US companies commit voluntarily to emission reductions in order "(1) (t)o maintain competitiveness in light of regulations undertaken outside the US, and (2) to position themselves to receive credit for 'early adopter' activities and prepare for what they view as inevitable domestic regulations." (REN21 2006: 26)

With regards to public regulation, companies might commit to sustainable development simply to influence public policies. (compare Hoffman 2006) Actually this is the situation of classical prisoners' dilemma, though through communication in networks among governments and private companies, for instance, they can agree on collaboration to the mutual benefit. Or as Shell phrased it: Cooperation with NGOs "(…) is the best way of avoiding future unproductive confrontations." (Shell International 2001: 24) There is the common anticipation among US companies that "(…) it's only a matter of time before we'll face (U.S. federal) regulatory mandates to reduce our emissions." (Inter Press Service 2004) Nine US states have already introduced cap-and-trade schemes, and many companies see an advantage in taking early action to reduce greenhouse gases even without regulations. Thus, the question for US companies will be to free ride and enjoy short-term advantages or invest and avoid lagging behind in the long-term. (Wirth, Lubber 2004) Therefore, caps on emissions can be supportive for businesses due to the fact that they create definite policies and *reduce uncertainties* about what governments might do or what is expected they might be doing. (Dalton 2004)

To safeguard the reputation of the company is particularly important if those companies are organised in relatively autonomous businesses. For, the loss of good reputation affects not only the own business but also other businesses of the company as they share a *common reputation* in public perception. If a company's reputation depends on other actors the company will always use its power to coerce those other actors, like suppliers, to meet certain social and environmental standards.

Commitment in renewable energy and energy efficiency markets can be profitable as well due to the fact that companies can gain leadership positions, so-called *first mover or early-mover advantages*, in future growth markets (WBCSD The Tomorrow's Leaders group 2007: 9) through stimulation of innovation, saving costs through 'eco-efficiency' while at the same time "(…) lessening the drain on natural resources", (Shell International 2001: 13) and staying in touch with the consumers in order to assess potential risks through changing attitudes.

Further, short-term effects and long-term effects are interrelated through society. Companies act in societies and are dependent on their *confidence*. (Shell International 1997) In fact, these *time frames* of action differ: NGOs may have more urgent timetables, governments may orient to electoral cycles, while businesses set their top priority on profitability. Such different time-horizons are considered as an issue difficult to be solved for partnerships. (Bennouna

2005: 6) These different time frames of demands and action cause most of the controversies, as Shell explains, although, in general, all actors agree on the goals of sustainable development. (Shell International 2001: 19-24) However, all rational actors must consider impacts of climate change when projections included in decisions exceed a time horizon of more than 25 years. (Scott 2005) All the different time-horizons must be taken into account by partnerships, while sustainability always has the longest.

Commitment to sustainable development is significant for the whole environment of investments. To consider sustainable development goals may be necessary to increase the confidence of *shareholders and investors*. For they want to know if the company is prepared to avoid upheaval against the company and for the risk of possible future regulations. Due to this very reason reporting on greenhouse gas footprint and commitments to sustainable development of the company and its business were demanded by the shareholders from US oil and gas companies. (CERES 2004) Additionally, "the financial risks from global warming are growing each day. So serious is the issue that the world's second largest re insurer, Swiss Re, is telling its corporate clients to come up with strategies for handling global warming or risk losing their liability coverage." (Wirth, Lubber 2004)

Over the last century investors had to consider the amount of oil a well would produce, the costs of drilling at given technology, the price of oil, which has to stay within a certain corridor whose width depends on the costs of drilling, and finally under certain circumstances the political stability of the region where the investment should be placed, when it came to the commercial viability of an investment, as Bob Ebel explained at a workshop in Berlin in 2005. (Ebel 2005) Today the sustainability of an investment depends at least on two more factors: the environmental sustainability, and in times of a growing knowledge economy the knowledge and skills of the employees. Hence, if investments shall be sustainable companies have to invest in sustainable development and human capital.

"ChevronTexaco in the wake of a resolution requesting further investment in renewables last year, has become a quiet industry leader on climate change." (CERES 2004) Emerging from the action of international leaders self-organizing pressures from competitors for shareholders, who have an interest in securing their shares, force laggards (or followers) to adopt goals and standards for sustainable development of their business even if that impairs profits in the short-term.

However, all those good reasons why private companies might not only consider their profits and obey monetary incentives but also engage in networks and partnerships do not reflect the pattern of action of the mainstream of private companies. In conclusion, it has to be stated that private actors, committed to sustainable development, focus mainly on the sustainable management of their **core businesses.** They do not develop strategies to act in collaborative partnerships which support their own competitive position and will be appropriate for the international character of environmental issues. In reality, it is still a minority – though growing according to recent surveys and experiences – of companies which engage in networks and partnerships. Shell, for instance, announces in its management guideline to cooperate in partnerships with actors from other sectors and with business partners as well in sustainable development projects. (Shell International 2001: 22 and 26)

More or less companies' commitment to sustainable development amounts to reporting on their own behaviour, which is in some cases on demand of the shareholders. They conduct audits regarding the sustainability of their business activities; they demand only very carefully slight policy adjustments; and some of them engage in networks and collaborative partnerships like BP or Shell.

Companies, however, as individual actors do not have the capacities to become active in any number of projects and investments apart from their core business. Even transnational companies, global players, commit themselves to only relatively few projects. However, these global players are the only ones who commit anything at all to activities outside of their core

businesses and engage in multi-sector development networks. This is particularly true for global energy companies. They have the necessary capacities, while SMEs require, for instance, export agencies' support, even if their core business is immediately concerned with sustainable development.

