

CPWF Project Report

Improving Mekong Water Resources Investment and Allocation Choices

Project Number 67

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On behalf of

Griffin nrm, Chiang Mai University and the M-POWER network

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The views expressed in this report and the accompanying research papers should not be taken to represent the views of CPWF, the European Commission or IFAD. The views expressed are those of the research authors.

Program Preface

The Challenge Program on Water and Food (CPWF) contributes to efforts of the international community to ensure global diversions of water to agriculture are maintained at the level of the year 2000. It is a multi-institutional research initiative that aims to increase the resilience of social and ecological systems through better water management for food production. Through its broad partnerships, it conducts research that leads to impact on the poor and to policy change.

The CPWF conducts action-oriented research in nine river basins in Africa, Asia and Latin America, focusing on crop water productivity, fisheries and aquatic ecosystems, community arrangements for sharing water, integrated river basin management, and institutions and policies for successful implementation of developments in the water-food-environment nexus.

Project Preface

The CPWF Project PN67 "Improving Mekong Water Allocation" was a key, collaborative activity of the Mekong Program on Water, Environment and Resilience (M-POWER). The goal of contributing to water allocation policy and practice which results in a more optimal and equitable use of water by society has been pursued by research across the Mekong Region and active engagement with policymakers. The project team have examined the use of a wide range of decision-support tools, in many decision-making arenas. In doing so, they have sought to understand decision contexts and drivers.

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Abbreviations

4Rs	Rewards, risks, rights, responsibilities
ADB	Asian Development Bank
AusAID	Australian Agency for International Development
BDP	Basin Development Planning (of MRC)
CEDAC	Center for Study and Development in Agriculture (CEDAC)
CGIAR	Consultative Group on International Agricultural Research
CIA	Cumulative impact assessment
CPWF	Challenge Program on Water and Food (of CGIAR)
CSO	Civil society organisation
DSF	Decision Support Framework (referring to MRC hydrological models)
E-flows	Environmental flows
EIA	Environmental impact assessment
FWUC	Farmer water user committee
GMS	Greater Mekong Sub-region
HSAP	Hydropower sustainability assessment protocol
IFAD	International Fund for Agricultural Development
ISH	Initiative for Sustainable Hydropower (of MRC)
IWRM	Integrated water resources management
M-POWER	Mekong Program on Water Environment and Resilience
MRC	Mekong River Commission
MRCS	MRC Secretariat
MSP	Multi-stakeholder platform
NT2	Nam Theun 2 hydropower project in Lao PDR
PEIA	Peoples' environmental impact assessment
PES	Payments for ecosystem services
PNPCA	Procedures for notification, prior consultation and agreement (of MRC)
POE	Panel of experts
RBO	River Basin Organisation
RSAT	Rapid sustainability assessment tool
SEA	Strategic environmental assessment
SIA	Social impact assessment
SIMVA	Social impact monitoring and vulnerability assessment
SNEC	Supreme National Economic Council (of Cambodia)
WB	World Bank
WCD	World Commission on Dams

RESEARCH HIGHLIGHTS

The major contributions of PN67 to water governance research and practice are:

1. Usefully expanding the conception of water allocation to be: formal and informal interventions in the water cycle that alter the physical distribution of water – in terms of quantity, quality, timing, and sediment load – and associated rewards, risks, rights and responsibilities (4Rs).
2. Expanding the understanding of Multi-Stakeholder Platforms (MSPs) and other consensus-building processes, Scenarios and Modeling, Environmental Flows, Cumulative Impact Assessment (CIA) and Strategic Environmental Assessment (SEA); and Payments for Ecosystem Services (PES) as tools for water allocation decision-making that may be categorised in their emphasis as: discursive-, engagement-, advocacy-, knowledge- or management-oriented.
3. Expanding understanding of the political drivers of water allocation – Mekong institutions, Mekong interests and Mekong discourses.
4. Expanding the understanding of water allocation decisions that may be categorised in their emphasis as: framing the institutional arrangements within which other decisions are taken (eg. water law), supplying water (eg. infrastructure investment for a reservoir), or altering the demand for water (eg. pricing).
5. Development of an explanatory framework to help make sense of the relationships between decision-making processes, arenas, political drivers, tools of influence, decisions and the desirable impact sought of fair water allocation by society.
6. Proactive, constructive engagement in many decision-making or decision-influencing processes, experimenting with ways to improve the fairness of decisions and the institutionalising of constructive practices. This has included engaging with inter-government organisations, governments of Mekong countries, multilateral banks, international donor agencies, hydropower developers in Laos, civil society organisations and research networks.
7. Substantial contribution capacity building of Mekong Region research analysts, including the provision of further opportunity in PN67 to six previous recipients of M-POWER Research Fellowships (funded by CPWF PN50).
8. Substantial contribution to Mekong Region research via twenty-six (26) research publications, submitted to CPWF as Working Papers, but already moving through the referee process and beginning to appear in international books and journals.
9. Another M-POWER research contribution to multi-cultural and multi-disciplinary regional and international cooperation involving 52 researchers from 15 countries, including five Mekong countries.

EXECUTIVE SUMMARY

Water resources lie at the heart of development in the Mekong Region. Quality of life in the region will be further improved with wise choices about sharing, developing and managing water; to produce food and energy, and to maintain vital ecosystems.

In the last year water, hydropower and climate change adaptation have all risen to the top of the political agenda. The Prime Ministers of the four Lower Mekong countries, and very senior representatives from China and Myanmar met to consider these issues at the inaugural MRC Summit held in Thailand, April 2010. All leaders are cognisant that the Mekong countries destinies are entwined and will be shaped in part by the way they extend the recent collective decision-making of the past 20 years, in fields such as intra-regional trade, into the realm of water resources development.

The CPWF Project PN67 "Improving Mekong Water Allocation" was a substantial, collaborative activity of the Mekong Program on Water, Environment and Resilience (M-POWER) involving 52 researchers from 15 countries. The goal of contributing to water allocation policy and practice which results in a more optimal and equitable use of water by society has been pursued by research across the Mekong Region and active engagement with policymakers. The research team has examined the use of a wide range of decision-support tools, in many decision-making arenas. In doing so, they have sought to better understand decision contexts and political drivers. They have also sought to build the capacity to undertake this type of action research and practical support to decision-making.

PN67 research has built on the M-POWER research foundation, that includes numerous research Journal publications plus multi-author contributions in four signature books:

- *Democratising Water Governance in the Mekong Region* (2007);
- *Contested Waterscapes in the Mekong Region: Hydropower, Livelihoods and Governance* (Molle et al. 2009b);
- *Water Rights and Social Justice in the Mekong Region* (Lazarus et al. 2010 forthcoming); and
- *Water Governance in Practice: Evidence from Local Studies in the Mekong Region* (Bastakoti et al. 2011 forthcoming).

The CPWF priority being addressed by PN67 was to undertake research on the political drivers of success in water rights and allocations among users and uses within [*and between*] countries. The PN67 research question was: Under what conditions, and via what political drivers, do 'progressive' processes and tools – such as scenario building, environmental flows assessment, and deliberation – reduce the severity of disputes over, and improve the fairness of, water allocation in the Mekong Region?

The research team set out to explore how particular processes and tools have been used in different places and political arenas in the Mekong Region to negotiate or allocate water. The processes examined were: Multi-Stakeholder Platforms (MSPs) and consensus-building. The tools examined were: Scenarios and Modeling, Environmental Flows, Cumulative Impact Assessment (CIA) and Strategic Environmental Assessment (SEA); and market-based instruments, such as Payments for Ecosystem Services (PES).

An explanatory framework for water allocation has been developed to help make sense of the relationships between decision-making processes, arenas, political drivers, tools of influence, decisions and the desirable impact sought of fair water allocation by society.

Executive Summary CPWF Project Report

We have been dismayed by many negative examples of water allocation decision-making, heartened by positive experiences across the region, and concluded that water allocation practice would benefit from:

- Multi-Stakeholder Platforms (MSPs) exploring alternative futures, deployed to constructively search for solutions to resolve water allocation disputes;
- negotiation processes retaining elements of competition and collaboration, realising complex decisions will never attain a perfect consensus, but would be improved if there is an emphasis on sustainable use, fairness and consensus-building;
- scenario building, with participation of marginalised peoples' representatives, being used to improve transparency in water allocation by clarifying and probing actors' causal assumptions about what drives societal well-being;
- environmental flows assessments being used to improve water allocation, by clarifying risks and benefits of different flow regimes on different water users and ecosystems;
- prior to making major infrastructure investment, scenario building, flows assessments, multi-stakeholder dialogue and transparent negotiations becoming a part of normal practice;
- water allocation being the result of a negotiation process that assessed options and impacts thoroughly prior to reaching agreements and making interventions;
- focusing on rewards being fairly distributed, risks being minimised and fairly apportioned, rights being respected, and actors discharging their responsibilities.

There are many actors in Mekong water allocation politics. PN67 researchers have been operating in many places, undertaking research and contributing analysis to real decisions. This report also explores some of the changes in governments, multilateral development banks, donors, hydropower developers, CSOs, and the M-POWER network itself. We draw on the following examples: Mekong River Commission (MRC), Government of Cambodia, World Bank, Australian Agency for International Development (AusAID), a hydropower company operating in Laos, and the Save the Mekong coalition. For example, MRC practice is now evidencing:

- experimentation with Strategic Environment Assessment (SEA);
- use of sensitivity analysis in the Basin Development Planning (BDP) process;
- participation in, convening or facilitating more deliberative processes, including Multi-Stakeholder Platforms (MSPs);
- expansion of the hydrological Decision Support Framework (DSF) to a wider suite of multi-disciplinary tools to assist "Integrated Water Resources Management" (IWRM);
- support for Social Impact Monitoring and Vulnerability Assessment (SIMVA);
- openness to peer review with an independent Panel of Experts (POE);
- improved water-related diplomacy.

The M-POWER PN67 research team has assisted in some of this innovation and experimentation. Members of the PN67 research team have actively engaged in many different situations and made their research and practical policy support contributions. Our focus has been to explore decision-making processes and associated arenas, the drivers impacting them, the tools used, and resultant decisions. We have sought to make sense of the relationship between these different pieces of the Mekong Region water allocation puzzle, and developed an explanatory framework, with the aim of finding ways to improve the fairness and effectiveness of water governance across the region.

There has been a recent deliberative turn in regional water politics, leading to more substantive discussions between the countries of the Mekong Region. The types of knowledge that inform these new deliberative spaces will be critical to their outcomes and eventual impact. For example, effective deliberative process in the implementation of the MRC Procedures for Notification, Prior Consultation and Agreement (PNPCA) will be important to ensure that decisions about whether or not to proceed with Lower Mekong mainstream dams are fully informed. Knowledge inputs provided for deliberation must be of sufficient quality and readily available to the public to enable high-quality discussion of critical development issues and choices. Specifically, the SEA and BDP inputs should ensure that all key issues are illuminated prior to or during transboundary negotiations.

Whilst having used the MRC arena in the previous example, it must be noted that the twenty-six PN67 research papers explore many other local and national arenas and decision-making processes.

Ongoing CPWF research projects exploring the usefulness of the Hydropower Sustainability Assessment Protocol (HSAP) in the Mekong Region and the CPWF Mekong Phase 2 are taking forward various parts of the PN67 agenda to improve water governance. Amongst many other efforts of relevance are: new support to the Lao Ministry of Energy and Mines, that includes a focus on improving hydropower governance; and, new support to the Government of Cambodia that should provide opportunity for improving the way decisions are taken about irrigation and hydropower expansion across that country. These and other experiments underway across the region have the potential to improve water allocation policy and practice within and between all six Mekong countries. Members of the PN67 research team are continuing to play important roles in these promising initiatives. PN67 project advances are positioned to affect future policy and processes in the Mekong Region.

INTRODUCTION

M-POWER

This report is a product of M-POWER which stands for the Mekong Program on Water, Environment and Resilience. The network brings together people committed to improving local, national and regional governance in Cambodia, China, Laos, Burma/Myanmar, Thailand and Vietnam. The ultimate goals of the M-POWER network are improved livelihood security and human and ecosystem health in the Mekong Region (see Figure 1). The network contributes to this by focusing on improving water governance. The research agenda, membership and governance of the network are summarised in the M-POWER Guide, available from www.mpowernet.org (M-POWER 2008).

The action research, practical policy support and facilitation efforts of the network involve pursuing fair and effective governance which takes account of possible rewards, voluntary and involuntary risks, and rights and responsibilities of all authorities and stakeholders. The network is committed to ensuring that water-related negotiations and decision-making, which almost always have political dimensions, are more transparent and based on the best available information.

M-POWER is primarily supported by the efforts and resources of the partner organisations that choose to cooperate in this transnational effort to improve water governance. Substantial financial support for 2006 to 2010 has come from the Challenge Program on Water and Food, including for PN67.

M-POWER foundations for PN67

The CPWF Project PN67 “Improving Mekong Water Allocation” was a key, collaborative activity of M-POWER, contracted by CPWF to Griffin nrm, an organisational member of the network. Many M-POWER colleagues, from a range of organisations, were recruited into the PN67 team.

PN67 research has built on the M-POWER research foundation, that includes numerous research Journal publications plus multi-author contributions in four, signature books (Lebel et al. 2007, Molle et al. 2009b, Lazarus et al. 2010 forthcoming, Bastakoti et al. 2011 forthcoming). The wider scope of M-POWER’s work is summarised and analysed in the CPWF Project Report for PN 50 “Enhancing Multi-Scale Mekong Water Governance” (Lebel et al. 2010).

The PN67 research has focused on the Mekong River Basin, but the basin needs always to be considered within the wider context of the Mekong Region and its water-related politics. When we say Mekong Region we are referring to the “territory, ecosystems, people, economies and politics of Cambodia, Laos, Burma/Myanmar, Thailand, Vietnam and China’s Yunnan Province” (Mingsarn Kaosa-ard and Dore 2003) (Figure 1).

Figure 1. Mekong Region



SOURCE: Map No. 4112, Rev. 2. January 2004. United Nations Cartographic Section, New York, US

CPWF and PN67 priority

The CPWF priority being addressed by PN67 was to undertake research on the political drivers of success in water rights and allocations among users and uses within [*and between*] countries. The CPWF impact sought (goal) is to contribute to water allocation policy and practice that results in more optimal and equitable use of water by society. This goal has been pursued by PN67 research across the Mekong Region and active engagement with policymakers. We have examined the use of a wide range of decision-support tools, in many decision-making arenas. In doing so, the PN67 team has sought to understand decision contexts and drivers, and also build the capacity to undertake this type of social science research.

PN67 research question and focus

The PN67 research question was: Under what conditions, and via what political drivers, do 'progressive' processes and tools – such as scenario building, environmental flows assessment, and deliberation – reduce the severity of disputes over, and improve the fairness of, water allocation in the Mekong Region? The units of analysis were water-related allocation initiatives and decisions in the Mekong Region. We were, and remain, interested in whether the use of processes and tools has led, or is leading towards, improved allocation.

Intended users of PN67 research

The key users of these research outputs will be those active in water resources development politics, in the Mekong Region, and beyond. This includes, for example: lenders, lobbyists, community groups, academics, sector experts, media pundits, and water and food researchers.

In the Mekong Region this includes:

- advisers to politicians such as the Supreme National Economic Council (SNEC) in Cambodia;
- officials within government agencies such as the Thai and Vietnamese Departments of Water Resources;
- river basin organisations such as the Mekong River Commission (MRC);
- civil society organisations (CSOs) and networks;
- hydropower developers;
- multilateral development banks such as World Bank and Asian Development Bank (ADB);
- private sector financiers keen to ensure their due diligence processes are up to standard; and
- donors keen to ensure their investments are supporting improved water governance.

Figure 2. Improving Mekong Water Allocation poster



www.mpowernet.org/mweb.php?pg=208

PN67 outcomes sought

The project outcomes sought (objectives) were:

- Better understanding of progressive processes and tools which do, or might, influence Mekong Region water allocation decision-makers;
- Processes and tools refined and more effectively used, in the political arenas of the Mekong Region, to take better account of water allocation options, impacts and actors' rewards, risks, rights and responsibilities.
- Better understanding of political drivers.

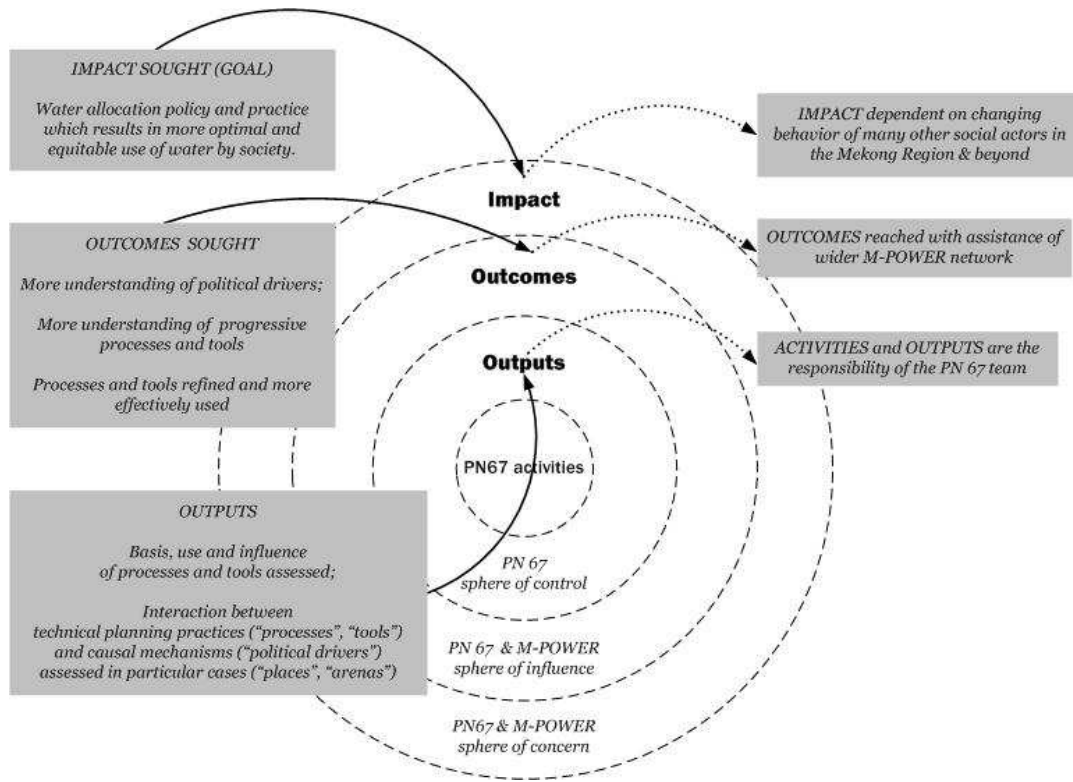
PN67 approach

The research team set out to explore how particular processes and tools have been used in different places and political arenas in the Mekong Region to negotiate or allocate water. The processes examined were: Multi-Stakeholder Platforms (MSPs) and consensus-building. The tools examined were: Scenarios and Modeling, Environmental Flows, Cumulative Impact Assessment (CIA) and Strategic Environmental Assessment (SEA); and market-based instruments, such as Payments for Ecosystem Services (PES). These processes and tools have demonstrated promise, yet still have substantial unfulfilled potential to drive improved water allocation by bringing in different perspectives and fostering deliberation to inform and shape negotiations and decisions.