Some private companies pursue no strategic changes in management of their core businesses but focus on sustainability in other possibly value-producing activities such as research, like ExxonMobil does, or human capacity building. One interviewee from an IGO collaborating with private companies reported from the difficulties in cooperation with private companies due to the fact that all strategic decisions are top-level management decisions. Top-level managers are, however, difficult to contact. Therefore strategic partnerships always address the core businesses of partner companies and aim to develop new sustainable business models by supporting and informing the operational activities of the middle management and the internal communication of companies.

Concluding, a company's strategy for commitment to sustainable development is mainly focused on its own management and business and not on international partnerships, although those partnerships promise to ease the dilemma between competitiveness and sustainability.

Part III: Findings on Network Governance

Governance In Global Policy Networks

The International Institute for Sustainable Development (IISD) found in its research on networks that three phases can be distinguished in the formation of networks, as Heather Creech explained. (Interview November 16, 2005) The first phase is the start-up when the governance of a network is designed. The second phase often correlates with a lack of funding forcing network partners to start reforming the network governance and network activities. Only in the third phase networks start to realize advantages compared to public regimes or private actors in markets.

In phase 1 research suggested that network governance strategy must harness a process-related approach, the examples of the design of governance structures of the five explored networks show that all networks have built into their governance structure elements to allow for participatory development processes of the network in a somewhat evolutionary way. These participatory processes like GVEP's Partners Assembly in October 2005 in Brasilia are mechanisms to open the network to various committed actors and activities and to search continuously for opportunities to create synergies for sustainable development as REN21 explicitly aims to do. (REN21 2004: 4) All networks tend to establish a strong management although a more decentralized governance structure would seem more appropriate, but they indeed all combine top-down mechanisms with bottom-up ones like REEEP through its regional secretariats.

Processes have a beginning and an end, they are not just there. Processes need leaders to initiate and actors to realize them. GNESD or REN21, for instance, made the experience that without leadership there is nothing ever going to happen. Sometimes this needed initiating leadership is structural like in the case of the British government in REEEP, sometimes it is rather intellectual as within EUEI or by the individual high reputation researchers in GNESD. In the case of REN21 the German government assumed an entrepreneurial and structural leadership and hosted an initial meeting as well as financed three reports, which produced some high quality output making the network attractive for partners. However, leadership in networks is always only temporary and will shift from one partner to the other or even from the network hub to more decentralized partners.

Leadership is necessary during this first phase of each network, although in the long-term hierarchical positions will hardly be accepted by the autonomous partners. Hence, **hypothesis 1** on Governance in Networks reads as follows: *Network governance strategy must harness a process-related approach and needs leadership to initiate processes.*

On the second stage first reforms of the original network governance can already occur and adapt the network governance to external requirements of what the network is engaging in. GVEP's launch of an independent international NGO at the center of the network and the initiative to develop a strategy for the effective use of the managerial resources of knowledge and social relations at hand give an example for this move on the second stage. More such moves might follow.

Operational activities of all networks gave evidence that global policy networks harness the semi-public resources of knowledge and social capital contained in the network as resources for action, although the explored networks are still in the process to develop or refine a knowledge- and contacts-related network governance strategy. GVEP has put a focus on the organization of effective knowledge exchange, GNESD provides a global knowledge base and aims at networking with other sectors, EUEI connects its knowledge management with managing relations to partners, REEEP manages contacts and lessons learnt amongst network partners, together with REN21, REEEP has developed REEGLE, an institutionalized tool for the efficient management of knowledge and contacts, and REN21 has set itself the goal to generate and disseminate knowledge and network key actors. All networks harness knowledge and contacts as resources for action in their partnership activities. Hard resources

like power or financial assets for projects are accessed and leveraged with the help of the soft resources knowledge and social capital, i.e. good contacts. Hence, the management of knowledge and social capital has become the core business of the explored networks.
Due to the pivotal role of knowledge and social capital, networks need a strategy how to manage these resources in network governance. However, demands for an efficient management of these resources do not mean to define specific management interventions; only self-organizing dynamics can support the emergence of spontaneous order. Therefore, the institutionalization of continuously up-dated and developing instruments to manage knowledge and contacts in a decentralized way by the individual users need to be installed. The knowledge map and the actors' catalogue contained in REEGLE serve this purpose.
Concluding, these findings are reflected in **hypothesis 2 (a)**: *A network governance strategy should help to organize the semi-public resources of knowledge and social capital in networks efficiently and effectively for collective action;* and **hypothesis 2 (b)**: *The management of knowledge and social capital needs institutionalized instruments of a knowledge map and an actors' catalogue growing and developing in a self-organizing way through the selection and frequent use of the contained links to knowledge holders and partners.*
Finally, in the third phase network governance developed and continues to develop strategies on how the networks plan to act and on their long-term roles in relation to markets and states. On this stage of network development network governance has to give proof of its effectiveness and efficiency compared to other organizational forms of governance.
GVEP set itself a goal to provide 400 million people and 50,000 communities with energy access. (GVEP 2005: 14 and CSD Partnership Database 2006) The effectiveness of GVEP's activities and progress towards this goal is rather vague, however, extended debate on this issue among GVEP partners showed that GVEP seems to produce an effect by creating synergies and enabling partners to achieve in collaboration what they would otherwise not achieve. (GVEP 2005: 2)
REEEP successfully supported more than 100 projects with a total investment of over 7 million euros from REEEP leveraging 47 million euros through co-financing from the projects. (CSD Partnership Database 2007)
GNESD put rather soft goals on their score card. GNESD seems to produce outcomes which are needed for sustainable development and would not exist without GNESD, and fosters supportive conditions of sustainable development activities.
If effectiveness of action depended solely on the amount of financial resources invested, EUEI would probably be the most effective among the big energy-related networks. However, this excessive financial endowment seems to be the result of being relatively unable to mobilize other resources like knowledge and social capital for sustainable development. As a network EUEI or at least parts of it seemed to have failed. The allocation of a huge fund moves EUEI away from the genuine network idea and more towards a financing mechanism of the Commission. Hence, its effectiveness actually depends not any more or not so much on what the other networks depend on. Exactly this *lack* of scarcity in financial resources might be the reason why EUEI did not develop into a network: there was no need to.
REN21 has successfully completed three influential reports and is to follow-up on the International Action Plan commitments of the renewables2004, from which REN21 emerged. If REN21 is considered to account for these commitments, REN21 could achieve to reduce greenhouse gas emissions by approximately 100 million tons CO2 per year by the end of 2005. (Fritsche 2007: 9) The network effect expected from REN21 comes from the knowledge management, REN21 is able to provide, the power and credibility through the mutual access of key decision makers, and the support from REN21 for member organizations to grow and access financial resources via the network.

However, effectiveness of network governance is only comparable to governance through treaty-based international multilateral regimes if networks achieve to up-scale their partnership action. After all, the overall judgement on capacities and limits of global policy networks by interviewed experts was that the capacity of network governance is always limited and depends strongly on the following:

(i) if they can successfully foster the process towards sustainable development. One interviewee with experiences in promoting sustainable initiatives in markets in various countries described the right timing as pivotal for effective action, being "more art than science". Effectiveness of strategic activities depends on addressing the well-informed key people in politics and economics at the right time;

(ii) if leadership can be established among the many and various network partners to initiate effective activities;

(iii) if partners are credible, what one interviewee from an IGO rated as the basic prerequisite for trusted relations and partnership activities, and if the network contains sufficient complementarity and similarity to provide social capital for action;

(iv) if needed resources are accessible and partners are able to manage them effectively, particularly the strategic use of knowledge has a long-term leverage while financing brings about immediate effects;

(v) if a governance strategy is available to organize collective action.

Networks are supposed to work on very slim budgets and be more efficient than traditional forms of international cooperation. In order to compare the efficiency of network governance of the different networks, the ratio of effectiveness of network governance to costs of network governance of each network had to be compared. These data are, however, hardly comparable because all networks differ in the foci of their activities and have different leverages to achieve their different goals. Thus, REEEP, GVEP and EUEI engage in project activities with REEEP having a focus on sustainable development and GVEP and EUEI on pro-poor energy access policies. They all address regulatory frameworks of energy markets and energy policies as REN21 does, but REN21 enjoys more legitimacy as outcome of the declaration of an international conference and has thus stronger leverages. While GNESD is not at all engaged in project implementation activities but provides knowledge for the wider sustainable energy community. Hence, it is difficult to determine which network is most effective in terms of contributions to problem solving in their specific area of activities.

The costs of network governance are the budgets the networks have at their disposal leaving aside the costs of network partners to participate in network activities. These budgets again differ to some degree. EUEI managing the EU Energy Facility have most funds for partnership projects, with REEEP and GVEP following, whereas REN21 and GNESD have smaller budgets because they do not fund project implementation activities. However, according to the basic assumption that management interventions must not crowd out self-organizing dynamics to keep the system working smoothly and efficiently, efficiency of network governance depends on a network's capacity to self-organize.

Systemic organizational theory identified four systemic characteristics for networks being capable to self-organize. (Probst 1987: 76-84) These characteristics were the complexity of systems, their autonomy, their self-reference, and their redundancy of units' capacities to organize and lead the system. The *complexity* of networks depends on the openness to and diversity of partners in a given network and on interrelatedness and quality and intensity of interactions among these partners. The *self-reference* of networks signifies the capacity of the network to access the needed resources and information to determine its direction and purpose. A network achieves to be self-referring if the number and diversity of accessible partners and information in the network is sufficient to support and organize effective partnership action. The *autonomy* of networks depends on the independence of the network from single partners and their resources, particularly from sponsors, and on the autonomy of

the individual partners. The *redundancy* of partners, their capacities, and the relations amongst them characterizes the redundant distribution of knowledge, how to access which resources needed for action, across the network enabling various partners to lead activities without having one center or leader capable to control the whole network.
The degree to which the explored networks meet these four characteristics is decisive for their ability to self-organize and thereby to allow for efficient network governance generating a value added. “These collaborative initiatives are an acknowledgement of the principle that the ‘sum of parts is greater than the whole’ and that by pooling interests and resources, partnerships can accomplish goals that a single organization could not achieve on its own. Within the area of stakeholder engagement, there is a need for both top-down and bottom-up processes, in other words, leadership at all levels. There is a particular need to engage the private sector especially for service delivery and technological know-how, and the poorest of the poor, as they are key end-users.” (Bennouna 2005: 10)
The governance approaches of the five explored networks differ to some degree with respect to how they support the systemic characteristics for network capacities to self-organize. The effectiveness achieved by REN21, REEEP, and GVEP whatsoever in consideration of their tiny budgets, and at the same time the fact that these networks have the best systemic conditions to enable self-organizing dynamics suggest that *self-organizing dynamics*, indeed, contribute to efficiency of network governance.
Therefore, **hypothesis 3** on Governance in Networks can be concluded: *An efficient network governance strategy must foster and harness self-organizing dynamics by executing network functions in a way that creates enabling conditions for collective action of independent network partners to self-organize their individual activities for sustainable development*. Although this hypothesis was not confirmed explicitly by any interviewee, the actual network practices give indication that mechanisms of effective and efficient network governance indeed depend on both self-organizing processes and complementary strategic management interventions.