The research team has been exploring political drivers of influence and change, also known as 'causal mechanisms' in the sciences.

PN67 sought to describe and explain the interaction between technical planning practices (processes, tools) and political drivers in particular cases (places, arenas) in the Mekong Region where society is negotiating or taking decisions about water resources development and allocation. The outputs, outcomes and impacts sought by PN67 are depicted in Figure 3.

Figure 3. PN67 impact pathway overview



FINDINGS

Mekong Region water allocation

Water resources lie at the heart of development in the Mekong Region. Quality of life in the region will be further improved with wise choices about sharing, developing and managing water; to produce food and energy, and to maintain vital ecosystems. In the last year, water, hydropower and climate change adaptation have all risen to the top of the political agenda. The Prime Ministers of the four Lower Mekong countries, and very senior representatives from China and Myanmar met to consider these issues at the inaugural MRC Summit held in Thailand, April 2010. All leaders are cognisant that the Mekong countries destinies are entwined and will be shaped in part by the way they extend the recent, collective decision-making of the past 20 years in fields such as intra-regional trade, into the realm of water resources development.

There are many rivers in the Mekong Region, but the iconic Mekong River illustrates many of the regional water allocation issues. It is the epicentre of contemporary debates about 'water resources development' in the wider region. It is the longest river in Southeast Asia with an estimated length of nearly 4,900 kilometres. The Mekong is the eighth largest (in terms of the amount of water), and twelfth longest river in the world.

The Mekong River is an international river. It begins in mountains on the northeastern rim of the Tibetan Plateau in wetlands situated about 5,000 metres above sea level. For nearly 2,200 kilometres it flows through Qinghai, Tibet and Yunnan in China. During its first 1,000 kilometres the river travels in a southerly direction in rough parallel with the Salween and Yangtze rivers which originate in the same Tibetan highlands. By the time the river leaves China the altitude has fallen to about 400 metres above sea level (He Daming and Hsiang-te Kung 1997, Hori 2000). The river then winds its way for just over 2,700 kilometres through Myanmar, Laos, Thailand, Cambodia and Vietnam, before spilling into the South China Sea. It squeezes between mountains, such as near the ancient capital of Luang Prabang in Laos some 420 kilometres north of the current capital Vientiane. It flows through the Vientiane Plain with the mountains of the Annam Cordillera beyond its left bank. To the right it flows past the Khorat Plateau of northeastern Thailand, on through the Khone Falls and Sambor Rapids, and further into Cambodia to the east of the Tonle Sap Great Lake.

The productivity of the ecosystem is a key food security and water allocation issue particularly in highly productive lower reaches of the river south of the China border. Estimates of the size and value of the fishery vary, but indication of its significance is provided in a recent article, that uses MRC data assembled from many sources:

The Mekong supports the world's largest inland fishery, with approximately 2.6 million tonnes harvested annually from the Lower Mekong Basin (LMB). The full economic value of this fishery is still being assessed, but most recent estimates exceed US\$2 billion at first-sale value. To this should be added the value generated through processing, transport and marketing of the product; in Cambodia for instance, the value of raw fish on retail markets represents 2.8 to 4.7 times the first-sale value. Applying the same multiplier as a primary approximation, the total economic value for the Mekong fisheries is estimated at between US\$5.6 and US\$9.4 billion per annum. To this economic value should be added the many tens of thousands of enterprises that support the fishing communities, ranging from the shops and foods stalls that supply the fishing families, to boat builders and suppliers of fishing gear (Dugan 2008)

The flow variability within and between seasons, due to the Asian monsoon climate, is another key water allocation issue as floods, droughts and the spectre of climate change are all regularly invoked in water allocation debates. There is significant contrast between the 'wet' and the 'dry' season. Highest flows are usually from September-November, lowest flows are usually February-April. The flood season may account for 85-90% of the total flow, of which the peak month (on average September) may account for 20-30%. The trip from the headwaters to the estuary takes about three weeks when the river is in flood, but up to three months during the dry season (Hori 2000).

The Upper Mekong countries contribute (on average) 18% of the mean annual discharge of 475 cubic kilometres: 16% from China and 2% from Myanmar. The remaining 82% (on average) comes from the Lower Mekong countries: Laos 35%, Thailand 18%, Cambodia 18% and Vietnam 11% (Hori 2000). However, summary data such as this conceals important nuances, such as the much greater importance of dry season flows originating from China to the stretches of the river in northern Thailand and northern Laos, and dependent navigation, riverbank gardening and aquatic ecology.

Throughout its journey the mainstream is joined by many tributary rivers. These include the Kok, Ing, Songkram, and Chi-Mun from Thailand territory on the right bank. Left bank tributaries include the Nam Khan, Nam Tha, Nam Ou, Nam Ngum, Nam Theun and Xe Bang Fai from Laos. Others from the left include the '3S' – Sekong, Srepok, Sesan – which are transboundary rivers flowing through Lao, Cambodian and Vietnamese territory. More than half the total flow is contributed by these 'lower Mekong' left side tributaries. The spatial origin of water becomes important, for example to Thai politicians searching for ways to 'green Isaan' (Molle et al. 2009a) by irrigating the relatively dry northeast of Thailand. Eventually the mainstream divides into a number of channels in the Mekong delta below Phnom Penh and into southern Vietnam where the uses of the river vary according to the season. In the wet season navigation by ships of up to 3,000 tonnes is possible all the way up to Phnom Penh and sea water tides extend up to 15 kilometres inland. In the dry season navigation possibilities are greatly reduced and the sea water penetrates up to 50 kilometres inland.

Many water resource projects have been completed, are underway, and are being planned. These projects serve many purposes, including to: control floods; expand food production; supply clean water for people to consume; improve navigation; and, boost energy production through hydropower. While some projects have been celebrated, others lead to disputes and protests, particularly those that disrupt, disturb or destroy existing river ecosystems and livelihoods. Projects involving altering sediment and nutrient loads, using groundwater, and diverting water (inter-state, intra-state, inter-basin and intra-basin), for example, are often hotly contested. The transboundary nature of Mekong waters adds a critical dimension: to be fair, decision making needs to be based on multi-level evaluation of benefits and costs (local, provincial, national, regional), rather than only concentrating on perceptions of national interests. This requires tempering traditional conceptions of sovereign rights to develop water resources, and accepting regional responsibilities that transcend national borders.

The dominant current issue is a rapid increase in new hydropower projects and proposals, and renewed interest in old plans for dams or diversions. Water resources development on the Mekong mainstream and tributaries has the potential to have enormous impact on the societies of the Mekong Region – both positive and negative. A recent count found 82 existing and 179 potential hydropower projects in the wider region (King et al. 2007b), many on Mekong River tributaries, where construction is now accelerating due to a complex of reasons. There are 20+ projects either built or under serious consideration on the mainstream in China. A further 12 have now emerged on the agenda of developers from China, Malaysia, Vietnam and Thailand who are currently negotiating with the Governments of Cambodia, Laos and Thailand.

Objectives CPWF Project Report

The Mekong Region's contested waterscapes (Molle et al. 2009b) evidence a confrontation of interests and worldviews that are hard to reconcile despite a fresh rhetoric of tradeoffs, benefit sharing and win-win situations. For example, there are contrasting views on the importance of sustaining rural livelihoods that are dependent on living aquatic resources, vis-à-vis sacrificing those resources for the "greater good" of the province, country, basin or region. Ironically, dams that are supposed to "power progress" and are justified by objectives of development and poverty alleviation might well, at the same time, jeopardise food security and the livelihoods of the poorest. Without denying that investment is important, investment is often conflated with "development".

Multi-level interactions are also testing the strength, and exposing the limitations, of existing institutions and practices. Hydrological, cross-level interactions make local, basin, national and transboundary levels interdependent. The current management practices, regulatory frameworks, coordination mechanisms, and scientific bodies of knowledge are inadequate. For example, the cumulative impact of provincial policies in the Mekong delta (Hoanh et al., PN67_2010_16) may prove incompatible with modifications of the water regime brought about by upstream development or climate change.

The institutional frameworks for inter-disciplinary, inter-sectoral and inter-government water allocation decision-making in the region remain weak (Ganjanapan and Lebel, PN67_2010_12; Keskinen and Sithirith, PN67_2010_05; Suhardiman et al., PN67_2010_04). In addition, there is insufficient, reliable, high-quality knowledge to underpin strategic options assessment and decision making. Social, ecological, other biophysical, engineering, economic and political understandings are all required. There is a need to capitalise on the recent opening of political space for transboundary, water-related deliberation between states. There remains a need for this space to be more informed by a range of knowledge-discourses, reflecting various paradigms and worldviews, so as to constructively influence negotiations and policy of public, private sector and civil society actors in the complex political economy of water (Lebel et al, PN67_2010_22). These are the regional challenges to which PN67 aims to contribute toward any shift from the imperfect present to an improved future.

PN67 research focused on water allocation which we defined as formal and informal interventions in the water cycle that alter the physical distribution of water – in terms of quantity, quality, timing, and sediment load – and associated rewards, risks, rights and responsibilities (4Rs) (Dore et al. 2010). Interventions may be initiated by the state (dam, interbasin transfer, large-scale irrigation scheme etc.) but also by private companies (agribusiness, afforestation, mines) or scattered households (well drilling, on-farm storage, farm level practices etc.). This definition has evolved slightly from what we were using at the beginning of the project.

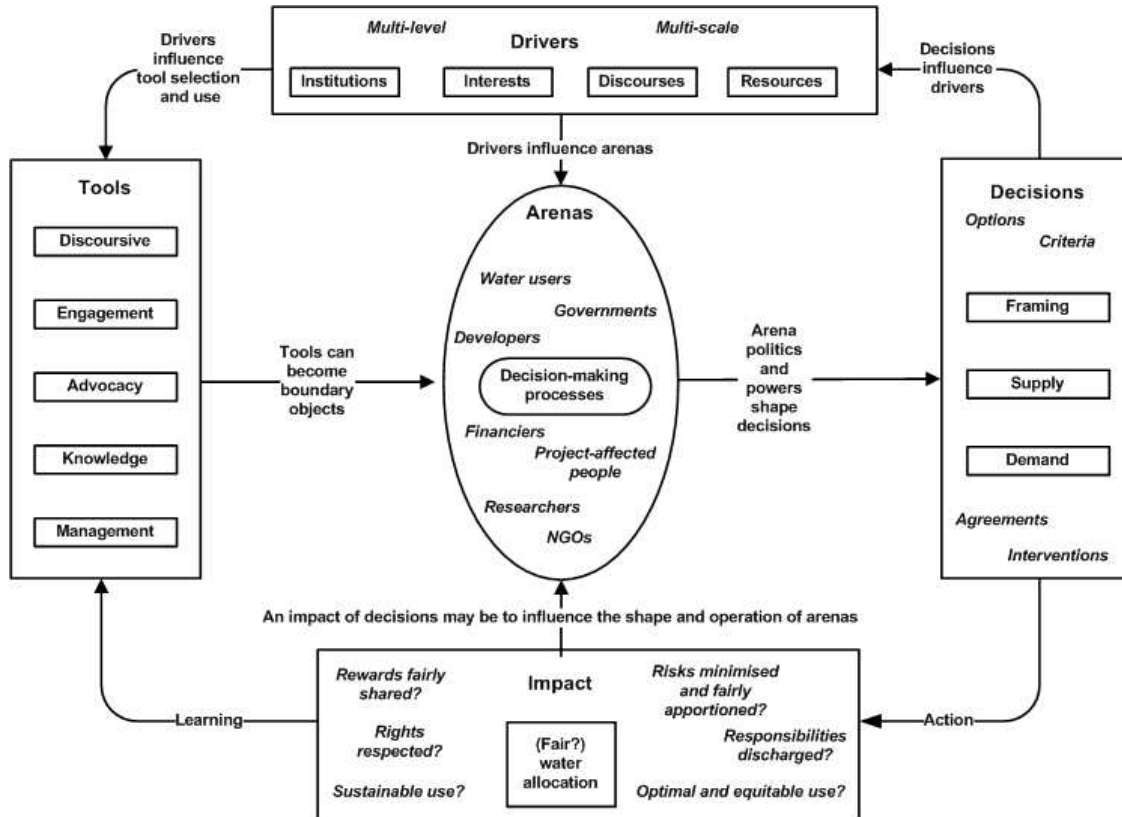
Members of the PN67 research team have explored many different situations and made their contributions to theory and practice (see the twenty-six PN67 Working Papers drawn upon in the following pages and listed in Annex 3, and the later section on Outcomes and Impacts).

The water allocation complex

An explanatory framework

We need to make sense of the relationship between the different pieces of the Mekong Region water governance¹ puzzle, with the **impact sought** of more informed and fairer water allocation across the region. Our focus has been to explore decision-making processes and associated **arenas**, the **drivers** impacting them, the **tools**² used, and resultant **decisions**. The key elements of an explanatory framework are in Figure 4.

Figure 4. The water allocation complex: an explanatory framework



The utility of this framework, that we have developed in PN67, is not restricted to the basins of the Mekong Region. In any basin, the framework could be used to assist guide the search for and identification of key factors in water resources allocation and investment choice-making. The following pages introduce and provide brief Mekong illustration of the framework.

¹ By governance we mean: the action or manner of governing; the system of controlling, directing or regulating influence; more than government, governance refers to the complex of processes and institutions by which society contests, makes and manages decisions.

² At the beginning of PN67 we were using the language of 'processes and tools' whereas now we are simplifying our usage to 'tools' which incorporates MSPs and consensus-building processes. This new usage is reflected in Figure 4 and throughout this section.

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The departure point for the framework is an acknowledgement of the many different water allocation arenas, within which decision-making processes play out. These arenas are influenced by political drivers that operate at multiple levels and scales³ and these drivers are largely shaped or generated by the institutions, interests and discourses evident in the context surrounding and permeating the different arenas – but also the availability of water and other resources.

Actors deploy tools in an effort to influence the arenas and their decision-making processes. We have categorised these in the framework as: discursive, engagement, advocacy, knowledge and management. The tools deployed are influenced by the drivers, skills and agency of different actors. The tools may themselves become objects of deliberation, if so, becoming 'boundary objects'⁴ (discussed later).

Decisions emerge from arenas. We see merit in separating these into framing, supply and demand decisions. Agreements and interventions follow, that ideally, would lead to fair, or at least fairer, water allocation.

The conceptualisation of fair water allocation in the framework encompasses notions of sustainable, optimal and equitable use where rewards are fairly shared, risks are minimised and fairly apportioned, rights are respected, and where responsibilities are discharged. These latter traits are aspirational and not always evident in observed practice, at least not so in many of the Mekong situations we have studied.

Drivers

There are many political drivers of water allocation, but for our explanatory framework we consider the following four particularly important: institutions, interests, discourses and resources. Much has been written about them all, with institutions and discourses being contested words to the same extent that the Mekong has its contested waterscapes.

Institutions

In this report we adhere to a broad definition of institutions:

Institutions are persistent, predictable arrangements, laws, processes or customs serving to structure transactions and relationships in a society. These transactions are political, social, cultural, economic, personal, legal and administrative. Institutions may be formal or informal, legal or customary, and in terms of function may be economic, cultural or informational, highly visible and regulatory, or alternatively, difficult to discern and relying on tacit understanding and adherence. Institutions allow organised, collective efforts around common concerns, and reduce the need for constant negotiation of expectations and behavioural contracts. Although persistent, institutions constantly evolve and adapt (Handmer and Dovers 2007).

³ Scale is defined as the spatial, temporal, quantitative, or analytical dimensions used to measure, or rank, and study any phenomenon, and levels as the units of analysis that are located at different positions on a scale. Water allocation management is often institutionalized around the spatial scales of government (ie. administrative) or hydrology. The scale of government has different levels, for example: district, provincial, national, regional, global. The scale of hydrology also has different levels, for example: well, aquifer, stream, lake, reservoir, small watershed, larger national river basin, or international river basin.

⁴ When the production of knowledge, scientific or otherwise, becomes part of the debate many of the scientific tools such as models, scenario building, or cost-benefit analysis become "boundary objects", that is, objects of debate at the interface of varied interests and visions confronted in the same arena. Likewise, concepts (such as IWRM or environmental flows) also become contested "boundary concepts".

We also agree with the Handmer and Dovers' conceptualisation of an "institutional system" which recognises that "concentrating on single institutions will often limit understanding" as "institutions operate within complex, interactive systems comprising multiple institutions, organisations and actors" (2007). That said, some parts of the institutional system are more influential than others, and discerning where power lies and how it is exercised is a pillar of institutional analysis and hence, political drivers analysis.

Interests

Interests are what underlie stated positions and provide insight into needs, wants, desires, concerns, hopes, fears and values. Interests may be substantive (referring to the content of the problem/issue), relational (about ways of relating, and of valuing the relationship) or procedural (related to how fair the process is, and the quality of participation and decision making) (Moore 2003). Interests are not just re-worded positions. They can involve multiple layers, ranging from fulfilling basic needs to desire for "understanding, creativity, stimulation, meaning, rationality, dignity, choice, control, autonomy and distributive justice" (Wertheim et al. 2006). Less noble interests are also observable. Interests can be constrained by, but also serve to influence and shape institutions.

Discourses

Discourses are shared set of concepts, categories and ideas that provides adherents with a framework for making sense of situations, embodying judgments, assumptions, capabilities, dispositions and intentions. They provides basic terms for analysis, debates, agreements and disagreements (Dryzek 2006). Discourses can embody power in that they condition norms and perceptions of actors, suppressing some interests while advancing others (2006). Discourses influence the tools actors favour and choose to employ. Understanding discourses enables greater understanding of the behaviour of different actors in a decision-making process.

Resources

Resource availability is also a driver. Water is a physical resource and its spatial and temporal quantity, quality and availability matter. The extent of available human and financial resources also matters. Basic considerations include: How much water is there? Where did it come from? Where is it going? Who considers water scarce? Who considers it to be in surplus? What purposes is the water fit for? How is it presently allocated, used and governed? To an extent, physical availability is socially constructed: that is to say 'availability' is always framed by discourses, powered by interests and shaped by institutionalized practices.

PN67 research examples

Several of the PN67 papers look particularly closely at drivers. Floch and Blake (PN67_2010_06) explore the Thai drivers keeping alive possible water transfers from the Nam Ngum River Basin in Laos into northeast Thailand. They trace the texts of various Thai announcements and consultancy reports that weave a narrative of "untapped" water in Laos and a "suffering" water-scarce, northeast Thailand, focusing entirely on the Thai perspective. An internal report prepared by the Lao Water Resources and Environment Administration (WREA) fails to identify any positive impacts for Laos. Yet, at time of writing, the project is still a possibility, kept alive by Thai interests, Thai discourse, and the technical (albeit absurd) possibility of siphoning water 'from Laos' under the Mekong River to Thailand – thereby also potentially siphoning under the 1995 Mekong Agreement.

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A Chinese example of drivers is traced by Lu Xing et al. (PN67_2010_02) who explain how a 12-fold increase in population of Kunming City, between 1949 and 2006, has contributed to the situation where demand is always rising and challenging available supplies. This has shaped the evolution of an institutional system, created new interests and led to the rise of anti-pollution, anti-wastage, water-pricing and water-efficiency discourses and decisions. Followup work would be enriched by more examination of the contests behind many of the decisions and the roles played by non-state actors.

The Cambodian research by Thuon Try et al. (PN672010_17) is another study of political economy and drivers. The research entry point is the decision about whether or not to proceed with a 130,000 hectare irrigation project and 40MW hydropower project on the Stung Sen tributary of the Mekong River in Kampong Thom Province. The researchers explore drivers of local and national politicians, Cambodia's Ministry of Water Resources and Meteorology (MOWRAM), the Government of Kuwait and various other actors. Stung Sen-based national politicians from the Cambodian People's Party (CPP) need to be re-elected and shore up local patronage networks. For MOWRAM, the Stung Sen proposals are part of a larger picture across the country where US\$94 million of grants, and US\$ 1 billion of soft loans for irrigation and drainage projects are being negotiated. For Kuwait, Stung Sen is potentially a US\$360 million component of a US\$546 million development cooperation package.

The Cambodia Prime Minister has invoked a discourse of national poverty reduction, the local politicians refer more often to local development, whilst Kuwait's motivations are claimed by some to be driven by food security concerns. Cambodia has available land and water resources. Kuwait has available investment funds. In some ways it resembles an auction also, as Chinese actors are on standby should the Kuwait deals fall through.

Arenas

Decision-making processes unfold in arenas that are primarily defined by the actors and coalitions that take part in the process. These actors include government agencies and the citizens concerned by the decision – primarily those using water or the benefits derived from it – but also wider networks and coalitions that may include politicians, River Basin Organisations (RBOs) such as the Mekong River Commission (MRC) or national RBOs, Civil Society Organisations (CSOs) or networks, businesses, donors or lenders active in the Mekong water sector, lobbyists, community groups, academics, sector experts, media pundits, and water and food researchers.

In many cases, however, the arena in which decision making takes place is quite narrow and limited to some government, donor or business spheres. Although decisions are never taken in pure isolation of the surrounding political context, attention to the civil society or to the diversity of interests beyond these spheres is highly variable and can, more often than not, be minimal. Such cases are illustrated by examples of decisions taken in a fully top-down fashion, often to solve a particular practical problem, such as ensuring or enlarging water supply to a city, but sometimes also to ensure political and financial gains for a few individuals or interest groups.

In other cases however the decision-making processes will be somehow more open to a wider array of stakeholders or concerned groups. The degree of opening may depend on the goodwill of decision-makers and whether they are convinced that participation is useful or desirable. But in many cases decisions to engage civil society are forced by political action or advocacy on the part of otherwise excluded stakeholders or their supporters. Whether participation will be meaningful and steer the course of events towards negotiated agreements that are more stable and fairer will frequently depend upon the balance of power.

In any case, a particular decision-making process will situate itself in a continuum from closed and top down to fully deliberative processes. As a result, the diversity of actors and social groups, as well as their influence in the debate, will vary widely. These different groups are characterised by their respective financial and symbolic resources, social and political power, accountabilities, and adaptiveness to new situations.

To undertake the PN67 research in different places, the researchers commenced with a common protocol. They subsequently identified water allocation decisions, arenas and actors that were both accessible and research-worthy. The findings are mixed and difficult to generalise. Each arena has yielded its own stories. However, the research paths they ended up following have collectively informed the shaping of the explanatory framework that the authors of this report developed as they sifted through the findings of the individual studies.

PN67 research examples

Many PN67 research papers focus on exploring decision-making processes within a range of arenas. Suhardiman et al. (PN67_2010_04) looked primarily at the MRC and the role of international donors in attempting to influence transboundary water governance. Keskinen and Mak Sithirith (PN67_2010_05) explored the Tonle Sap Lake and its management. Yu Yin and Lazarus (PN67_2010_09) delve into the Nam Ngum Basin in Laos and the decision-making arena of the Nam Ngum 5 hydropower project. Blake (PN67_2010_11) drew on his years of experience working in the Nam Songkhram Basin of northeast Thailand to examine natural resources management and water governance. Ganjanapan and Lebel (PN67_2010_12) focused on river basin and sub-basin committees in Mae Kuang watershed in the Upper Ping Basin of northern Thailand. Gender, ethnicities and water insecurity were the primary lens of analysis used by Lebel et al. (PN67_2010_15), also in the Upper Ping.

Le Thi Van Hue and Sajor (PN67_2010_14) looked at wastewater use decision-making processes in peri-urban Hanoi in northern Vietnam, in one of the country's 1400+ craft villages that provide employment for 11 million people. Chu Thai Hoanh et al. (PN67_2010_06) trace the history of Vietnam's irrigation policy arena, which contrasts markedly with Cambodia's contemporary irrigation mentioned above. Lebel and Daniel (PN67_2010_18) looked across various upland arenas seeing how ecosystem services, many from water resources, are being governed. He Jun et al. (PN67_2010_28) also focused on experiences in upland arenas.

Tools

Actors engaged in the decision-making process will often brandish or mobilise particular artefacts or tools – influenced by their drivers - that will be used as means of informing the debate, influencing negotiations, reinforcing the arguments of particular actors; or as proposed intervention options to alter the water regime or the way people use water. The tools mobilised in political arenas are diverse and we define them here in a very broad way. The PN67 research findings have influenced us to distinguish between:

- discursive tools that drive the creation and promotion of discourses;
- engagement tools, that can enable more deliberative decision-making by expanding or increasing the efficiency of arenas to provide interactive opportunity, creating parallel arenas or otherwise assisting social learning;
- advocacy tools, to underpin lobbying and campaigning, whether supporting, opposing or otherwise seeking to influence decision making;
- knowledge tools, or means of bringing some (scientific) expertise or local lay knowledge into decision-making processes;
- management tools that govern (hopefully) fair and effective allocation of water.

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This categorisation is used as a way of illustrating the diversity of tools that are mobilised rather than as clear-cut distinctions. For example, a computer model can bring scientific evidence to a debate (knowledge tool) but also be used as an interface for social learning (constructive engagement tool), while articulating and reflecting certain assumptions and worldviews (discursive tool).

Decisions

We distinguish between three types of decisions regarding the regulation of the water regime. A first type, 'framing' decisions, refers to strategies, frameworks, policies and legal regulation, which shape the environment in which other decisions will be taken. Although this formal policy or legal framework is not always operational and is sometimes circumvented, the process that leads to its formulation is also part of decision-making, and its implementation can also be regarded as a water "intervention".

The second type, 'supply' decisions, include major infrastructural investments that physically modify the hydrologic regime. These are generally one-time decisions to build a particular hydraulic infrastructure, or to allocate water (how much to which user). These supply decisions generally include different types of infrastructure: a dam, a diversion, an inter-basin transfer, an irrigation scheme, a treatment plant, a dike, etc. although centralised allocation of water by the state is also a way to manage supply by deciding who is going to receive water. These decisions can be assisted by hydrologic models or decision-support systems.

The third type concerns 'demand' decisions, and the use of incentives ("carrots and sticks") to influence allocation through changes in behaviours. The current hydraulic infrastructure is considered as a given, although demand management options can also be infrastructural (lining of canal or fixing of pipe networks in order to reduce distribution losses), but demand tools more often amount to regulatory tools which seek to influence behaviour and to redistribute costs and benefits through particular mechanisms, monetary or otherwise. 'Soft' management options such as pricing, payments for ecosystem or watershed services, establishing environmental flows, market mechanisms, taxes, water entitlements trading, codes of conduct, etc. are elaborated or implemented in order to assist in (re)allocation, as allowed by a given set of infrastructure.

Elaborating the tools: theory and practice in the Mekong Region

A variety of tools are used to inform and influence debate, negotiations (if they take place), decisions and reviews. In this section we summarise and illustrate the main features of different types of tools and begin to explore how they are used by different actors.

PN67 research examples

The following section is based on PN67 research papers that reviewed:

- Multi-Stakeholder Platforms (MSPs) (Dore, PN67_2010_20);
- Scenarios (Lebel, PN67_2010_21; Foran, PN67_2010_23);
- Hydrological and water resources modeling (Kummu and Johnston, PN67_2010_03);
- Cumulative Impact Assessment (CIA) and Strategic Environmental Assessment (SEA) (Keskinen and Kummu, PN67_2010_25);
- Peoples' Environment Impact Assessment (PEIA) (Manorom, PN67_2010_07);
- Environmental Flows (E-flows) (Lazarus et al., PN67_2010_24) and Blake (PN67_2010_10); and

- Payments for Ecosystem Services (PES) (Jun et al., PN67_2010_01; and Jun et al., PN67_2010_28).

Discursive

As summarised by North: "History demonstrates that ideas, ideologies, myths, dogmas, and prejudices matter" (1993). Discursive tools influence debates by projecting ideas. An example of a discursive tool is the 'nirvana concept', that embodies an ideal image. In the water resources world, the most pervasive, current example is Integrated Water Resources Management (IWRM):

Just like participation, IWRM appears as something desirable and uncontroversial, and official documents suggest that governments can resort to it abundantly and at 'no cost'. IWRM provides common ground and an initial consensus; it is seemingly sanctioned by the 'water community'... It thus becomes a coveted discursive currency that is therefore also likely to be hijacked by state, sectoral or private interests seeking to legitimise their agendas (Molle 2008)

A vehicle for IWRM is commonly held out to be the River Basin Organisation (RBO), which in many parts of the Mekong is enthusiastically being created and seen as a panacea to all types of water allocation challenges. Thailand has created RBOs, which they insist must be called (in English) River Basin Committees, across the country. Driven by donor funding, Vietnam has also experimented with the establishment of RBOs in several places, including the Red River (Molle and Chu Thai Hoanh 2009), the Sre Pok, and has recently committed to another for (at least) the Vietnam portion of the Se San. Both of these are vital tributaries of the Mekong River, in what is called the 3S area encompassing the watersheds of the Sre Pok, Se San and Se Kong rivers. In 2010 the Government of Laos has also enacting a Decree to establish RBOs. The first will be for the Nam Ngum Basin, a second for the Nam Theun / Nam Kading (that includes the Theun Hinboun and Nam Theun 2 hydropower projects). The latter will also likely address Xe Bang Fai Basin which is being transformed by the receipt of the water that goes through the Nam Theun 2 hydropower turbines, via an inter-basin water transfer.

Several PN67 papers explored progress with RBO-formation and function at different levels: the Upper Ping in northern Thailand (Ganjanapan and Lebel, PN67_2010_12), the Tonle Sap in Cambodia (Keskinen and Sithirith, PN67_2010_05) and, looking at the MRC, in the larger Mekong River Basin (Dore and Lazarus 2009). Each study found an important pivot around relevance. Unless there are strong reasons, and incentives, for supposed stakeholders to use these organizations, they can easily be neglected. If pre-existing organizations are already proven as necessary and able to provide many of the essential services or benefits (as in the case of Upper Ping), a new organization can be ignored. Ganjanapan and Lebel emphasized the northern Thai lesson that the new watershed-oriented RBO they studied needed, in its early days, to better coordinate with and negotiate its niche with pre-existing and alternative platforms. The Tonle Sap RBO has had different problems, but similarly struggled to establish its added value. Few doubt the relevance of MRC, but Dore and Lazarus explore the way in which it managed – in the decade post 1995 – to be absent from key development decisions to which it was intended to contribute. Each RBO was able to be sidelined. Future research needs to explore how RBOs can better reach their potential. Issues such as memberships, modes of functioning, scope and powers all need to be carefully examined and negotiated with intended constituencies.

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At the MRC, IWRM has displaced another nirvana concept of 'sustainable development', with the new mantra being "meeting the needs, keeping the balance". This lends itself more easily to newer, mostly rational discourses of trade-offs and benefit sharing. In the recent deliberative turn that is opening up discussion at the transboundary level (see discussion of Outcomes and Impacts), it is possible to now explore "opportunities" and "risks" of water allocation in Track 1 processes (ie. state-centric, inter-government forums). However, explicit discussions of the "rights" of non-state actors, and examinations of "responsibilities" and accountabilities of state actors remains very delicate subject matter.

M-POWER colleagues have provided a fuller treatment of discursive practices playing out in the Mekong in various writings (Foran and Manorum 2009, Friend et al. 2009, Molle et al. 2009a, Molle et al. 2009d) that draw on contested dams, contested fisheries, the 'Mekong Spirit of Cooperation' etc.; also Floch and Blake (PN67_2010_06) look at participatory rhetoric and practice as it has unfolded in northeast Thailand. All have documented the way in which, loose arguments and dubious claims of high-quality participatory practice, can allow complex choices to be reduced to simple recommendatory fixes. The lesson is that there needs to be more robust contesting of discourses in the public and other political spheres.

Engagement

Stakeholders can contribute to, endorse or contest decisions through a variety of routes. If perceiving decisions or plans over water as unfair, stakeholders can choose to resist through protest or refusing to take action demanded of them. This is a very high-risk action in many parts of the Mekong Region. Those with more power can choose suppression, to enforce or overturn decisions. Both responses can sometimes escalate to include aggression and violence, with the result that water disputes can fuel or be a source of conflict, especially where there are wider tensions in society. Constructive engagement is an alternative path aimed at improving the fairness and effectiveness of complex decisions over water via peaceful, informed and inclusive processes. Constructive engagement does not remove the passions people bring to water disputes and decisions, but it offers a way of accommodating the diverse interests and perspectives that inspire those passions in processes that seek agreed ways forward (Vernon et al. 2010).

Constructive engagement is rooted in deliberation:

Deliberation is debate and discussion aimed at producing reasonable, well informed opinions in which participants are willing to revise preferences in light of discussion, new information, and claims made by fellow participants. Although consensus need not be the ultimate aim of deliberation, and participants are expected to pursue their interests, an overarching interest in the legitimacy of outcomes (understood as justification to all affected) ideally characterises deliberation (Chambers 2003).