Governance Through Global Policy Networks
In the second phase the designed network governance becomes operational, the secretariats as network hubs must assume operational leadership and initiate activities. In this phase networks start to execute governance functions through autonomous partners following their individual strategies without central coordination, nevertheless a spontaneous order and a common governance strategy can emerge. This paper refers to the way *how* the individual autonomous partners contribute to the execution of network governance functions as Governance through Networks.
Type II partnerships execute a variety of functions. The report of the Secretary General on partnerships for sustainable development names following implementation mechanisms: capacity-building and technology transfer, information-sharing and knowledge exchange, clearinghouse mechanisms, a great variety of websites, newsletters, publications of case studies, directories, educational and training materials, policy papers, toolkits, databases, communication, providing global expertise, applying relevant information to their local needs, and bringing together key leaders and stakeholders. The report groups these mechanisms into the categories of partnership-building, information-sharing, capacity-building activities, partnership projects implementation, adding in the next paragraph internal governance and coordination mechanisms. (Annan 2006: 14/15) The conducted interviews showed that at least all of the big networks had some approach to every network function, but as the report says most networks carry out activities serving not all of the network functions directly and in a targeted and intentional manner. Every network focuses on certain functions.
Partnership-building represents an integration function of networks by pro-actively integrating partners into the network in order to overcome market barriers, thereby increasing

markets and enhancing business opportunities for all partners. All explored networks targeted certain actors like local partners, actors from certain sectors, boundary spanners, or certain leaders and "innovators", and invited them to join the network and assume important roles. Additionally, all networks apart from GNESD are open for actors willing and committed, although in the case of EUEI, which has to distribute the most financial means, it has to be taken into account that clear-cut boundaries are needed as well if private resources are provided. Hence, **thesis 1** on governance through networks reads as follows: *Networks need to build relations in a targeted manner to trusted multipliers, innovators, boundary-spanners, and local partners, who have access to needed resources, or hold knowledge on local conditions, or increase organizational advantages like flexibility and specialization of the network, while openness and clear-cut boundaries need to be balanced.*

Internal governance mechanisms represent and implicitly include always rules to solve conflicts and mediate interests. The access to capacities of partners in networks works as an incentive to sacrifice certain own short-term advantages as trade-off for greater advantages in collaborative activities in the long-term. With regards to the interest mediation function of networks, it turned out that leadership is considered to be important, but actors are reluctant to assume leadership. For, networks connect autonomous actors, power asymmetries might hurt the independence and thereby the ability and readiness to collaborate. In general, conflicts are avoided, not solved in networks and rather terminate the partnership if controversial issues cannot be deleted. The free flow of information through transparency, communication, and openness is considered best to avoid conflicts. Hence, mutual learning is fostered and fosters cooperation without conflicts. Issue-linkage is, too, considered important to overcome conflicts effectively and identify integrative solutions. Complementary resources and capacities allow identifying project-related common interests so that independent and autonomous actors, who might even be competitors, can cooperate in spite of conflicting interests, which must be acknowledged and understood as such, at a more general level, and responded to at an operational level somehow. On the other hand, clear-cut roles were mentioned by nearly all interviewees as supporting the network governance effectiveness.

Concluding, **thesis 2** wraps-up these findings: *Adverse interests in distributive conflicts can be mediated through establishing leadership, disseminating knowledge, and building trusted relations in order to reach integrative solutions and to recognize and harness opportunities for collaboration by linking intersecting issues, connecting partners, and defining roles.*

Information-sharing refers to the knowledge-sharing function in networks to distribute needed knowledge by targeting and connecting stakeholders and knowledge holders. All explored networks, indeed, have a focus on pro-actively managing and distributing knowledge and also on connecting partners. Moreover, REEEP and REN21 have realized the idea to map available knowledge resources by the launch of the REEGLE instrument, a Google-like search tool for renewable energy and energy efficiency knowledge plus an actors' catalogue to identify knowledge holders and potential partners. However, the empirical research showed that in the context of knowledge sharing other problematic constellations must be considered. In order to avoid an information overload through increased access to knowledge and information, networks and certain partners should serve as gatekeepers. This role can be a very powerful one which is why this actor needs to be neutral and a widely trusted partner. The pro-active distribution of knowledge comes always close to lobbying for vested interests. Hence, transparency and openness must not only foster exchange and sharing of knowledge but also ensure a control of exertion of influence through interest-led provision of knowledge. At the same time, transparency and openness as well as overlapping activities and knowledge capacities of various network partners serve as self-enforcing control of accessible knowledge and foster self-organizing processes of knowledge sharing.

Therefore, **thesis 3** concludes: *Knowledge sharing of network partners should pro-actively distribute needed knowledge by targeting and connecting network partners through the*

installation of neutral and trusted gatekeepers within the network, and control quality, relevance, and reliability of accessible knowledge through openness of and transparency in the network to support effective network governance where markets fail due to a lack of information. Such gatekeepers might take institutionalized forms and be realized as a knowledge map, backing the self-organizing process of building relations to better inform and support partnership activities. As described in hypothesis 2 (b), such knowledge maps should be connected to an actors' catalogue of the respective knowledge holders to foster the building of relations between knowledge holders and knowledge users. An institutionalized frame might thereby form a marketplace of accessible capacities and expertise of actors, where partners might find each other for collaborative activities. The incentive for actors to provide their knowledge is basically that they might market their capacities and find partners to offer their services to for common activities. Thus, an incentive structure could be created to make knowledge seekers to knowledge sharers, as one interviewee framed it and described the problem of networks of not being able to incentivize partners to share their knowledge.