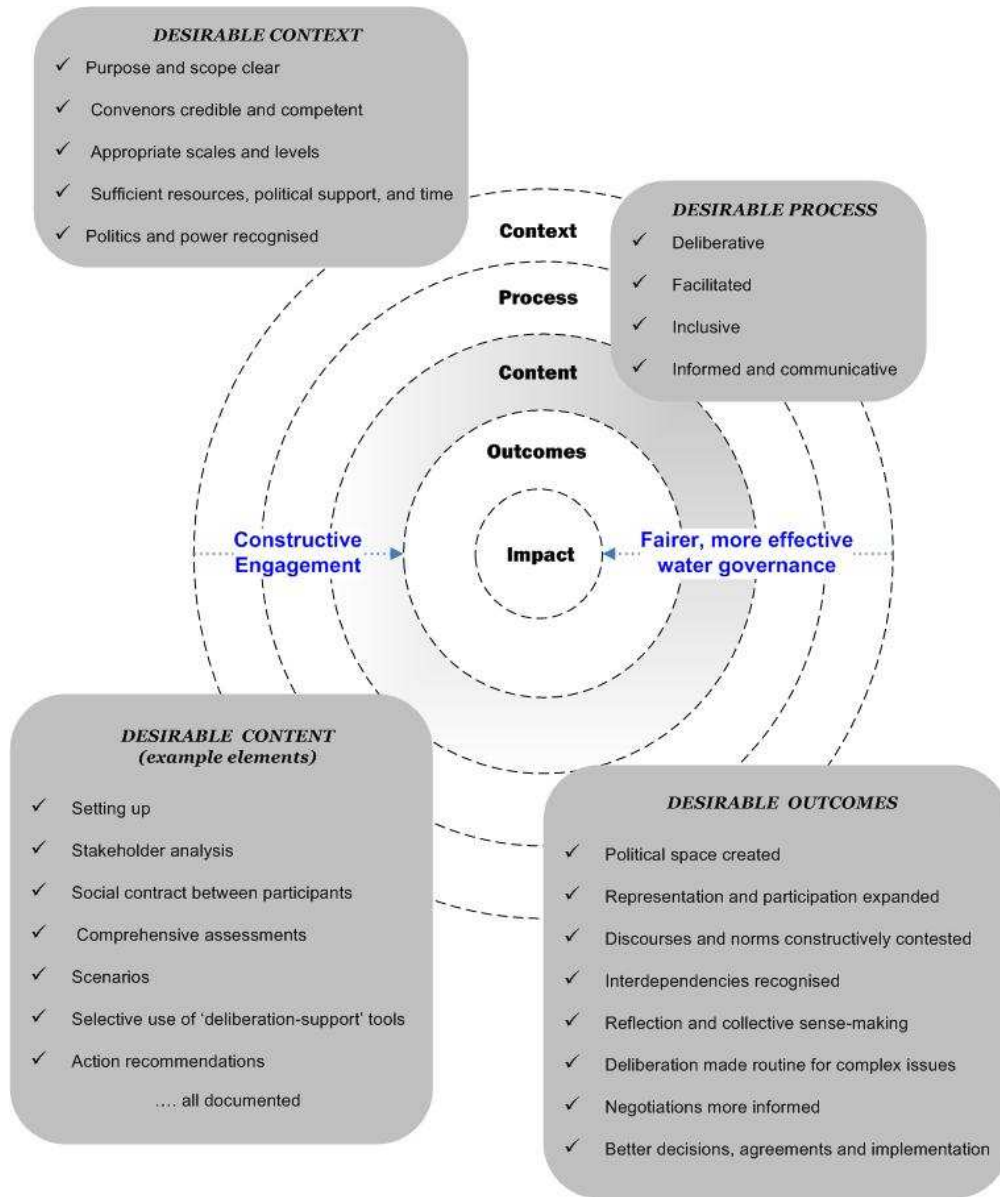
MSPs

A tool of constructive engagement in water allocation decision-making is the Multi-Stakeholder Platform (MSP) (Warner 2007) which is a part of governance in which different stakeholders are identified, and usually through representatives, invited and assisted to interact in a deliberative forum that focuses on: sharing knowledge and perspectives, generating and examining options, and informing and shaping negotiations and decisions. PN67 has reviewed various Mekong MSP efforts (Kanokwan Manorum, PN67_2010_29; Santita Ganjanapan and Lebel, PN67_2010_12; Lebel et al., PN67-2010-22) and this section draws on that analysis. MSPs can help to mainstream deliberation, enabling complex water issues to be more rigorously examined (Dore and Lebel 2010b). PN67 output includes the further development of a conceptual framework for MSPs (Dore, PN67_2010_20) that is introduced in Figure 5.

M-POWER began experimenting with MSPs in the Mekong Region in November 2004, when the Water and Nature Initiative of the International Union for Conservation of Nature (IUCN) convened a high-level roundtable titled 'Using Water, Caring for Environment: Challenges for the Mekong Region' at the 2004 World Conservation Congress in Bangkok. The M-POWER network provided facilitation support and speakers. The event included Ministers from five Mekong countries (all but Myanmar) as well as non-governmental actors. Sensitive issues were discussed – water diversions to Thailand, Nu-Salween hydropower development and threats to the Great Lake - Tonle Sap ecosystem. This 2004 event was the first step in the 'Exploring Water Futures Together' initiative to which we now turn.

In July 2006, IUCN with other partners, including the Thailand Environment Institute, the International Water Management Institute and M-POWER, hosted the 'Mekong Region Waters Dialogue: Exploring Water Futures Together'. The event, held in Vientiane, covered governance issues in several sectors and at several levels (IUCN et al. 2007a, b). The dialogue was intended to be "a regional multi-stakeholder platform organised to provide an opportunity for high-quality, multi-faceted, debate and learning that will contribute to improving water governance in the Mekong Region". One part of the meeting specifically asked participants to evaluate the role and performance of the World Bank, Asian Development Bank and Mekong River Commission.

Figure 5. MSP conceptual framework and desirable characteristics



Source: *Negotiate: Reaching Agreements Over Water* (Dore 2010).

The multiple and changing roles of MRC and its secretariat were hotly debated. Some stakeholders would have liked to see it involved more in investment facilitation, others in regulation, and yet others more as a knowledge broker or convener of dialogue-like activities. As described in the earlier case studies, the MRC has had some difficulties with each of these roles individually. It has struggled to take information it has in hand or needs about ecological processes at multiple levels into planning. It has also struggled with simultaneously considering water-related services derived from the basin and used at different levels and scales. Overall, the deliberative engagement stressed the need for greater transparency and stakeholder participation, consistent with some of the promises in the draft MRC 2006-2010 Strategic Plan.

At the dialogue event the critique of the ADB and World Bank's Mekong Water Resources Assistance Strategy (MWRAS) covered many areas, including issues of process, such as the need to make available all relevant documents sufficiently in advance of consultations, preferably with local language summaries, so they can be properly reflected on during dialogue activities. The discussions also questioned some of the key assumptions about development needs and river basin management capacities. Although there was no consensus reached in these debates, they were important in helping different stakeholders learn about the limitations of their own understanding and analyses as well as the sometimes very different perspectives of other stakeholders.

The dialogue event was followed up by exchange of correspondence between conveners and these agencies, which were included in the final report. 'Exploring Water Futures Together' demonstrated again, as had the joint Ministerial-civil society engagements in Bangkok at the World Conservation Congress, that multi-stakeholder deliberation about sensitive water resources development is possible. The Vientiane dialogue contributed to subsequent downplaying by The World Bank and ADB of their MWRAS that died soon after. It also helped trigger greater interest and demonstrated how to conduct a multi-stakeholder platform, at different levels – whole-of-basin and national. It is no coincidence that in 2008 the MRC BDP2 and a new MRC Initiative for Sustainable Hydropower (ISH) also demonstrated their new approach to multi-stakeholder engagement, for good reasons, but also to wrest back the convening role for deliberation that they had never previously taken up (Dore and Lebel 2010a).

A set of follow-up national level and language dialogues also took place in Laos and Cambodia. The activities in Cambodia, for example, were organised through the Cambodian Water Working Group which represents more than 30 non-governmental, international and other organisations. The working group is facilitated by the Cambodian Center for Study and Development in Agriculture (CEDAC) - one of the founding members of M-POWER - and places a strong emphasis on irrigation and its interaction with other water uses and users. Between November 2005 and February 2007 the working group held 12 meetings and two study tours. The CEDAC commitment to improving water allocation has led it to field a research team and prepare an analysis of the country's current irrigation expansion (PN67_2010_17).

Another dialogue event was also held in October 2006 in Chiang Mai, Thailand, to specifically follow-up discussions from the Vientiane event on the ADB-facilitated North-South Economic Corridor (Foran and Lebel 2007). This meeting was notable for its diverse participation, including representatives from Myanmar and ADB. The event focused on exploring development assumptions through building scenarios at local, regional and global scales.

Networks and organisations with flexible and diverse links with governments, firms and civil society are in a good position to convene and facilitate dialogues on sensitive but important topics for development in the Mekong Region. The outcomes of these are not primarily in terms of decisions on projects, policies or institutional reform but rather, in making sure alternatives are assessed, rights, risks and responsibilities acknowledged and mutual understanding improved.

Conversely, such processes may lack the coherence and continuity that well-funded and institutionalised relationships bring with them. Thus, by 2009 the Exploring Water Futures Together dialogue process was splitting into several relatively independent threads. IUCN and M-POWER, for example, were planning to convene and follow-up different parts of the agenda, while other actors like the MRC have been increasingly taking on convening roles for consultation-style events. In receipt of substantial funds from Government of Finland since 2007 to convene dialogues, IUCN has struggled to maintain the niche it was establishing between 2004 to 2006. M-POWER network has pursued hydropower governance as a key issue, whether convening smaller roundtables, commissioning research, joining in and supporting the convening efforts of others, such as new efforts by MRC since 2008. This is discussed later in the report in the Outcomes and Impacts section.

At more local levels within countries, parallel experiments are underway, in particular, with MSPs of various sorts and at different levels, often through RBOs and often premised on notions that they would support engagement with various stakeholders within and beyond government (Thomas 2005, Molle et al. 2007). A deliberative turn is underway.

Establishing MSPs or other venues for collective engagement provides, however, no assurance that social learning is going to happen. Constructive engagement tools, such as MSPs, can be hijacked by players who are able to frame and control the debate and keep it confined within the limits of their choice. Alternatively the MSP may be permitted to engage many stakeholders in good faith, but be ignored by subsequent decisionmaking (see Hall and Kanokwan Manorom, PN67_2010_29). However, despite these caveats, PN67 and earlier work provide enough evidence to show that MSPs in the Mekong Region have unfulfilled potential to assist inform and shape Mekong water allocation decisions-making processes at all levels from the local to the regional. The potential is being limited by many factors, including suppression, but also by methodological weaknesses in design that hinder implementation. The conceptual framework provided in Figure 5, and the analysis and suggestions that come with it in its formal publication, can improve MSP practice. MSPs are (or should be) carried out as part of using the subsequent tools discussed: scenarios, SEAs, EIAs and PEIAs.

Scenarios

Scenarios are internally coherent stories of the future often used as tools for long-term planning and policy in situations of high uncertainty (van Notten et al. 2003). Scenarios have been used in studies of environmental change and natural resources management to understand dynamic vulnerabilities and explore alternative, long-term, policy responses. Scenarios can be understood as learning processes or products (Hulme and Dessai 2008). Scenarios and associated mathematical models – including the graphs, maps, images and figures used to summarise their outputs – are potentially important tools for long-term, adaptive and reflexive policy-making (de Vries and Petersen 2009). If well constructed, a set of scenarios spans a meaningful space in which a substantial range of pathways and perspectives can be captured.

The goal of formal scenario analysis (also referred to as foresight analysis) is to generate contrasting stories of what the future of a geographical area, or a policy sector, or an organisation might look like, depending on plausible combinations of known, but uncertain social and environmental forces. The analyst and others participating in the process should gain insight in the contrast between alternative stories. Good scenarios are rigorous, self-reflexive narratives: they attempt to be internally coherent, to incorporate uncertainties, to be explicit about assumptions and causality (Lebel 2006, Foran and Lebel 2007).

Lebel provides a comprehensive review of scenarios (PN67_2010_21). He is critical of the high-profile use of scenarios by the MRC in the Basin Development Planning Phase 2 (BDP2). Lebel was one of the organisers of a workshop for staff in the BDP2 team in July 2008 to review draft working papers on Mekong River Basin "development scenarios". At that time he was surprised by the absence of supporting storylines for modeling work that made it hard to gauge the possible sequencing of events, to explore assumptions and alternatives, and consider the responses of people to be affected by the infrastructure expansion at the core of the BDP2 consideration.

Lebel was concerned that the scenarios, as then conceptualised, and subsequently developed by MRC "are not plausible stories of the future, but little more than alternative model runs"; and moreover, that "another limiting feature is the lack of attention given to uncertainties, exactly the type of analysis for which scenario planning is most suited". The BDP2 scenarios concentrate on more – or much more – hydropower expansion, and more – or much more – irrigation expansion. He concludes that wider and more deliberative use of scenarios in the Mekong Region could improve the accountability of major private and state actors involved in water resources development and management in several ways. First, by encouraging actors to be more explicit about the key assumptions they make regarding causal connections, benefits and risks. Deliberative opportunity needs to be created for this to happen, whether in discussions around a table, or through periods where reports and findings are open for scrutiny and comment. And second, by forcing actors to explore timeframes beyond typical planning horizons, and consider alternatives beyond familiar, comfort zones and in so doing, help generate creative water-related use and investment solutions.

Narratives on social reality perform important political tasks: they simplify complex reality through representational and rhetorical devices such as metaphor, analogy, historical references, and emotional appeals (Foran 2006). Story-lines (that is, simplified narratives) form the basis of political coalitions. As Hajer explains: "shallow and ambiguous" by character, story-lines allow diverse actors to "expand their own understanding and discursive competence." They are "discursive cement that creates communicative networks between actors with different or at best overlapping perceptions" (1995).

Foran's review (PN67_2010_23) focuses on qualitative and "holistic" scenario applications – that is, applications that attempt a more comprehensive analysis. Foran argues that the production of holistic scenarios portrays social change, highlighting important processes, both likely and uncertain. The word "portrayal" suggests oral and written representation as well as visual imagery.

Foran reviewed scenarios developed with small farmers in Mae Chaem in northern Thailand, Pak Mun and Songkhram in northeast Thailand. In each case, scenario methods dealt with a range of uncertainties affecting the future of these farmers in given localities. They produced new local area-based and issue-based policy narratives which could then be used in policy advocacy. In all cases, the sets of scenarios produced consisted of more - and less-desirable variations around the status quo in a given rural area. The final scenario in the set functioned as a detailed policy narrative conveying a vision of rural development. In each case, in the final scenario, small farmers and their locally-based livelihoods are sustained by balanced commercialisation and intensification (tourism, high value-added agriculture, and demand-driven irrigation). Such livelihoods and cultures are also sustained by significant local empowerment and improvements in human capital. Such desirable outcomes reiterate the need for reforms that increase downward accountability and effective delivery of resources allocated towards rural development.

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Drawing out the Pak Mun case, Foran (PN67_2010_08) explains that dependence on wild-capture aquatic resources persists, notwithstanding agricultural modernisation and the advent of many other types of livestock and cropping enterprises. This important finding from relatively 'modern' Thailand implies hydropower development may lead to even stronger negative impacts for small farmers elsewhere in the Mekong Region where such dependence is even higher. With national economic development as the over-riding priority, rural people face a spate of large new water proposals, wrapped in powerful discourses of modernisation and poverty alleviation. However, the reality is complicated.

The notion that scenarios involve a structured form of story-telling directs us to pay attention not just to the coherence of their reasoning about social change, but also to how they work as narratives, and how narratives work in policy making. The construction of policy narratives is ubiquitous: there is no shortage of state and NGO-led planning exercises in the Mekong. Each of these development interventions comes with some statement of what the future should be like. Scenarios must somehow link to these policy narratives to be relevant. Hence to influence and improve governance it is worthwhile thinking about scenarios as candidate policy narratives.

Simplifications allow concrete policy action and problem closure. For example, Friend et al. (2009) argue that in the Mekong Region, an enduring narrative of wild-capture fisheries decline exists, with four distinctive storylines:

- wild-capture fisheries are an open access resource which must inevitably decline in the face of population growth and development;
- fishing is a marginal activity with limited potential for generating economic development;
- aquaculture can and should replace wild-capture fisheries; and
- it is necessary to trade-off sustainable wild-capture fisheries for economic development.

The above narrative of fisheries decline justifies a variety of state-sponsored development interventions such as wetlands reclamation, hydropower development, reservoir construction, aquaculture promotion, and fisheries stocking (Bush 2004, Molle et al. 2009c). Friend et al. (2009) show that it is possible to critique and rebut each of these storylines and to build an alternative narrative. Scenarios, as structured sets of narratives, can influence policy change when they are used in competitive rhetorical action. In the present Mekong development context, multi-stakeholder scenario building activities can help inform pro-poor development. Informing development can be done by generating transparent and well-reasoned counter-narratives, as well as guiding actors in their search for robust policy and project-level interventions. The review of scenarios provided by Foran (PN67_2010_23) discusses content that should be covered for pro-poor rural scenarios, as well as process design choices and trade-offs involved in linking scenarios to policy clients.

Advocacy

Under this heading of advocacy, in the context of Mekong water allocation, we are particularly interested in oppositional advocacy, activist lobbying, campaigns and conventional political confrontation drawing on what Veneklausen and Miller refer to as “power with” ie. collective power where people together exercise power through organisation, solidarity and acting together (Veneklausen and Miller 2002).⁵ Local, national or transnational networks of activists that are organised to resist dominant institutions, interests and discourses can play a large role in decision-making or decision-influencing processes (Dryzek 2001). Excellent analysis of advocacy has been provided, for example: exploring indigenous people’s lobbying in the international arenas of the United Nations (Tauli-Corpuz 1998), questioning whether global civil society is an opportunity or obstacle for democracy (Scholte 2007) ; and documenting activist engagement in processes such as the World Commission on Dams (McCully 2001). The subjects of their analysis, including – ‘free prior informed consent’, legitimacy and CSO strategy – are all highly relevant in the Mekong water context, as the following examples of Pak Mun dam and the Save the Mekong campaign will illustrate.

Pak Mun

Foran’s detailed tracing of the Pak Mun dam dispute in Thailand and associated advocacy provides an excellent example of water allocation research and analysis. A PN67 contribution (PN67_2010_08) is a distillation of his PhD research (Foran 2006) which builds on earlier work by Missingham (2004)

Some of Foran’s post-thesis analysis is presented elsewhere (Foran and Manorum 2009), but his PN67 work is a further update and extended analysis of this extraordinary dispute. Using here only some of the advocacy-related conclusions, Foran notes:

- Analysts and advocates for affected people, not just in Thailand, but as a result of Pak Mun’s international prominence, have learnt to question all project studies from conception – the fundamental need for the project – and extending to its ramifying impacts;
- Civil society actors have learnt to mobilise, often in cross-scale coalitions, and to re-politicise knowledge and capture public arenas of deliberation by undertaking, compiling and publishing their own data and research (eg. Thai Baan);
- After twenty years of debate over Pak Mun, some infrastructure sponsors, such as the World Bank, have learned to approach complex questions of livelihoods restoration with more humility; and
- Thai water and hydropower developers such as the Electricity Generating Authority of Thailand, its subsidiaries, and associated civil engineering and consulting firms have been compelled to move to neighbouring countries such as Laos or Myanmar/Burma to build projects they continue to promote as preferred solutions to Thailand’s needs.

Save the Mekong

Under the slogan of “Our River Feeds Millions”, the Save the Mekong campaign has been catalysed and galvanised by the resurgent interest in Lower Mekong mainstream dams. Campaign supporters argue that these dams pose extraordinary threats to local livelihoods, biodiversity and natural heritage as the flip-side to energy and income benefits. More than 23,000 signatures were attached to a petition sent to the Prime Ministers of Cambodia, Laos, Thailand and Vietnam on 19 October 2009.

⁵ Veneklausen and Miller’s power framework also includes: “power over”, usually with negative connotations, such as restrictive control, penalizing and denial of access; “power to”, or agency, referring to the power to choose, and decide on actions, and do them; and “power within” referring to personal self-confidence to assert and act.

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Save the Mekong coalition brings together non-government organisations, local people, academics, journalists, artists and ordinary people from within the Mekong countries and internationally. Save the Mekong coalition urges the Mekong governments to keep the Mekong flowing freely to save this critical source of food, income and life for present and future generations. (Official website of Save the Mekong, <http://www.savethemekong.org/>).

The Save the Mekong campaign has successfully further raised the profile of Mekong mainstream dams decision-making by Mekong governments by strategic use of photography, media, letter-writing, direct representation to influential actors etc.

Whilst not studied in depth by PN67, it is an important case that exemplifies the advocacy aspects of our Figure 4 analytical framework. The Save the Mekong provides an excellent example of using advocacy tools to try and influence decision-making processes and arenas. Rather than placing their trust in existing arenas, the Save the Mekong coalition seeks to widen the scope in a multi-pronged strategy to influence infrastructure decision-making. In a short time it has succeeded in heightening the understanding of risks to ecosystems and livelihoods, and is pressing governments – both in and outside the Mekong Region – to take their responsibilities to project affected people, and nature, seriously.

Knowledge

In contrast with much common wisdom, the quality of decision-making is not necessarily proportional to the quality of the knowledge available. A first aspect of knowledge production is the generation of conventional science. For example, whereas few Mekong river fish were regarded as migratory in the 1960s (Hori 2000), specialists now estimate “that more than 70 percent of the total fish catch in the Lower Mekong Basin (ie. more than 1.8 million tonnes worth US\$1.4 billion at first sale) is dependent on these long distance migrants” (Dugan 2008). It is easy to see how such improved knowledge may make a difference in the way people look at the impact of mainstream dams on fisheries. Likewise, better understanding the importance of fish and other aquatic products in the diet and the livelihoods of the >60 million people living in the basin is key to anticipating the impact of infrastructure interventions, and intensification of agriculture.

Knowledge enquiry has been a key theme of M-POWER’s water governance research, and received full treatment in PN50. Excerpts from the PN50 final report (Lebel et al. 2010) provide a useful introduction to the PN67 exploration of ‘knowledge tools’:

M-POWER has strategically sought ways to build links between formal, science-based knowledge and the experienced-based knowledge of local communities and other practitioners in the management of water. The idea has been that sustainable management of water resources will often require different forms of knowledge and privileging one form or holder of knowledge automatically is likely to lead to unfair and poor decisions.

In the Mekong Region this position sits somewhat uneasily between views of states and some development actors that experts can resolve water management problems with technological solutions with better infrastructure and institutions and others which see much a larger role for local expertise and knowledge.

Analyses of what kinds of arguments are used and whose knowledge counts also underline the role of organisational interests in water resources development and management across the Mekong Region. Many actors, including politicians, are skilful at using the media to promote schemes promising grand benefits while ignoring social and environmental impacts (Garden and Nance 2007, Molle and Floch 2008). Water bureaucracies typically have a concentration of actors and relationships that favor large-scale infrastructure solutions (Lebel et al. 2009). There is a strong tendency to de-politicise assessments and projects, redirecting them to their own agencies experts and consultants (Contreras 2007, Käkönen and Hirsch 2009). Contested knowledge claims are a strong feature of many of the debates around large-scale water resource infrastructure development in the region.

Improving understanding of the contributions of individual and sets of projects to human well-being in the Mekong region remains an outstanding challenge in which issues of governance cannot be neglected. The way assessment and consultation processes are designed and implemented has implications for their credibility, legitimacy and saliency, and ultimately public acceptance. Several specific problems remain in current practices. Water projects continue to be assessed individually: the cumulative and aggregate environmental impacts of water resources development projects are ignored. The realised benefits from water infrastructure projects are often substantially less than those initially promised at the time decisions to go ahead with them were made suggesting that initial assessments were biased. Deliberative processes are important to strengthening the diversity and quality of knowledge inputs into decision-making but will have to overcome organisational cultures that have long emphasised technical expertise and infrastructure solutions to every water resource management problem.

The PN67 reviews of models, CIA, SEA, Peoples' EIA and E-flows all explore the use of these 'knowledge tools'.

Modeling

Kummu and Johnston (PN67_2010_03) explain that impact assessment can be broadly defined as "the prediction or estimation of the consequences of a current or proposed action (project, policy, technology)" (Vanclay and Bronstein 1995). In the context of water management in large basins, both the drivers and impacts of hydrological change act over a wide range of sectors, and of spatial and temporal scales, as briefly presented in previous Section. This results in a very complex set of interactions, with cumulative impacts across sectors and scales. Kummu and Johnston argue that the impacts of changes due to water resources development and climate change will be felt in five main disciplinary domains, which must be approached more or less sequentially – and that it is not always feasible to answer questions about impacts in one until you know something about the previous one:

- Hydrological: flow volume and distribution, river water level, river connectivity, flood dynamics, water quality, sediment and nutrients
- Ecological: habitat quality, wetland functioning, fish migration, aquatic organisms
- Livelihood: water availability for agricultural and aquaculture production, availability of fish and other aquatic products, vulnerability to floods and droughts
- Economic: economic costs and benefits of different water use options
- Social: migration, gender relations, family structure, public health (nutrition, HIV/AIDS).

Coherent assessment frameworks must be developed in each of these domains in order to characterise impacts comprehensively. Modeling is one of very few tools able to assess impacts at multiple spatio-temporal scales, and across a range of disciplines, and it therefore plays an important role in the impact assessment process (Sarkkula et al. 2007).

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A model is simply a representation of a system that allows for investigation of the properties of the system and, in some cases, prediction of future outcomes. In the hydrological domain, models are mostly numerical simulations of natural processes, but in the social and economic domains, they may be more qualitative, conceptual descriptions of system interactions, although they frequently depend on numeric variables. It has been pointed out that even within the single domain of hydrology:

There will never be a single integrated modeling system, a unified complex of numerical routines that can simulate hydrological processes at any prescribed spatial and temporal scale with the focus on any element of interest..... Rather, there will be a family of custom-built models, some locally specific and physically very detailed, others more generalised at the macro and basin scale (Adamson 2007).

It is clear that a range of modeling tools will be needed in order to assess impacts comprehensively. The purpose of each model activity should be also tailored for the needs of the question at hand. Adamson (2007) discussed the trade-off between complexity, error and sensitivity on the one hand, and utility on the other in selecting a model which is "fit for purpose" for a particular set of simulation and modeling objectives. He stressed the importance of finding models suited to the question and available data, and the dangers inherent in adapting or redefining the problems to suit available models or software.

Modeling across disciplinary boundaries is notoriously difficult, in part because of the different intellectual frameworks and assumptions underlying different disciplines; and in part because of differences in availability and quality of data in the different disciplinary domains. However, numerical models can be constructed linking the different domains within a system if the critical interactions can be determined and quantified.

Assessments associated with complex models tend to remain expert-driven and are described in language that excludes most of the people from the discussion of their methods and results. The hypotheses made are often opaque and indeed, hydrologists and modelers admit that the foundations of modeling exercises –and therefore of the conclusions drawn from them- are at best open to debate and at worst shaky. This is because of incomplete/faulty data or intrinsic limitations of the models used (Adamson 2007, Sarkkula et al. 2007).

Use of the MRC's Decision Support Framework (DSF) has been at the heart of some debates. The DSF was the basis of the report 'Modelled Observations and Development in the Lower Mekong Basin' (Podger et al. 2004) which estimated that there were few major risks related to the different scenarios, including the high development scenario. Yet, it was also acknowledged by Podger et al. that due to their impact on fisheries "mainstream dams or weirs in the mid and lower Mekong are therefore most unlikely to be part of any balanced development scenario that complies with the objectives of the Agreement". Two years later another report released by the World Bank and ADB and based on the DSF model runs strongly supported new large-scale water infrastructure projects in the Mekong basin (WB and ADB 2006). MRC's models were used to justify the loose and very general conclusion that water development had so far been too cautious, that it "remain[ed] considerable potential for development of the Mekong water resources", and that "the Mekong river system has significant tolerance for development, including of hydropower and water diversion for irrigation" (WB and ADB 2006) As Kakonen and Hirsch (2009) emphasise, "Such statements reflect the way in which an exercise whose design at best provides a hydrological building block to a basin-wide assessment of the complex linkages between hydrology, ecology and livelihood becomes a firm policy statement on the 'potential' and 'tolerance' of the river to accommodate large dams".

Drawing on a wonderful quote "All models are wrong; some models are useful" (Box and Draper 1987), Kummu and Johnston conclude their review by reminding us that all models are inherently simplifications of reality; they are thus always inaccurate at some level. Conversely, numerical models are often technically very complex, so that for all but a few experts, they function as "black boxes" where there is little transparency in how output results are reached. Combined with apparently contradictory results from different models, these factors can result in significant cynicism and distrust of models amongst some policy makers and planners: they can be seen as mathematical toys, full of assumptions and open questions. Conversely, amongst those who routinely use models and their results, there can be a tendency to regard the model results as representing the system, and to disregard or downplay the assumptions and inaccuracies involved.

Models are an essential component of planning and managing change in the complex, inter-related water resource systems of the Mekong. The increasing sophistication and diversity of available models provides a crucial toolbox for impact assessment, but they must be used in a context where the underlying assumptions and limitations of the models, input data and the resulting projections are clearly spelled out for users. It is important that the modeling itself is done well and transparently, but transferring the results to decision makers and stakeholders in an understandable format is equally important, and often neglected.

Impact Assessment (IA)

Rayner (2003) has characterised the present era as the 'age of assessment' noting the wide set of different approaches, methods and tools⁶ for environmental, social and economic impact assessment in global, regional, national as well as local scales. Ironically, this has led to situations where many Impact Assessment (IA) methods are being developed and proposed but actually very few applied and used. Due to the variety of IA tools and approaches, one can easily get lost in the diverse possibilities.

Current assessments in the Mekong Region are predominantly responsive, looking at the impacts of planned (or already started) suites of projects. The more strategic assessments about the possible development paths and options, as per the spirit of "comprehensive options assessment" (WCD 2000) are basically non-existent. It is, however, exactly these more strategic assessments that are most needed to consider the sustainable options for Mekong Region water resources development that provide equitably-distributed benefits. Although the basin's resources are already utilised in a variety of ways particularly through small-scale farming and fishing and diverse use of wetland resources, the common justification for water resources development is the "underdevelopment" and "underutilisation" of the basin and its resources. Consequently, most development plans focus on sectors such as irrigated agriculture and hydropower, while a majority of the population in the basin actually depends on livelihoods more directly dependent on natural resources such as fish. Worryingly, these kinds of large-scale development interventions –despite their ultimate objectives on poverty reduction– in many cases actually undermine the foundations of the livelihoods of the poorest groups by impacting negatively the availability of and access to common pool resources, most importantly fish (Phillips et al. 2006, MRCS/WUP-FIN 2007).

⁶ In addition to SEA and CIA, there is: environmental impact assessment, transboundary EIA, social impact assessment, cumulative effects assessment, integrated assessment, hydrological impact assessment, and vulnerability assessment (each with its own acronym). Often there is overlap. Even the agencies using the tools are sometimes using wrong terms, talking of CIA when actually doing EIA, for example. More accuracy would be helpful to all.

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The challenges related to impact assessment and, overall, to water development can be linked to the broader challenges with water governance in the Mekong Basin. In terms of governance, the planning and decision-making processes in practically all riparian countries remain relatively non-participatory and non-transparent, hindering open discussion about the different development plans and their potential impacts. Due to the cross-cutting nature of water, water management also falls under several different ministries and institutes; both vertical and horizontal discontinuities and institutional rivalries follow, making water governance particularly challenging (Hirsch et al. 2006, Sokhem and Sunada 2006, Keskinen et al. 2007)

EIA is generally focused on single, fully designed projects, in response to regulatory requirements, and near the end of the approval pipeline. EIAs are a potentially crucial step in project-level decision-making. Unfortunately they have often been exercises in rationalising pre-determined outcomes, or carried out after the decision is made.

Keskinen and Kummu have provided a comprehensive review of Strategic Environmental Assessment (SEA) and Cumulative Impact Assessment (CIA) (PN67_2010_25) and the use of these tools in the Mekong Region. These are quite different in character to EIA.

SEA

SEA is an assessment approach that aims to anticipate the environmental impacts of planned development already in early phase –and at higher level – of planning and decision making. By anticipating and exploring interdependencies, SEA can enable earlier, strategic adjustment or changes in direction. CIA, on the other hand, aims to evaluate the cumulative impacts of multiple activities. EIA is most often project-specific, whereas SEA and CIA have a wider scope with SEAs often overviewing sectoral impacts, and CIAs addressing multiple projects.

The Mekong Region doesn't yet have too many examples of the SEA in the water sector. There are, however, increasing number of plans for SEAs both at regional and national level, with some SEA processes already implemented and others in the process of being implemented. There are naturally good reasons for this, as the numerous plans for water resources development in the basin have currently weak or non-existing assessment of potential alternatives at more strategic and earlier levels of planning.

Vietnam and China are the most advanced in terms of the actual implementation of SEA in the water field. In Vietnam, SEA is already required by law: the Law on Environmental Protection of 2005 introduced the concept and defined specific requirement for SEA. The law also identifies six areas where SEA should be applied for strategies and plans, including integrated river basin planning processes at inter-provincial level. The SEA is, however, still a new tool, and awareness, understanding and capacity in its use is therefore at the early stages of development (ICEM 2008). In addition, the resistance to adopting the SEA in planning processes remains high, and as a result the influence of SEA on actual planning practices is still modest. In the water sector, first pilot studies regarding the strategic environmental assessment for sustainable hydropower development in Vietnam have already been done, and reports related to these processes published (ADB 2009a, Soussan et al. 2009).

China has already adopted the SEA into its legislation; it was included into the EIA Law in 2002. The law defines two types of SEA documents that should be prepared for two different plans, the regional plan and special plan (Gao and Xu 2009). Consequently, the SEA has been used already in a number of fields ranging from river basin plans to transportation, with over 30 SEAs conducted at national level and more than 100 at local government level (Carew-Reid 2009).

In other Mekong countries, the implementation of SEA is less systematic. In Thailand, SEA is considered as a “key historical initiative”, as it is expected to decrease the conflict between the people and the governmental sectors as well as to help developers to invest in sustainable ways (Paranan 2009). Consequently, in 2005 the National Environment Board appointed a sub-committee to consider and carry out SEA, and the SEA Guidelines were approved in 2009. SEA is, however, yet to be incorporated into the Enhancement and Conservation of National Environmental Quality Act (ADB 2009b, Paranan 2009).

In Cambodia, Laos and Myanmar, SEA has not yet been really adopted at national level. For example, the Government of Lao PDR has been debating the inclusion of SEA in the revision of the 1999 Environmental Protection Law. In a recent meeting, it was decided to exclude SEA given the lack of knowledge and understanding of its potential use. However, the Lao government has already moved forward with training and developing guidelines on SEA outside of the legal framework. A new project funded by the Finnish government has prioritised SEA capacity-building for Laos. The three countries have, however, already been involved in some regional SEA initiatives and SEA is, in one way or another, apparent in government plans and policies, particularly those related to EIA (ADB 2009b, Kyaw 2009, Salichanh 2009). The ADB’s Greater Mekong Subregion (GMS) program also has plans to implement SEA in Laos related to its plans to construct mainstream dams into the Mekong (ADB 2009b).

The construction of the hydropower dams in the Mekong Basin – particularly the mainstream dams in the Lower Mekong Basin – is seen as the single most important strategic decision for the four MRC member countries since the signing of the Mekong Agreement in 1995 (Soussan 2009). Related to this, the recent ADB-MRC-WWF report looking at the environmental criteria for hydropower development in the region concluded that there are clear advantages in initiating environmental assessment early in the planning process (King et al. 2007a). More importantly, this view was shared by the MRC member states at the regional consultation meeting on the MRC Initiative on Sustainable Hydropower in September 2008 (Soussan 2009). Such views are –together with pressure from development banks and donors– have increased the experimentation with SEA in the region.

In October 2010 an SEA examining the Lower Mekong mainstream dams has been completed (ICEM 2010). The study has sought to identify the potential opportunities and risks, as well as the contribution, of hydropower to regional development (Carew-Reid 2009, ICEM 2009a, b, c, d, e). A special emphasis in the assessment was put on stakeholder involvement⁷. This deliberative aspect to the SEA had to be very carefully negotiated within MRC and states who are used to more technical, expert-led and expert-contained impact assessment processes.

The ADB GMS Program has been commissioning SEAs through two interlinked processes: as part of its regional power trade initiative as well as through its Core Environment Program (ADB 2009b, Carew-Reid 2009, GMS-EOC 2009). The GMS Program’s SEAs focus on variety of issues ranging from tourism to energy, including water-related assessments (ADB 2009b, GMS-EOC 2009).

In addition, other planning and impact assessment processes in the region have had similar kinds of strategic implications, although they have not necessarily been named explicitly as SEAs. For example, the a hydropower strategic impact assessment of Laos, prepared by Norplan for the World Bank (World Bank 2004a) and a study on environmental considerations for sustainable hydropower development, published jointly by, ADB, MRC and World Wildlife Fund (WWF) in 2007 (King et al. 2007a) include strategic assessment processes that share similarities with the SEA.

⁷ As highlighted in the MRC’s website: “There will be many opportunities for various stakeholders to engage with and provide inputs to the SEA. The team conducting the assessment will engage with NGOs, civil society and community representatives”.