Transparency serves the partner selection function as well of which capacity-building is essential element and consequence and probably a particular strength of partnership action. Networks always provide the forum to identify and connect partners with complementary capacities and build trust to lower transaction costs among these partners, thereby the network serves as a marketplace where partners can offer their capacities for viable activities. In fact, the explored networks purposefully aim to select and connect partners, GVEP does that informally, while REEEP and REN21 have established the REEGLE tool to this end. Partners choose each other usually strongly relying on personal relations less considering strategic issues like who matches needs most or with whom a win-win situation might be created. Nevertheless partner selection is a strategic issue and therefore an issue of senior management level. That's why the effectiveness of governance through networks strongly depends on high-ranking individuals from partner organizations personally committed to the case of the network. Only through these high-ranking individuals and personal relations among them networks are able to effectively select partners and connect them for action for sustainable development.

Concluding **thesis 4** outlines how to avoid prohibitive transaction costs when local capacities lack: *Networks provide transparency and a forum, where potential partners can find one another, and at the same time networking along personal relations among high-ranking individual partners can pro-actively identify and connect partners with complementary capacities for action for sustainable development in the short-term and for capacity development in the long-term.*

Coordination mechanisms are supposed to avoid negative external effects which decrease effectiveness of activities for sustainable development. All networks support free communication among partners and thereby contribute to coordination of the activities of autonomous actors. By understanding and considering external effects, actors can internalize these effects if partnership action offers opportunities for mutually beneficial action. However, free communications mainly base on personal contacts of high-ranking individuals, but not on strategies for communicative action. Thus, intentional matching of messages with recipients, considering their respective rationales for action, and channels of communication bases on individual communicative solutions. The networks which engage in such management of communication among partners, namely GVEP, GNESD and EUEI, give an example for this practice of individual, strongly personal contact based communications.

Hence, although as free as possible communications are supported in all networks and are supposed to generate consensus as well as to inform policy-makers in bottom-up processes, **thesis 5** describes merely supportive conditions for coordination through communication but does not define strategic communicative action: *Network governance may be enhanced by as free as possible communications to enhance effectiveness in communicative action for*

coordination among actors through generating consensus and enabling bottom-up processes to inform policy-makers.

The implementation of partnership projects corresponds with the implementation function of networks and can produce sustainable outcomes if long-term effects are considered. Implementation of partnership activities in collective action increases the accessible capacities and shares the costs, thereby public goods, which are not appropriable by private actors, can be financed in common while their consumption is not rivalrous and benefits all actors like a stable climate, for instance. Hence, long-term effects can be considered by actors in markets and long-term investments can be realized.

Many interviewees agreed that it is still too early to measure the long-term effectiveness of type II partnerships. Nevertheless there are indications for what network governance strategy might enable actors to start effective collective action. Collaboration among network partners can enhance effectiveness by producing synergies and thus sustainable outcomes because networks increase capacities of individual partners, as one interviewee described the advantage of networks. Actors' orientations appear to be very important for collaboration as most cooperative action bases on personal relations. Therefore, **thesis 6** concludes: *If the orientations of partners match and allow them to collaborate, the partners can implement long-term strategic action because they are more capable and ready to share risks and costs of activities producing sustainable outcomes.*

Table 2: Summary of Effective Mechanisms of Network Governance

Phase 1: Design of Governance	
Hypothesis 1:	*Network governance strategy must harness a process-related approach and needs leadership to initiate processes.*
Phase 2: Becoming operational and first reforms	
Hypothesis 2 (a):	*A network governance strategy should help to organize the semi-public resources of knowledge and social capital in networks efficiently and effectively for collective action.*
(b):	*The management of knowledge and social capital needs institutionalized instruments of a knowledge map and an actors' catalogue growing and developing in a self-organizing way through the selection and frequent use of the contained links to knowledge holders and partners.*
Thesis 1:	*Networks need to build relations in a targeted manner to trusted multipliers, innovators, boundary-spanners, and local partners, who have access to needed resources, or hold knowledge on local conditions, or increase organizational advantages like flexibility and specialization of the network, while openness and clear-cut boundaries need to be balanced.*
Thesis 2:	*Adverse interests in distributive conflicts can be mediated through establishing leadership, disseminating knowledge, and building trusted relations in order to reach integrative solutions and to recognize and harness opportunities for collaboration by linking intersecting issues, connecting partners, and defining roles.*
Thesis 3:	*Knowledge sharing of network partners should pro-actively distribute needed knowledge by targeting and connecting network partners through the installation of neutral and trusted gatekeepers within the network, and control quality, relevance, and reliability of accessible knowledge through openness of and transparency in the network to support effective network governance where markets fail due to a lack of information.*
Thesis 4:	*Networks provide transparency and a forum, where potential partners can find one another, and at the same time networking along personal relations among high-ranking individual partners can pro-actively identify and connect partners with complementary capacities for action for sustainable development in the short-term and for capacity development in the long-term.*
Thesis 5:	*Network governance may be enhanced by as free as possible communications to enhance effectiveness in communicative action for coordination among actors through generating consensus and enabling bottom-up processes to inform policy-makers.*
Thesis 6:	*If the orientations of partners match and allow them to collaborate, the partners can implement long-term strategic action because they are more capable and ready to share risks and costs of activities producing sustainable outcomes.*
Phase 3: Long-term Developments	
Hypothesis 3:	*An efficient network governance strategy must foster and harness self-organizing dynamics by executing network functions in a way that creates enabling conditions for collective action of independent network partners to self-organize their individual activities for sustainable development.*

In general, strategy to increase effectiveness of action on long-term issues seems to be self-energizing. Interviewees emphasized the significance for successful implementation of

network activities to produce a value-added, of action on the ground as in the cases of GVEP and REEEP, of a good reputation of the network and high-ranking partners as in the case of GNESD and REN21, and of the credibility and independence of network partners. All these features might increase with the effectiveness of network governance in the long-term, and in turn are all supportive for effectiveness.