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SEA has emerged during the last decade as a response to conventional environmental impact assessment approaches' inability to tackle increasingly complex environmental issues, including their integration with economic and social issues. In this sense, SEA could be a strategic facilitator of sustainability-seeking process (Partidário 2004). But this assumes implementation has some deliberative character, which is not always the case with SEA, CIA, scenarios or E-flows.

CIA

While CIA can be used to support SEA, its use is usually more common at later stages of planning when many of the decisions about the focus and form of the development have already been made. Neither the SEA nor the CIA has been extensively used in the Mekong. They have, however, for a long time appeared in the plans and strategies of both regional organisations and the governments of the riparian countries, and increasing numbers of actors are including SEA and CIA as part of their planning process. However, use of both tools is sporadic and weakly connected to the actual decision-making.

Cumulative effects are the net result of environmental impact from a number of projects and activities (Sadler 1996). By definition, they are combined within a time and space framework established through direct and indirect activity effect relationships (*ibid*), and often in combination with the impacts of other past, existing and proposed actions. Each increment from each action may not be noticeable but cumulative impacts may become apparent when all increments are considered together. Consequently, CIA can be defined as "a systematic procedure for identifying and evaluating the significance of effects from multiple activities. The analysis of the causes, pathways and consequences of these impacts is an essential part of the process" (Cooper 2004: 4). CIA is, according to Hegmann et al. (1999: 3), "environmental assessment as it should always have been: an EIA done well".

The CIA and related methods have been applied in the Mekong at different levels, ranging from tributary to basin wide assessment, led by ADB, WB, and MRC. Each of the CIAs has been done for different purposes. The review (PN67_2010_25) looks at CIA's done for Nam Thuen 2 (NT2) (ADB 2004), Nam Ngum 3 (ADB 2008), World Bank funded work at MRC (World Bank 2004b)⁸, the 2nd phase of MRC's Basin Development Planning (BDP2) (MRC/BDP2 2009) and a water balance study by Adamson (2001) looking at the downstream impact of the Chinese dams on the Mekong mainstream. All have a political side-story to their implementation. For example, the CIA for NT2 was only done at "one minute to midnight" to tick-the-box. Once prepared it was barely circulated. In any case, it was done far too late in the decision-making process for it to have any directive influence on decisions.

After completing their review of impact assessments across the region, Keskinen and Kummu noted that they were usually expert-driven processes taking a macro-scale view, leading easily to the neglect of local knowledge and contexts. Also, due to their technical nature – or poor science communication – the assessments were also usually described in language that excludes most people from the discussion of their methods and results. This situation is unacceptable to many and has catalysed a search for and development of new approaches , one of which is Peoples' EIA.

⁸ The World Bank CIA work refers here to the CIA work done at the MRC during the first phase of the BDP and during the Integrated Basin Flow Management (IBFM) project.

Peoples' EIA

Kanokwan Manorum (PN67_2010_07) notes that over the past 20 years, widespread environmental destruction and social dislocation associated with many large-scale water infrastructure projects has been the source of numerous conflicts in Thailand. A key point of controversy has been the lack of full, reliable and comprehensive assessments and analyses prior to project construction. In theory, EIAs should provide an accurate prediction and assessment of the impacts of proposed large-scale projects, to help determine whether they should proceed at all. Critics argue that political influences on supposedly neutral science and expertise have yielded unbalanced research on environmental and social impacts. In Thailand, as in other countries, EIAs have often been depicted as an exercise in rationalising pre-determined outcomes, rather than providing independent and rigorous analysis upon which sound decisions should be made. Underestimation of social and environmental costs and exclusion of local perspectives on anticipated benefits, costs and social consequences of projects, have led many local communities, CSOs and academics to mistrust EIAs.

Peoples' EIA (PEIA) is designed to be more inclusive and take fully into account the knowledge and perspectives of local people. Manorum is one of the developers of this method and hence, her review is very much a reflection on primary research. She argues that PEIA is a model for a more participatory and transparent EIA process that can be potentially used as an innovative consensus-building tool for water governance. The story is told of implementing PEIA at the Hua Na irrigation project of Si Sa Ket Province in the northeast of Thailand where about 1/3 of fifteen thousand households opposed a dam, juxtaposed against 2/3 in favour because they wanted to access promised irrigation benefits.

The Hua Na case is a clear example of a water allocation decision where the resource was the initial driver and where the initial non-consultative decision-making was reversed through strong advocacy that resulted in the Cabinet of the Government of Thailand insisting on a full EIA being done. The Thai Royal Irrigation Department then accepted a suggestion to take an MSP approach to what became a PEIA.

Manorum's account of the participatory method development and implementation in a disputed setting makes compelling reading. The findings of the Hua Na experiment – whilst not presented in this synthesis – showed that PEIA can greatly improve water allocation fairness and reduce the severity of disputes by allowing stakeholders to participate in all steps of EIA including: agreeing on the issues to be studied, data collection, analysis, rechecking and then writing a report in a more accessible manner that allows all stakeholders to understand the process and findings. The combination of MSP and PEIA allowed affected people to participate in consensus seeking on impacts, mitigation options, decisions and agreements about long term monitoring. The PEIA is a good lesson – but an isolated one – as pressure mounts throughout the Mekong Region for large infrastructure projects. However, it is clear that PEIA has the potential to be more widely used.

Environmental Flows

Negotiating water flows could be an essential part of river basin management in the Mekong Region. If put into practice, the concept of environmental flows (E-flows) could prove useful for improving water-related decision-making.

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The research papers by Lazarus et al. (PN67_2010_24) and Blake et al. (PN67_2010_10) investigate E-flows, defined as “the water regime provided within a river, wetland or coastal zone to maintain ecosystems and their benefits where there are competing water uses”. Central to the E-flows concept is the recognition that ecosystems not only have their own intrinsic value, but also provide humans with essential services. Implementing E-flows requires establishing water flow regimes, which recognise ecosystem needs whilst trying to satisfy social and economic demands. It also requires the integration of a range of disciplines including engineering, law, ecology, economy, hydrology, sociology, political science and communication.

At first sight E-flows may appear as a complex technical issue, whereby trained ecologists are to study the relationships between particular flow regimes and both ecosystem health and associated services to humans. Intuitively, minimum flows must be ensured in the dry season because of possible damage to ecosystems, especially in the presence of pollution; but flood flows also have their functions and values and it is important to understand what services are lost when these are reduced or controlled; more generally, migratory fish have complex reproduction cycles with different phases triggered by biological and chemical cues.

A purely technical approach would seek to estimate threats to biodiversity and aquatic ecosystems and the loss of ecosystem services, possibly valuing them in economic terms, and establish thresholds based on ecologic knowledge and economy valuation. In most cases it is impossible to carry out such sophisticated analysis. In the case study reported by Blake et al. (PN67_2010_10) the concept is used to sensitise local populations to the services associated with the flood pulse regime. Collective field visits are means to visualise and inventory these services and to raise people's awareness that the flood pulse regime should not be associated only with destruction; and lead them to better realise what they would lose in case of control of flood by upstream dams. This broader ecological method is of course consistent with that used in the Hua Na Peoples' EIA.

In the Mekong Region, there have been a few experiments with E-flows as a tool for negotiating river basin management. The PN67 papers reflects on the experiences of translating IUCN's book FLOW (Dyson et al. 2003) into the six main languages of the region. The translation process provided an opportunity to introduce and discuss concepts with the translation team composed of government and non-government actors, thus establishing a wider understanding of, and constituency for, environmental flows throughout the region.

Field cases on the Huong River in Vietnam (IUCN 2005) and the Mekong River mainstream (Guttman 2006) are also explored. These field experiences were led by different teams, using different methods. The MRC example of E-flows, couched in the 'less green' title of Integrated Basin Flow Management (IBFM) provides a clear example of a tool being halted, partly because it was considered to be too complex to be useful to decision makers, but probably more so because it required decisions to be made on flow allocations National Mekong Committees were not ready to make (Lazarus et al., PN67_2010_24).

Management

As explained earlier, demand-management tools differ from knowledge and engagement tools in the sense that they are not elaborated as a means of informing or directing the decision-making process. They are tools that are meant to be implemented, may assist in the effective allocation of water, and that constitute some of the options that are to be considered and discussed during the process. Many are associated with incentives, whether carrots or sticks, that are expected to influence the behaviour of water users.

Pricing

A typical tool in an urban setting is water pricing. The price structure under certain conditions has a bearing on what water users do and do not do. In some countries like Australia, water markets are used to redistribute water between would-be buyers and would-be sellers (but there is no such example in the Mekong Region). The uses and limitations of pricing have been explored by a PN67 team member (Molle 2001, 2002, Molle and Berkoff 2007) in the period leading up to the PN67 research.

Payments for Ecosystem Services (PES)

The idea of PES is to provide incentives and benefits for people who now utilize environmentally valuable ecosystems in return for them agreeing to utilize them in such a way as to protect or enhance their environmental services for the benefit of a wider population (van Noordwijk et al. 2004)

More recently the PES criteria have been refined (van Noordwijk et al. 2007) to highlight that PES should be realistic, voluntary, conditional and pro-poor:

- PES schemes relate to real impacts on tangible environmental services of importance to at least some stakeholders;
- PES agreements are not fully imposed, but leave space for innovations and search for increased efficiency through voluntary agreements in the space between 'willingness to pay' and 'willingness to accept';
- PES schemes include conditions for the rewards to relate to the actual achievement of goals and standards; and
- PES schemes involve all stakeholders in the landscape, avoid increasing inequity or actively enhance equity on gender and/or wealth basis.

Two PN67 papers review the operation of PES in Mekong Region watersheds, with an emphasis on Yunnan experiences (Jun et al., PN67_2010_01; and Jun et al., PN67_2010_28). The researchers consider PES to be an innovative approach for conservation, development and watershed protection. However, to be more effective, they suggest there needs to be greater effort put into: information sharing, training and education, valuation, and clarification of property rights to enable fair payments that incentivise sustainable watershed management. They also note that there needs to be more encouragement to local governments and others to participate, and in so doing provide PES schemes with the institutionalised local support required for them to be effective.

Other tools include quotas or bans, licensing, property rights, environmental taxes and subsidies, eco-certification schemes, and codes of conducts that are meant to offer guidelines and limit the behaviour of key actors. For example, M-POWER has taken a proactive role in examining the potential usefulness to the Mekong Region of a new Hydropower Sustainability Assessment Protocol (Foran 2010) and is also ready to support a new Rapid Sustainability Assessment Tool (RSAT) being developed by WWF, MRC and ADB.

The potential tools of water allocation are diverse; how they are used is even more so. It is clear from our survey of the features of a range of different types of tools that allocation and distribution is much more than a rational, biophysical, scientific exercise. Consideration of human incentives require that behavioural, social and political analysis need also to be included in the scientific armoury brought to bear when studying water allocation.

Key issues

In the Mekong Region water governance is multi-scale and multi-level, with many connections, but also many disconnects. Actors constrained, motivated or empowered by various political drivers (institutions, interests, discourses, resources) and employing various tools, engage in decision-making processes within arenas.

There are formal and informal institutions, as well as more ad hoc arrangements. Issues move between relatively exploratory and more decision-oriented arenas and practices. Actors also push and pull issues between scales and up and down levels to political and territorial arenas where they have more influence and power.

There are many 'Mekongs' – river, basin, and various regional framings. The interests of investors, officials in government agencies, and small, local users of water, such as fishers and farmers, or distant city dwellers needing energy are visible or not depending on how Mekong arenas are constructed. Likewise, there are many 'waters':

- wetland food baskets and biodiversity havens;
- flood pulses to be welcomed, or flood disasters to be defended;
- irrigation waters for crop production;
- sources of power to spin turbines and generate electricity, etc

Hence, there are many different dimensions to the value of water, depending on the priority given to different uses and users, which all influence allocation. Having earlier elaborated some tool theory and practice, in this section we present a synthesis of the key issues that consistently emerged during the PN67 research, referring to some, but by no means all, of the examples we have documented.

Knowledge becomes politicised

Decisions about supply, demand and frameworks of water management may produce agreements, set criteria, define options considered or lead to specific interventions that impact water allocation. Although the notion of tools and arenas may give the impression that allocation and distribution are based on the best science available or deliberated openly, many decisions are taken on political grounds, by administrative fiat, or according to a particular, often narrow, web of interests. The paper by Hall and Manom (PN67_2010_29) documents numerous cases across the region, such as Yali Fall, Pak Mun and Theun Hinboun dams, where scientific research was commissioned, ostensibly for decision-making purposes, only to be ignored by politicians making critical water allocation and infrastructure development decisions.

Knowledge production tools such as computer models, scenario setting, cost benefit analysis, environmental or social impact assessments are very seldom neutral and scientific exercises insulated from politics and power relationships. This is well recognised by the scholarship that looks at the relations between science and policy making. For example, while the determination of E-flows may at first sight look like a scientific question, this technical tool quickly transforms into a political tool where facts intermingle with values and interests; and where environmental knowledge will at best appear fragmentary and insufficient to substantiate strong claims. As such the E-flows concept becomes a boundary object, open to contestation and negotiation. The same happens with work on scenarios or impact assessment studies: in state/business centred political processes these tools may remain confined to, and used by, a few experts, or consulting companies. As decision-making opens up these tools also become boundary objects and their elaboration is shaped by the new knowledge, worldviews and priorities brought up by a wider range of stakeholders.

Discourses compete for legitimacy

The arenas in which tools are introduced in the Mekong Region are complex. Interests are diverse and capabilities of different actors to control agendas and shape decision-making processes are very unevenly distributed. This is why, in part, actors are keen to bring different tools into those arenas. Many arenas are closed to key stakeholders, and those which are open may be irrelevant to decision-making.

In general, decision-making unfolds in arenas characterised by debates and overlapping or antagonistic view points and discourses. Contested discourses (and associated options, ideas, values, narratives etc.), can be observed in confrontations at meetings, public hearings, and multi-stakeholder platforms, as well as in written texts and the media. Published work by this team (Molle et al. 2009d) has illustrated the discursive dimension of power as a key element of governance – from weaving narratives, labelling people, framing debates, and brandishing meta-justifications. An example of the latter is the securitisation of an issue. National security has been regularly used in the Mekong as justification to close debates or to defend particular decisions.

Consider the following examples. The importance of capture fisheries is constantly diminished by an enduring narrative of doom (people are poor because they fish, resources are declining and facing 'the tragedy of the commons', etc) (Friend et al. 2009). Northeast Thailand is consistently portrayed as a poor and parched inhospitable region (Molle et al. 2009a). Phetchaburi province runs the risk of 'becoming a "desert"' (Bangkok Post 2004). Natural floods are persistently identified with destruction. With this discursive backdrop, it is not unexpected that large infrastructure projects are often presented as an uncontestable solution. Opponents of these views are often derided as anti-development or more interested in environmental protection. This type of false dichotomising of debating actors into 'for' or 'against' is always over-simplifying, sometimes fundamentally incorrect, or, perhaps, plainly mischievous.

Making appeals to justifications and goals that everybody agrees with (like poverty alleviation) or arguments that stress national security, or food self-sufficiency objectives, that inherently refer to the state's prerogatives and core duty, are very common ways of securitising development objectives (e.g prominently during the Cold War) and closing the debate. These, and other discursive practices, underlie all types of collective action and political processes: while they are mentioned here in passing because of their importance they were not explicitly studied and analysed in PN67.

Water allocation organisations morph due to 'constituency' pressures

An example of state-centred decision-making processes is provided by Keskinen and Sithirith's analysis of (PN67_2010_05) who trace and analyse the establishment of Tonle Sap Lake management arrangements, from the eco-driven Tonle Sap Biosphere Reserve Secretariat, to the ADB-driven Tonle Sap RBO, that morphed into the government-driven Tonle Sap Basin Authority (TSBA), that has more recently had its 'wings clipped' to become the Tonle Sap Authority (TSA).

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The Biosphere Reserve Secretariat never established any authority over either fisheries or agriculture bureaucrats, fishers or farmers. The RBO never found support with the government. After effectively removing ADB from its convening role in shaping a Tonle Sap RBO, a dominant faction within the Government of Cambodia directed the creation of the TSBA. Those appointed to it, interpreted its mandate as entitling it to convene and dictate terms to various government agencies, such as the Ministry of Water Resources and Meteorology (MOWRAM), Ministry of Agriculture Fisheries and Forestry (MAFF), and the Ministry of Environment MOE. By mid 2009, it was clear that the TSBA did not have the support of the constituency it sought, its formal powers were reduced, its name was changed to TSA, and it was repositioned lower-down in the institutional hierarchy under the oversight of MOWRAM. Its re-invention is now underway and it may yet establish influence in Cambodian policymaking in and around the Great Lake – that is, at a lower level (sub-national) and lower scale (lake and surrounds, rather than entire Tonle Sap Basin, that covers a large proportion of Cambodia). This is an example of institution-building fully architected within the top spheres of state power – after first having to usurp UNESCO- and ADB- funded experiments – with no say now from development partners or the public at large.

Powerful national drivers can overwhelm

The analysis by Thuon Try et al. (PN67_2010_02) of the decision to invest in the Stung Chinit Irrigation Scheme in Cambodia is salutary. It shows that knowledge tools have been poorly used or ignored. The opinions and interests of villagers have counted little in front of the political promotion of the scheme by influential, national political actors. Contrary to farmers' advice, the government decided to develop a large system of irrigation canals without taking into account the complexity and lack of capacity and funds to manage and operate these schemes at the local level. Large and costly projects (whether for 'new' schemes, modernisation, or refurbishment) receive preference from government and most, but not all donors. This is shown by a raft of similar decisions over the past decade. A new driver is external finance from new sources (eg. India, Kuwait, Qatar, China, Korea) bolstering the government preference for large projects, visible in the stunning portfolio of projects under discussion by MOWRAM, documented by Thuon Try and his colleagues.

Likewise, Chu Thai Hoanh et al. (PN67_2010_16) describe irrigation planning in the Mekong Delta. They show that planning has long been the remit of the central government in Hanoi but that provincial governments have gradually acquired some independence and autonomy. The growing role of researchers in stimulating policy debate/discussion in irrigation development and flood control is also contributing to the opening up of the decision-making process. Yet, the planning of structures to isolate the delta's freshwater from seawater intrusion is a good example of central planning without local participation that has resulted in severe conflicts: while the control of salinity was perceived as a positive measure from the point of view of national rice production, induced changes in salt water contents was incompatible with the much more profitable local shrimp farming.

Mass media can be very influential

Lu Xing et al. (PN67_2010_02) describe how the city of Kunming, in southern China, has managed to increase supply to its expanding population and the corresponding investment, regulation and reallocation decisions that have been necessary. In China water resources are owned by the state, and the State Council exercises the right of ownership on behalf of the state. The state applies a management system that combines river basins and administrative regions in the definition of allocation of water resources. The Ministry of Water Resources, under the State Council, is in charge of the management and supervision of all the water resources and decision making is very centralised. Municipal governments are also powerful and enforce penalties in case industrial users do not follow rules, and have established a regulation for the protection of the watershed of Songhuaba lake, one water source of Kunming municipality.

Decisions and investments are, however, often the result of negotiations among different bureaucratic levels: the cost of Songhuaba reservoir expansion, for example, was shared by the Ministry of Water Resources, the People's Government of Yunnan Province and the Kunming Municipal People's Government. Some opening up of decision-making can be observed as illustrated, for example, by the public hearing on municipal water pricing. The case study also shows that the media had an important role in ringing the alarm in cases of pollution, for example; and that attention by the state to such problems is influenced by media coverage. Thus even in state-centric settings, one increasingly important arena for water allocation issues is the mass media.

Participatory rhetoric not always matched in practice

The transboundary water diversion research of Floch and Blake (PN67_2010_06) was introduced earlier from the water-rich Nam Ngum in Laos, across the Mekong to the water-stressed northeast of Thailand. They joined in a public hearing in 2007, with a carefully selected audience of government officials, Thai scholars, and representatives from mainstream NGOs. The consultant team intended to test their working hypothesis, yet debates ended up disrupted by a group of protesters that took centre stage and demanded their voices be heard, that people "be informed about the project", and "the water transfer between Thailand and Laos be cancelled". Floch and Blake concluded that against the rhetoric of official documents on IWRM principles and good planning practice, there is a wide gap between the rhetoric adopted both in national and international mainstream publications advocating better planning practices and the real-politics of water resources planning.

Many of the case studies exemplified conventional state-centred decision-making. Where engagement tools have been mobilised they have had little influence. Argumentation or negotiation happened mostly between central and provincial levels and public hearings were largely kept under control. Although academics or the media may sometime have had some influence in the debates they did not affect significantly decision making, which remained largely governed, at best by state-defined 'development imperatives', at worst by political and sometime financial interests of government elites. The Thai case shows that lack of transparency may backfire and, where political space permits, stir up organised contestation, which – other than knowledge tools – contributed to changes in decision-making and the (temporary) shelving of the project.

Allocation systems emerge, with or without formal state intervention

There were also interesting cases where state's inaction (as a particular case of decision-making) allows for some particular patterns of allocation of water and benefits and costs. This is the case, for example, where intensive pumping from canals or drains by individuals or small groups result in negative perturbations of the water regime, or where waterways are used as a dumping ground for waste and pollution. Two of the research papers document and analysed cases from Thailand (Sajor, PN67_2010_27) and Vietnam (Hue and Sajor, PN67_2010_14;) where there has been a failure to regulate waste disposal by pig farms and other polluting industries that then impacts on other activities (ornamental fish farming in Thailand) or people's health (in northern Vietnam). Given the record of lack of control of major industrial polluters it is unlikely that diffused micro-scale manufacturing units can be easily controlled by the state alone, especially when there are the backbone of local livelihoods and when short-term economic objectives take precedence over health considerations.

Impact assessment often diminished by narrow problem framing

To the evidence that development projects do incur costs and benefits, the answer has often been to undertake cost-benefit analyses, determine values, and sometimes indicate a way to compensate for 'the costs'. Already in 1972 the Mekong Secretariat boasted "the methods it employs to make sure that the benefits of development will be maximised and the costs – including ecological costs – are minimised" (CCILMB 1972). However, it is hard to escape the conclusion that historically these techniques have not been able to adequately anticipate and internalise negative externalities, both social and environmental. With time these techniques have grown in sophistication and number. Cost-Benefit Analysis (CBA) has been complemented by EIA, Social Impact Assessment (SIA), SEA, CIA, vulnerability assessment etc.

The way problems have been framed - as investigation of transformation of Mekong waterscape by large hydro-infrastructure, as opposed for example to detailed investigation of transformation of Mekong farmers' livelihoods - ensures assessments rely heavily on hydrologic modeling. However, hydrological models generally only provide macro-level estimates of the expected flow regime at particular nodes in a river basin, and cannot properly represent local complexity. They do not capture micro-level changes in water levels or water quality and their relationships with aquatic ecosystems, most notably fisheries, and livelihoods. As for the Tonle Sap, for example, modelers have strived to assess how altered hydrological regimes would translate in terms of primary productivity of the lake (Lamberts and Koponen 2008). Other research (Kummu et al. 2006) has tried to take a closer look at the possible implications of higher dry season flows in the Mekong and have shown that there would be a significant impact on riparian vegetation around the lake and associated habitats, with possibly significant negative impacts to fisheries production. Models do not properly account for other impacts such as local destruction of embankments, eutrophication, siltation, other social and cultural concerns etc.

The power to present and interpret information and model result can be more important than the quality and reliability of the model itself. Technology that is assumed to be sophisticated can be used to legitimate interests in a self-serving way, in this case, by supporting the dominant narrative that the basin is ripe for further development of its water resources. It is somehow fascinating to see how the "fish constraint", which not long ago was seen as an almost fatal impediment to mainstream dams (including by the World Bank), has now been downplayed, if not ridiculed, in some official discourses.

Technical rendering can't capture all values and priorities

This takes us to the profound question of whether the debates about knowledge production should be limited to scientific facts (Käkönen and Hirsch 2009). As the authors put it, "technical rendering" refers to a process whereby problems are painted as rational and amenable to a solution to be provided by science. Political consensus is expected to be generated by a scientific consensus but this can lead to either a call for an indefinite continuation of studies and research, or to obscuring the imperfect basis of the knowledge generated in order to take a particular decision on an issue as the final say and impose one option over others.

Environmental flows – a Trojan horse for a more integrated approach?

E-flows are a knowledge tool which can be used in association with an engagement tool such as MSP and become an important part of informing and shaping allocation negotiations and associated water regimes. Their value resides in the way they both introduce awareness of different perspectives and values and re-open the black box of water allocation.

Discussing and setting E-flows regimes requires the integration of a range of disciplines from across the social, political and natural sciences. Above all it requires processes of cooperative negotiation between various stakeholders that help bridge their different and often competing interests over water.

E-flows have substantial potential in the Mekong Region to assist river basin management. There is merit in E-flows processes becoming a core activity of many River Basin Organisations (RBOs) as they grapple with real, competing demands.

Tool potential unlocked when they become 'boundary objects'

A boundary object is a tool which serves as an interface among different communities of practice (Star and Griesemer 1989, Guston 2001). In climate science, for instance, the parameterisations of new model components are boundary objects, structuring the relationships between modelers and observers of climate change (Sundberg 2007). Effective boundary objects help bring together different types of expertise – scientific, managerial and political. Boundary objects, as devices supporting research-action arenas (van Kerkhoff and Lebel 2006) and assessments (Cash and Moser 2000), can help bring different forms of knowledge together and lead to co-production of new knowledge. The ambiguity and flexibility of boundary objects allows different parties to continue a conversation and negotiation without having achieved identical understandings or objectives.

In short, in the hands of certain actors, in favourable political contexts, use of the tools reviewed here can bridge boundaries between different stakeholder groups. Lebel (PN67_2010_21) argues for example that scenario-building exercises could strengthen the quality of deliberations around water allocation problems in the Mekong Region. Thus far, scenarios in the Mekong – with a few exceptions – have been used primarily to help experts work together on models and then communicate findings from those modeling exercises to a narrow set of clients concerned with just gross changes in flows. This is a very narrow interpretation of what scenarios are that restricts the boundary functions they could play in improving and democratising water governance in the Mekong Region. Scenarios could be important boundary objects through which researchers, policy-makers, water managers, users and affected people could interact to explore and generate alternative solutions.

Conclusions

The many strands of this research, captured in the research publications, each have their own conclusions. Here we focus on a few key areas.

Multiple levels and players

Unless fully controlled by one or a few actors, decisions studied in the PN67 research often involved or mobilised a diversity of players located at different scales. The former case is illustrated by expert-driven modeling confined to spheres of expertise, with final uptake by politicians for decision on a particular project. But the interconnectedness of the hydrological cycle entails that few water decisions are purely local. Since the modification of the water regime is likely to have impact somewhere downstream, the number of players often increases rapidly, as can be seen in transboundary water management. But social and political connectivity is also increasing and environmental and social debates now have their ramifications up to the global level. The decisions about the Pak Mun dam and the ensuing controversy did eventually confront an extremely large number of players, including local villagers, national CSOs, and politicians at all levels, but also transnational CSOs and medias.

Complexity and uncertainty

A major challenge for decision-making processes is the complexity of both the environmental and social spheres. Planning is often predicated upon very simplified representations, either because of the actual limitations of knowledge or of the assumed costs of considering the heterogeneity of things. Knowledge limitations, in turn, come from the lack of existing or available knowledge proper but also for the unwillingness or reluctance of most actors to consider pieces of information that are contrary to their worldviews or interests.

Complexity of scientific environmental information is well illustrated by our limited yet growing understanding of fish migration and reproduction. The definition of environmental flows, for example, also reveals our limited grasp of ecological processes.

The same is true of social processes: resettlement plans or programs expected to deliver benefits to impacted populations are often confounded by the diversity of people's strategies or reactions. What may have seemed a neat paper exercise in social engineering becomes messy, as people continue to make autonomous decisions, to the extent they possibly can. Spatial differences in terms of wealth, job opportunities, resource endowments, environmental degradation, business regulation, law enforcement or political freedom result in often unexpected flows of both people and capital which, in turn, reshape the modes of access to, and pressure on, natural resources.

Actual complexity therefore combines with great levels of uncertainty associated with the parameters that shape the course of things. This is true of course of climatic variability and of the expected increase in extreme events due to climate change. The same can be said of the overall economic environment in which decision takes place. Global economic growth and contraction will shape the final outcome of decisions, with the recent global financial crisis offering some actors a window an opportunity to argue the need for investment in green economic growth.

Dealing with uncertainty and risk is the fate of most decision-makers, not only of those taking water decisions. Yet, because of the way water interconnects people's livelihoods and ecosystems these features have particular importance.

Heterogeneous interests

Players are not only multiple and located at various scales. They also represent and further different interests. Just like in conventional politics the challenge is to both ensure greater salience of marginal and underrepresented people and limit, if not control, possible excessive use of power by those in a position to do so. For example, rural farmers and urban elites are distinguishable not only by power asymmetries but also, frequently, because the former often have partly water-dependent livelihoods while the latter live in cities and benefit from water in an indirect way, either because it generates part of the energy they use or because they consider access to tap water as a normal and indisputable urban amenity.

Deliberation appears crucial

Scale and level politics refers to the politics within and between different scales (eg. those favouring a river basin management approach over other possible scales) and/or levels (eg. those acting or privileging the local vis a vis national level of government etc). These politics contribute to the context and influences the process, content, and outcome possibilities from deliberative engagements.

Informed, multi-stakeholder deliberations that are sensitive to multi-scale and multi-level interests appear crucial to influencing powers, challenging the framings of issues and stakes, and negotiating for or protecting the interests and needs of minorities, women, migrants and diverse groups of the poor. Deliberative engagement also appears crucial to navigating the complex contests over rights to, and responsibilities for, water which is not easily contained or addressed within single, neatly defined, basin (or other hydrological) boundaries.

Many important decisions about water in the Mekong Region are still made in non-transparent ways. Meaningful, public deliberation is still the exception rather than the rule. Among early efforts deliberative engagements vary hugely in inclusiveness, quality of content, structure, and how they are facilitated. As a result the quality and influence of those conversations and relationships varies. Dialogues, good and bad, broad and narrow, may all influence negotiations that help shape decisions that are crucial to improving water governance – but more needs to be done to improve their implementation if they are to contribute to their full potential.

Negotiating is essential

The diversity of interests in water is a social and political challenge for which top-down 'command-and-control' water management does not provide durable solutions. Lack of shared commitment or recognition of the legitimacy of decisions over water can mean people choose not to comply and water resources become overused, polluted and degraded. Coming to decisions which are instead fair, effective and sustainable is possible. Stakeholders with interests in water decisions need to work together to understand their differences and search for workable solutions that each can accept. Discursive, engagement, advocacy and knowledge tools can all help.

Negotiation processes and the skills to design, facilitate and participate in multi-stakeholder negotiations are critical to improving water allocation and management. Water users, water managers and policy makers involved in negotiating water decisions need to develop effective negotiation practice. Better negotiation can help stakeholders to arrive at workable solutions they would not otherwise achieve.

Imperfect present, but signs of hope

There is a paucity of debate in the public sphere about water resources development options. Too-often interests are shaped by taken-for-granted policy narratives focusing on development as modernisation, neglecting values of ecosystems and aquatic resource for livelihoods. There is a lack of venues representing concerns of small farmers and other vulnerable stakeholders, and the venues that do exist for farmers (eg. the rural policies of mainstream political parties in Thailand) are themselves often shaped by narratives that privilege the local and deny constructive roles for the state.

There are low levels of trust between CSOs, national governments, regional and international organizations that hinder constructive engagement. Water data is still considered a secret by many state actors which makes transboundary solution-seeking rather difficult. Moreover, recently it is evident that the precautionary principle is being swept aside without genuine efforts to establish a robust knowledge base and debate alternatives. Such debate is hindered by the reluctance to normalise comprehensive options assessment.

Nevertheless, we observe hopeful signs, such as:

- Vibrant elements in the China media interested in understanding and reporting the water-related perspectives of neighbours;
- Increased space for civil society analysts in Cambodia to engage in state irrigation policy debates;
- Peoples' EIA in Thailand, led by the Assembly of the Poor, building on gains made in the Pak Mun case, and building on Thai Baan participatory action research; and
- Considerable improvements in MRC forums resulting in serious and participatory analyses of ecological and social sustainability (see Section on Outcomes and Impacts below).

Progressiveness of any tool is dependent on the user

We should not remain prisoner of the naïve viewpoint that water decisions are primarily based on science. Such a position leads us backward to two unpractical viewpoints: either to think that because science is imperfect, we should either wait for knowledge to be complete (and do nothing); or to downplay what we do know because it is imperfect. The tools reviewed in this project share an underlying progressive faith in rational planning. However, as we have shown, the tools should not be considered as mere technical options or means of reaching "good decisions" or consensus. In evaluating their use, we cannot detach them from the specific historical and political arenas in which they are mobilised and from particular actors that confront one another. Thus the application of a particular tool changes the allocation arena, in ways that can perpetuate, not resolve disputes.

Drivers change

Water decisions in the Mekong -as elsewhere- still strongly reflect the nature of dominant institutions, interests, discourses and resource availability. Whether instruments of the debate or solutions offered, particular tools are mobilised by certain actors. They therefore somehow reflect or embody the institutions, interests and discourses that broadly underpin the engagement of the various actors and characterise the arena. It must be kept in mind, however, that drivers can – and do – change over time. For example:

- institutions change (eg. land or water rights systems evolve or regress, bureaucratic power is redistributed, regulatory bodies are created or disbanded, etc);
- interests change (eg. new players and new political imperatives emerge);

- discourses rise and fall (eg. “markets work best”, “trees are good”, “big dams power progress”, “water flowing to the sea is wasted”, etc);
- resource availability changes (eg. “new water” in the dry season from more dams, “less or more water” from climate change, “less or more finance” influenced by swings in global and regional economies and the emergence of new donors/patrons, etc

Hence, progress on social processes – deliberation, negotiation, information, openness, etc – is even more crucially needed than on knowledge or management tools.

OUTCOMES AND IMPACTS

This section summarises PN67's main impact pathways, by asking:

Who has changed, at least partly due to project activities?

How have they changed their practice i.e. what are they now doing differently?

What changes in knowledge, attitude and skills that helped bring this change about?

What were the PN67 strategies that contributed to the change? What research outputs were involved (if any)?; and

Quantifying (i.e. evidencing) the change(s) as far as possible.

There are many actors in Mekong water allocation politics. PN67 researchers have been operating in many places, undertaking research and contributing analysis to real decisions. This section explores some of the PN67-related changes in governments, multilateral development banks, donors, hydropower developers, CSOs, and the M-POWER network itself. We draw on the following examples: Mekong River Commission (MRC), Government of Cambodia, World Bank, Australian Agency for International Development (AusAID), a hydropower company operating in Laos, and the Save the Mekong coalition (Table 1).

NOTE WELL: Not all of the changes reported below are claimed to be due to PN67, but they are an important part of the shifting context of PN67 to which the researchers adapted. In some cases, it is clear that PN67 researchers contributed to the change. Quantifying the extent of the contribution is sometimes difficult as many actors and events contribute to change.

Mekong River Commission (MRC)

How have they changed their practice?

MRC practice is now evidencing:

- experimentation with Strategic Environment Assessment (SEA) and sensitivity analysis;
- participation in, convening or facilitating more deliberative processes, including Multi-Stakeholder Platforms (MSPs);
- expansion of the hydrological Decision Support Framework (DSF) to an MRC Toolbox of IWRM-supporting multi-disciplinary tools, including domains such as sedimentation, fisheries and floodplain processes and impact considerations;
- support for Social Impact Monitoring and Vulnerability Assessment (SIMVA) by the Environment Program, including household surveying in 2008-2009, with a view to routinising a social monitoring component to the MRC work;
- development of a new stakeholder engagement policy for the governance level (Joint Committee and Council) of the MRC;
- openness to peer review with an independent Panel of Experts (POE) and collaboration with other expert modeling centres, including University of Washington;
- improved water-related diplomacy within the Lower Mekong Basin, and with USA and China.