Success Factors in Global Network Governance

Partnerships are perceived to be effective if they maximize each partners' capacities mutually by matching "one partner's weaknesses with another partner's strengths" (Bennouna 2005: 7) Therefore, to test the success and effectiveness of global policy networks means to test if strategic actions of partners match. Strategies must consider and anticipate the rationale of other partners. The success factors, named by the interviewees from certain sectors, can be interpreted as what rationale certain actors consider and anticipate when partnering with other actors and what rationale they follow to achieve their objectives. If rationales are considered and anticipated in strategies how to execute functions of governance in and through networks, it is reasonable to believe that network governance should be promoting partnerships successfully and contribute to overcome market failures effectively. Indeed, it appears that the success factors correspond with mechanisms described as the strategic activities to execute network functions.

There could be identified four success factors which interviewees from all sectors explicitly named:

- *Clear-cut roles*: Clear-cut roles in partnerships reduce complexity and make networks and partnerships more manageable. Interviewees from all sectors seem to have a propensity to prefer managed interventions to self-organizing dynamics. On the other hand clear-cut roles require management interventions and in some cases formalized agreements which decrease flexibility and increase the danger of institutional sclerosis. Nevertheless, partners demanding of each other to define and stick to clear-cut roles might more easily collaborate.
- *Communications*: All sectors have an interest in free and open communications. In fact, many use networks predominantly for communication purposes, hoping to reap synergies, thereby, and that all partners might contribute something to the common case of sustainable development. Due to a lack of strategies to manage and control communications, they are, indeed, fairly open and free.
- *Leadership*: Interviewees from all sectors considered leadership to be a necessity as well as success factor. All networks have some sense of leadership, though most interviewees reported that partners tend to be reluctant to engage as leaders since networks are supposed to avoid hierarchical relationships. Hence, certain partners lead informally by their capacities and only in a limited area of operations in order to manage certain activities.
- *Credibility*: Credibility and personal trusted relations are no precondition but an enabling condition for cooperation. However, as credibility is attributed by other actors and reflects the perception of partners, it can hardly be influenced; it is rather a given. Hence, in order to answer the question of how global policy networks can be effective and what strategy might organize effective network governance, credibility might represent a beneficial constellation, but it cannot be an issue of strategic action.

Apart from these success factors which all interviewees highlighted, there are a number of success factors, which correspond with the identified mechanisms of governance in networks, listed by interviewees from several different sectors but not all, in the different phases of network development. This finding might indicate that some success factors are not considered in the rationale of certain actors and hence that this lack of consideration might inhibit collaboration.

While leadership was considered by all interviewees important, a *process approach*, namely an ongoing process of relationship-building and internal dynamics of networks, allowing changes in the network governance strategy, was recommended only by interviewees representing organizations with larger endowments in terms of financial assets and man power. Other actors might simply not have the capacities and resources to continuously address and manage ongoing processes and prefer therefore less time and man power consuming one-off interventions. That asymmetry in abilities to manage processes in the networks can limit effectiveness of collaboration.

The *access to information* and the managed distribution of relevant information was considered by nearly all sectors to be a success factor. However, NGOs and academics might have different expectations of their involvement with networks and hope to receive funding or get access to powerful policy makers. Moreover, NGOs and academic institutes have themselves to provide relevant and usable knowledge and seem to be less interested in receiving new information. Correspondingly, they together with Intergovernmental Organizations (IGOs) consider the access to *multisectoral partners* and the diversity of partners a success factor of networks. It seems that actors from different sectors provide and look for different network resources to access and, hence, differ in their perception of these resources as success factors, each considering only what they aim to access – either knowledge or social capital. The different perceptions and expectations of what resources a network might provide can limit opportunities for collaboration if actors miss to provide what other actors expect. That's why the institutionalized and linked instruments of a knowledge map and an actors' catalogue must incentivize network partners to make their knowledge and good contacts accessible for other partners. Indeed, this significance of knowledge and good contacts for the effectiveness of network governance corresponds with other studies on global policy networks. Benner and Reinicke identified network relations, which are even more important than the related actors, the stability of rather weak ties, and communications, together with learning and knowledge management as the determining factors for network governance effectiveness. (Benner, Reinicke 1999: 30)

Additionally to the management of network resources, there are some success factors which were named by a number of interviewees and which can be **managed** in order to support and foster collaboration among the network partners:

- *Common goals*: As global policy networks and collaborative partnership action are voluntary and undertaken by autonomous actors, whoever joins the network will share common goals with partners. However, in order to increase the effectiveness of networks, they need to pro-actively integrate relevant and as many actors as possible. To this end, goals can be defined in an inclusive way and actors who can commit and contribute to these goals can be integrated pro-actively.
- *Clear objectives*: Inclusive goals, however, must not make these goals vague. One interviewee emphasized that networks need to have plural goals – he even preferred plural goals at the cost of definitiveness, but the majority of interviewees from nearly all sectors recommended to have clear objectives and orientations, at least clear definitions of objectives at the project level. Particularly, immediate action through partnerships calls for clearly defined objectives, being a success factor for effective partnership action of network partners. (compare also Bennouna 2005: 7) However, the dynamic process approach of networks requires more flexible goals and objectives. Goals can and do change due to strategic interactions or opportunities in the communication process. (Kickert, Klijn, Koppenjan 1997: 172) Indeed, the partnership forum's summary acknowledges that flexibility is "(k)ey to effective partnerships". (Bennouna 2005: 9)
- *Good management*: Good management means lean management of and through the network secretariat, performing roles of gatekeepers. This success factor actually

highlights a dilemma of networks as governance instruments. For, networks require on the one hand costly investments in terms of time and man power, on the other hand networks represent an additional commitment which should be as cheap as possible in order not to exclude actors who cannot afford their participation although they have something relevant to contribute. That's why many interviewees explicitly pointed to good and lean management as a success factor or even a prerequisite for networks to be able to organize collective action and to function as effective governance instruments. If networks are not well managed or participation is too costly, partners will simply abstain and not start any collective action, and, hence, the network will become completely insignificant and ineffective.

Apart from the management of available network resources, good and efficient management in networks depends on creating enabling conditions for **self-organizing** dynamics among the network partners to start strategic action. Among the success factors listed by interviewees were repeatedly three creating an environment in networks which is supportive to instigate collaboration among partners:

- *Openness*: Openness allows to integrate both as many actors and, thereby, as much diversity of needed resources or accessible holders thereof as possible which might foster collaborative partnership action. However, a large number and diversity of actors is hardly manageable. Therefore, self-organizing dynamics are needed to create spontaneous order and foster collective action. Only a minority of network partners aims to monopolize the semi-public network resources. Nevertheless, reluctance to share network resources can limit potentials for collaboration among network partners.
- *Transparency*: Transparency allows actors to identify partners for action and find needed resources among the diverse and many actors. It is a factor to enable actors to harness networks. Accordingly, partners with lesser capacities to use the vast contacts and knowledge contained in networks who aim to harness networks for a priori defined purposes value transparency less as a success factor. That's why a network governance strategy must entail mechanisms to pro-actively help identifying appropriate partners, and instigate and support partnership action, while at the same time fostering enabling conditions like transparency for self-organizing dynamics.
- *Synergies*: Particularly those actors with strictly limited budget constraints depend on the emergence of synergies, representing themselves self-organizing processes, in order to produce and benefit from a value-added. Only if such synergies emerge, networks are viable for partners, but if they emerge, they represent a self-amplifying success factor.

As sort of counterpart to good management of network centres, *local ownership* can foster self-organizing dynamics within networks. Interviewees from nearly all sectors highlighted the significance of local ownership for sustainable development in general. Strong and autonomous local actors contribute immediately to the systemic characteristics of networks allowing them to self-organize. However, most interviewees felt some reluctance toward redundancy in action and rather wanted to avoid overlaps at all.

In order to achieve a bigger outreach and higher effectiveness, several interviewees emphasized the role of *reputation* and *high-ranking partners* and the commitment to global policy networks of those partners in public. Basically, networks depend in their effectiveness on these individual partners because networks themselves can hardly have a strong impact for sustainable development on a global scale. They can only support and leverage activities of partners. That's why *up-scaling* was another needed success factor listed at least by those interviewees representing organizations committed to sustainable development as their core business. On the other hand, this *network structure or network idea as such* was called by some interviewees a success factor because only through the instrument of global policy networks certain solutions can be effectively disseminated.

Conclusion: A Network Governance Strategy

The hypotheses describe effective and efficient governance in networks. The supposition is that only if governance in networks is effective and efficient, governance through networks, as asserted in the six theses, can effectively and efficiently help to solve problems. The hypotheses on governance in networks describe how the asserted activities in the six theses on governance through networks must be executed. However, only these activities have an impact on global issues. Hence, without effective governance through networks everything is nothing.

In order to assess if these hypotheses and theses account for effectiveness of network governance the mechanisms from the hypotheses and theses are listed and checked in which of the explored networks these mechanisms apply. If those networks, which apply the mechanisms completely or at least more completely, produce higher effectiveness, the causal link of the identified mechanisms and of effectiveness of network governance can be confirmed.

However, although the explored networks share certain features and work all on the energy for sustainable development issue, the effectiveness of their network governance and related activities is hardly comparable as already explained in the context of testing the efficiency of network governance. Nevertheless, the explored networks can be grouped according to similarities of activities and the effectiveness of these activities, and the mechanisms of network governance applied can be compared.

REN21 has due to its origin as outcome from the official declaration of an international conference and the consequential legitimacy to influence national policies, its capacity to work on strategic issues and instrumentalize partner organizations, and its high-ranking committee members representing national governments, not merely governmental bodies, REN21 has a stronger leverage than the other networks. If, for instance, the activities from the International Action Plan (IAP) from the renewables2004 are subsumed to the measures of the network, REN21 can account for climate mitigation and sustainable development activities which were announced as official commitments of national governments and large organizations at an international conference. No other network can act in that rank of international politics neither can any network achieve quantitative measures in the scale of the IAP. However, all networks might work as leverages for solutions, develop successful business models and policies for sustainable energy, and spread effective governance mechanisms for sustainable development. Again REN21 has the biggest potential to spread such solutions, while other networks might be more successful in developing sustainable solutions because they are closer to the ground. REN21 can be effective by influencing policies of whole countries and organizations through the high-ranking individuals connecting and communicating in REN21.

On the other hand, REN21's influence is, thereby, mainly indirect like GNESD's influence. GNESD and REN21 hardly engage in implementing projects on the ground which can decrease their immediate effectiveness, whereas EUEI, REEEP and GVEP engage in partnership project activities. EUEI administrates by far the biggest budget for project activities, but the effectiveness of REEEP's and GVEP's partnership projects may be higher because all their funded projects must be scalable and can thus have a gradually growing impact.

These groupings of the explored networks in combination with the mechanisms of network governance applied by the different networks allows a rough conclusion on the research question if and how global policy networks can be effective.

Table 3: Mechanisms of Network Governance in Global Policy Networks

Mechanism of network governance	GVEP	REEEP	GNESD	EUEI	REN21
Hypothesis 1 on Governance in Networks					
Process	✓	✓	✓	×	✓
Leadership	(✓)	✓	✓	✓	✓
Hypothesis 2 (a) on Governance in Networks					
Knowledge as network resource	✓	✓	✓	(✓)	✓
Social capital as network resource	✓	✓	(✓)	(✓)	✓
Hypothesis 2 (b) on Governance in Networks					
Instruments for resource mapping	(✓)	✓	×	×	✓
Hypothesis 3 on Governance in Networks					
Self-organizing dynamics *and* strategic management	✓	✓	✓	✓	✓
Thesis 1 on Governance through Networks: Integration					
Integrating multipliers, innovators, boundary-spanners pro-actively	(✓)	✓	✓	×	✓
Balancing openness with clear-cut boundaries	(✓)	✓	×	×	✓
Thesis 2 on Governance through Networks: Interest Mediation					
Leadership (to mediate conflicting interests)	✓	✓	✓	✓	✓
Disseminating knowledge	✓	✓	✓	×	✓
Building trusted relations and connecting partners	✓	✓	×	×	✓
Linking intersecting issues	(✓)	(✓)	×	(✓)	×
Defining roles	✓	✓	✓	(✓)	✓
Thesis 3 on Governance through Networks: Knowledge Sharing					
Distributing knowledge pro-actively	(✓)	✓	✓	×	✓
Connecting partners pro-actively	(✓)	(✓)	×	×	✓
Gatekeepers for knowledge	(✓)	✓	✓	×	(✓)
Openness	✓	(✓)	×	(✓)	✓
Transparency	✓	✓	✓	×	✓
Thesis 4 on Governance through Networks: Partner Selection					
Transparency and spaces for partnering	✓	✓	×	×	✓
Networking along personal relations	✓	✓	✓	(✓)	✓
Pro-active support through high-ranking individuals	×	(✓)	(✓)	(✓)	✓
Matching complementary capacities	(✓)	(✓)	×	(✓)	(✓)
Thesis 5 on Governance through Networks: Coordination					
Free communications	✓	(✓)	(✓)	(✓)	✓
Informing policy makers through bottom-up processes	✓	✓	✓	✓	(✓)
Thesis 6 on Governance through Networks: Implementation					
Sharing risks and costs	✓	✓	×	✓	(✓)

✓: mechanism applied in network
(✓): mechanism applied with limitations in network
×: mechanism not applied in network

Controlling for EUEI's large budget for project activities and focusing on indirect and gradual effects, corresponding to the leveraging effect global policy networks are supposed to have, the identified *mechanisms of network governance*, as phrased in the three hypotheses and six theses, *enable global policy networks to increase the effectiveness of international policies for sustainable development*. Global policy networks serve more than window dressing purposes. If the mechanisms of governance in and through networks are taken into account and if the success factors are considered as management principles for effective governance, short-term interested actors might benefit from relatively cheap business opportunities while at the same time serving long-term interests in sustainable development. If the identified mechanisms of network governance are not considered, more hard resources must compensate for the lack or shortcoming of network governance. Nevertheless, hard resources, legislative rule-setting power and international regimes are still more important for the effectiveness of international policies. Networks can work as a *leveraging instrument, not as the solution itself*. As long as there is no effective international regime, voluntary cooperation can pave the way to an international agreement and spur collective action even when an international agreement could already be reached. Global policy networks might be effective as an enabling condition in the process of an international regime, not as an alternative to a regime.

The effectiveness of global network governance depends mainly on the development of individual solutions for failures to generate sustainable outcomes. Global policy networks can merely have a leveraging effect. Networks help to disseminate these model solutions developed by individual partners, and to connect more partners to effectively implement and, thereby, up-scale sustainable solutions. Therefore, the effectiveness of global network governance can be maximal if an international regime sets standards based on the solutions developed, disseminated and implemented in global policy networks.

Usually, governmental interventions and regulations aim to set up macroeconomic regimes to overcome the different market failures. In the global context of climate issues, however, intergovernmental negotiations have not been successful so far to establish an effective international climate and energy regime. That's where more flexible, voluntary, decentralized, participative, innovative, and cooperative global policy networks and partnerships must support the international process overcoming market failures and organizing sustainable development. The **top-runner** approach can combine the strengths of the more flexible network governance with the large scale leverage of an international regime.

The top-runner approach defines successively the most sustainable practice or technology of an industry leader and the related degree of CO2-efficiency of production of the industry leader as the standard for the whole industry. Developed countries can then ambitiously engage for climate change mitigation and reduce greenhouse gas emissions while at the same time avoid setting too ambitious standards or overtaxing their economies. The top-runner approach holds incentives to comply for developing countries as well. Foreign direct investments of global industry leaders in developing countries will become more likely as the companies can benefit from their lead in sustainable technology and practice and will not have to compete with companies undercutting prices with cheaper but dirty and hazardous technologies and practices. And in order to enjoy their first mover advantage from their lead in sustainable technologies and practices, the industry leaders must supply their top-runner products and services in developing countries to force competitors to invest to catch up. Additionally, compliance with an international climate regime creates out of the scarcity in emission rights investment opportunities for clean technologies.

The short-term incentive for leaders to invest in sustainable technologies and practices is the competitive advantage they will enjoy and which a top-runner program protects against social or environmental dumping prices. Thereby, a top-runner program might incentivize a *long-term race to the top*.

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