M-POWER PN67 has assisted in some of this innovation and experimentation, and increasing acceptance, by regular interaction with the MRC teams. M-POWER PN67 is directly responsible for the shaping and negotiation of the independent POE to review the MRC Basin Development Planning (BDP) and SEA output.

What changes in knowledge, attitude and skills that helped bring this change about?

We judge that a new leadership attitude in Mekong River Commission Secretariat (MRCS), since 2007, has been largely responsible for bringing this change about. Existing staff became less inhibited. New staff were employed. New advisors were employed. Publishing policy was reformed and several pending publications were made publicly available, which had a positive impact on stakeholder communication. Improved diplomacy became evident, and there was better reading of and responsiveness to Mekong geopolitics is resulting in more constructive engagement with China.

What were the PN67 strategies that contributed to the change?

Proactive and constructive engagement by the wider M-POWER network with MRCS was important in the implementation of PN67. As a result of changes in attitude and workforce at the MRCS, part of our team who focused on process/tools reviews, and Mekong River Basin as the place/arenas of study, partly MRCS-based, found themselves more closely involved with MRCS management and staff in thinking about how MSPs, SEA, sensitivity analysis, developing the DSF to a MRC IWRM Toolbox etc. could be better implemented by the organisation. In effect, the demand for our research outputs ran ahead of the schedule for our output production. Although unanticipated, this was a very positive development. PN67 team members were involved in assisting shape, advising or supporting the new appetite from MRCS for the process and tool subject matter of PN67. For example PN67 team members hosted a workshop with the MRC BDP team to provide comments on their scenarios methodologies in mid-2008. <http://www.mpower.net.org/mweb.php?pg=228>

Quantifying the change(s)

Over the project life, MRC and its secretariat the MRCS continued to change as they sought to position themselves as a key actor in Lower Mekong Basin water resources development. For example, for the first time, they began to outreach to government agencies responsible for hydropower in each of the countries. MRC formed a new Initiative on Sustainable Hydropower (ISH), and within a few months convened and facilitated a regional, multi-stakeholder consultation in September 2008. The ISH team launched a Strategic Environment Assessment (SEA) of proposed Lower Mekong mainstream dams in 2009, and is also experimenting with its own Rapid Sustainability Assessment Tool (RSAT)(being developed by consultants for MRC, WWF and ADB). ISH use of SEA is a major exercise involving a substantial team working across sectors and countries.

The ISH is running in parallel with the second phase of the MRC Basin Development Planning (BDP) initiative. The 1st phase which ran from 2001-2005, was ineffective, and although it experimented with scenarios, these were not publicly released until long after the 1st phase was ended. No basin development plan was produced. BDP 2nd phase (2008-2010) must produce an IWRM-based Basin Development Strategy by the end of 2010 and has undertaken extensive sensitivity analyses focused on more or much more hydropower, and more or much more irrigation expansion. The BDP use of sensitivity analysis is important and provides the base information on a range of different hydropower and irrigation development options being considered by Mekong countries, but it could have been more. Unfortunately, the chance for more extensive sustainability-seeking or poverty-reducing futuring has not been taken.

Both BDP and ISH teams have actively sought external input to their work, via teams of external consultants, partnerships with CSOs (including M-POWER), local, national and regional consultations, wider sharing of documentation and mechanisms for public input. This is evidence of a substantial deliberative turn by the MRC.

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Further evidence of practice change is the establishment of an independent Panel of Experts (POE) to review key outputs of the BDP and the SEA exploring the impacts of proposed dams on Lower Mekong mainstream. M-POWER has provided substantive inputs in devising the POE's terms of reference and its functioning.

We also observe that MRC is displaying much greater understanding of political drivers, particularly as they relate to hydropower expansion and geopolitics. The drivers of hydropower are much better understood within the organisation, although it should still be noted that the organisation only has two people working on hydropower within the MRCS staff. Geopolitical drivers are also better understood and being more deftly handled by the MRCS, with relationships being strengthened with China and re-established with USA.

We also observe the growing in number of the bilateral and multilateral projects (funded by WB, ADB and other bilateral donors, where MRCS is asked to play more and more passive role as information and input provider. We also observe a growing need for improving MRC capacity in managing/ dealing with superpowers and powerful funding institutions. The risk of MRC being marginalised by both its member countries and external powers persists. That said, the MRC did take its political engagement within the Lower Mekong Basin to a higher level evidenced by the successful convening of Prime Ministers at the 1st MRC Summit in April 2010.

National governments

How have they changed their practice?

A general observation is that Governments of Mekong countries are beginning to engage in more progressive processes and requiring investors to use tools such as CIA and SEA, both of which move beyond the normal boundaries of project impact assessment. This engagement has usually been driven by their membership and participation in regional government processes, such as those of the Mekong River Commission and ADB-facilitated Greater Mekong Sub-region (GMS), or by multilateral development banks including special requirements as part of loan approval or guarantee processes. For example, both MRC and the GMS Environment Operations Centre have been experimenting with SEA as part of economic analysis and impact assessment. Government of Laos has been a part of ADB-driven CIA done for the Nam Theun 2 hydropower project and the Nam Ngum hydropower cascade. Similarly, Vietnam has been using SEA to explore hydropower development pathways, as part of ADB-catalysed experimentation. The remainder of this example focuses on Cambodia.

What changes in knowledge, attitude and skills that helped bring this change about?

In Cambodia, we have recently seen vigorous pursuit of more and cheaper energy in an effort get away from the expensive dependence on imported diesel. All hydropower options are being considered. Cambodia knows it has less tributary options than other Mekong countries and so is also seriously considering two of its own Mekong mainstream dams. Cambodia is also exploring all possibilities to expand irrigation, with massive pledges (not guaranteed) from a range of new donors. The hydropower and irrigation changes are being driven by new possibilities for designing, financing and operating new infrastructure from new donors/patrons from China, Kuwait, Korea, India etc. that complement the fundamental economic and political drivers for lessening dependence on imports, and the quests for food and energy security, poverty alleviation etc. Key Cambodian officials are aware there are pros and cons to different options and are searching for decision support tools.

Table 1. PN67 impact pathways and shifting Mekong context

Who has changed?	How have they changed their practice?	What changes in knowledge, attitude and skills helped bring this change about?	PN67 strategies that contributed to the change?	Quantification
Inter-government organisation eg. MRC	More open to using decision support tools, beyond the hydrological modeling staple fare: SEA, sensitivity analysis, MSPs, IWRM Toolbox, POE, diplomacy. More conscious of hydropower and geopolitical drivers.	New leadership attitude. Existing staff less inhibited. New staff. New advisors. Improved diplomacy.	PN67 researchers direct engagement with MRCS since 2000, scaled up since 2007.	ISH SEA, ISH RSAT, BDP sensitivity analysis, ISH and BDP use of MSPs, POE, Stakeholder Engagement Policy. Heightened engagement with China, USA and Lower Mekong Prime Ministers.
Government of Mekong country eg. Cambodia	Key advisors searching for more decision support tools to assist make national choices about energy sourcing and irrigation expansion.	Design, financing and operation support from new donors/patrons, such as China, Kuwait, Korea, India etc.	Direct engagement with government's economic policy 'think tank', Cambodian media and government at multiple levels.	SNEC and other key organisations examination of international HSAP; supporting establishment of FWUCs; new water resources sector program.
Multilateral banks eg. World Bank	Active re-engagement in water resources infrastructure financing – small, medium and large.	Reflection following impasses of the 1990s leading to new strategy	Direct engagement in new project design. Joining WB-convened Mekong water deliberations in Washington DC.	Assistance to Government of Laos to improve hydropower and mining governance.
International agencies eg. AusAID	Revised delivery strategy for AusAID Mekong Water Resources Program	Increased understanding and focus on the political economy of water.	Direct engagement in the strategy revision.	Funding PNPCA and hydropower governance efforts by non-state actors.
Hydropower developers eg. Company operating in Laos.	Commissioning peer review process for their Laos operations.	Recognition of need to outreach to other actors	Direct engagement to build working relationships and trust.	Review of international HSAP; new Peer Review processes.
CSO coalition eg. Save the Mekong	Refined use of advocacy tools	New knowledge of dam-building agenda catalysed a response.	NA	Save the Mekong campaign.
Regional Network eg. M-POWER	More MSPs support, roundtables, POEs, peer review.	Commitment to demonstrating 'good' deliberative practice.	Outreach within the network to sharpen skills and support demonstration.	Roundtables with governments, MRC, modelers; hydro protocol testing, POEs etc.

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What were the PN67 strategies that contributed to the change?

PN67 researchers' strategies have been to scale-up direct engagement with the government's economic policy think tank, the Supreme National Economic Council (SNEC), the Cambodia media, and with the government at multiple levels. Other government institutions engaged with have included: Ministry of Water Resources and Meteorology (MOWRAM), Ministry of Environment, Fisheries Administration, Forestry Administration, Tonle Sap Authority, Electricity Authority of Cambodia, Electricite Du Cambodge, and various CSOs.

Quantifying the change(s)

From 2009 SNEC and other key organisations in Cambodia have been participating in an examination of the international Hydropower Sustainability Assessment Protocol with M-POWER researchers. Other team members have been analysing the rationales for irrigation expansion, learning the lessons from past efforts where substantial resources have been wasted, and engaging in policy dialogues with the government about best ways forward. Cambodian PN67 researchers are supporting the establishment of Farmer Water User Community (FWUC) network and also peer reviewing the design of a new initiative by the Government of Cambodia, called the Cambodia Water Resources Management Sector Development Program (CWRMPSPDP) that includes plans for substantial water governance reforms and experimentation that has potential to improve water allocation decision making.

World Bank

How have they changed their practice?

Assistance to the water sector from the World Bank Group was significantly scaled up from 2003 to 2009 and annual commitments increased from USD 1.8 billion to USD 6.2 billion (World Bank Group 2010). From 2003 to 2008 sixty-seven hydropower projects were approved, with the Bank providing USD 3.2 billion as its contribution to total project investment of USD 8.5 billion aiming to enable production or rehabilitation of 9,700 megawatts of capacity (World Bank Group 2009).

What changes in knowledge, attitude and skills that helped bring this change about?

WB funding of large scale water resources infrastructure declined through the 1990s as a result of increasing controversy about decision-making processes and decisions. WB joined in World Commission on Dams (WCD) that reported in 2000, but stopped short of endorsing the report, concerned that WCD had over-reached and alienated state governments (Briscoe 2010). Moreover, WB determined that the WCD guidelines, whilst helpful, should not be enshrined as Bank policy. For several years the Bank rethought its position, announced in a new Water Resources Sector Strategy (WB 2003). Thereafter, the scale-up took place.

Nam Theun 2 in Laos was the first new large hydropower project that WB re-engaged with, and it has been very keen to 'do it right'. The Bank provided a USD 20 million grant and up to USD 250 million in guarantees that helped leverage an overall financial package of approximately USD 1.4 billion. The importance of NT2 to the WB is far beyond the modest amount it actually contributed to the project.

The NT2 project has been the most publicly scrutinised project in Laos and received as much attention as perhaps any other project in the WB's water infrastructure portfolio. A consequence of this is that WB is now barely a player in the other projects advancing in Laos. The NT2 process is seen by many in the Government of Laos and developers as having been too arduous. A forward challenge is to maintain high standards without having processes that are too circuitous. However, the learning from NT2 has resulted in the Government of Laos putting in place several important strategies/policies which are now being tested: "Environmental Guidelines for Biomass Removal from Hydropower Reservoirs in Laos"; a new Environmental and Social Impact Assessment Decree, approved in February 2010; and new environmental and social obligations are being included in hydropower (and mining) concession agreements.

What were the PN67 strategies that contributed to the change?

PN67 was not involved in the aforementioned change in WB practice, but recognises that it is part of the shifting context. M-POWER and PN67 research findings and personnel have engaged directly with WB (and AusAID) in the design of new project assistance to the Government of Laos aiming to improve hydropower governance in the period after the completion of the NT2 construction ie. 2010+. M-POWER also accepted an invitation to join the discussion panel and Mekong sessions at the January 2010 World Bank meetings of the Sustainable Development Network held in Washington DC.

Quantifying the change(s)

New technical assistance to the Lao Government, principally through the Ministry of Energy and Mines, is aiming to build capacity and improve hydropower and mining governance. The shape of this USD 10.5 million investment has been partly influenced by the analysis and lessons from PN67.

AusAID

How have they changed their practice?

Australia is one of the largest donors to the MRC with approximately USD 15 million invested between 2007-2012. In the latter part of 2008 and early 2009 AusAID revised its Mekong Water Resources Strategy to decentre the Mekong River Basin and the MRC from its program of development cooperation, by expanding the range of partners it supports. A window has been opened for support to non-state actors, as a complement to the MRC support, and bilateral water resources-related supports to 5 of the 6 Mekong countries (currently Myanmar is excluded).

The goal of the Australian support is to promote regional cooperation to achieve sustainable development through better use and management of the Mekong Region's water resources. The goal is supported by three inter-related strategic objectives: strengthening institutions; building reliable knowledge that is readily available; and, making more informed decisions on the region's water resources.

Activities supported by Australia address one or more of the following priority issues: i) capacity building - technical and social capacity building to enable IWRM; ii) environmental change - adapting to climate and other environmental change; iii) food security - ensuring there is enough food for vulnerable and marginalised people; iv) hydropower assessment - comprehensively assessing options, including alternatives; v) transboundary engagement - engaging more constructively on water-related issues between all six countries of the Mekong Region; and vi) corporate social responsibility - encouraging private sector leadership and accountability.

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What changes in knowledge, attitude and skills that helped bring this change about?

Changes to the Australian approach were driven by an increased understanding of the political economy of water – being further established by PN67, building on extensive prior work by M-POWER partners and other analysts. The predominant view is that there is insufficient, reliable, high-quality knowledge to underpin strategic assessment of options and decision making. New political space for transboundary, water-related deliberation between states has opened. However, there remains an urgent need for this deliberation to be better informed in order to constructively influence negotiations and policy of public, private sector and civil society actors.

What were the PN67 strategies that contributed to the change?

The PN67 strategy has been to engage directly with influential actors to contribute to constructive change. The PN67 project leader led the Australian strategy revision.

Quantifying the change(s)

New lines of support from Australia include to the CSIRO AusAID Research for Development Alliance, including 'Exploring Mekong Region Futures', with USD 2.5 million of funding for 2010-2012, which involves modeling, scenario building and deliberation at local, national and regional levels. PN67 team members have worked with CSIRO to shape and populate this policy (and decision-focused) action research. This is another tangible way in which the PN67 research agenda is influencing forward actions. The M-POWER and PN67 interest in 'research for development' has joined with this new CSIRO AusAID partnership.

Hydropower development company

How have they changed their practice?

Numerous dams and water diversions are on the agendas of mobile private and quasi-public sector developers, transnational capital providers, and the six governments of the region. A recent count found 82 existing and 179 potential hydropower projects in the wider region, many on Mekong River tributaries. Planned dams and diversions would transform the waterscapes of the Region. Yet, until the last few years hydropower developers in the Mekong Region had little engagement with the water governance research community or the MRC. More developers are now engaging in deliberative processes.

What changes in knowledge, attitude and skills that helped bring this change about?

In this example we focus only on Laos, where two hydropower developers, the Nam Theun Power Company and Thuen Hinboun Company, receive extraordinary scrutiny and are increasingly used to public engagement. Many others are on a 'second track' where approvals and compliance receive less scrutiny and transparency is not the norm. This includes hydropower developers from China, Vietnam, Thailand, Russia and Malaysia

As a result of constructive engagement early in the PN67 research period, a major Asian hydropower developer has requested PN67 project team members to work with them and advise on how they can better manage their social, economic and environmental assessment processes.

What were the PN67 strategies that contributed to the change?

PN67 partners outreached to hydropower developers in the region who joined several roundtable meetings. Placement was arranged for an M-POWER Research Fellow from China to base inside a developers' office in Vientiane. This direct engagement to build working relationships and trust, resulted in a request to organise an independent peer review process.

Quantifying the change(s)

Engagement in review of international Hydropower Sustainability Assessment Protocol; establishment of independent peer review process to review all plans and assessments for proposed development of a cascade on a Mekong River tributary.

Save the Mekong coalition

How have they changed their practice?

As PN67 was starting up, a group of CSOs came together to form the Save the Mekong coalition, catalysed and galvanised by the resurgent interest in Lower Mekong mainstream dams that they consider pose extraordinary threats to local livelihoods, biodiversity and natural heritage as the flip-side to energy and income benefits. In response to perceived inaction by MRC and Lower Mekong Basin governments, CSO groups launched the campaign via the web and a public event in Bangkok.

What changes in knowledge, attitude and skills that helped bring this change about?

New knowledge of real plans to move forward with Lower Mekong mainstream dams changed the attitude of many CSOs, such as the coalition members. Their position hardened as up to that point they had seen a relatively impotent, silent MRC, that seemed uninterested or incapable to facilitate a high-quality conversation about the pros and cons of further mainstream development. (MRC has since entered the debate, as discussed above, taking many constructive steps). CSOs saw, and still see, tougher advocacy as a necessary strategy moving forward. CSO groups held a large forum on Mekong mainstream dams in November 2008 and another in April 2010 and largely targeted the MRC for "not doing their job" (as they see it).

What were the PN67 strategies that contributed to the change?

Not applicable. This is part of the changing Mekong context, being studied in PN67, but these changes could not be attributed to the project.

Quantifying the change(s)

The Save the Mekong campaign has successfully further raised the profile of Mekong mainstream dams decision-making by Mekong governments by strategic use of photography, media, letter-writing, direct representation to influential actors etc.

M-POWER network

How have they changed their practice?

Having developed expertise, network members are now engaging more in supporting others to conduct MSPs and consensus building processes. More recently, engaging more in new kinds of progressive processes (for the Mekong, with rare exceptions), such as independent Panels of Experts, and assembly of multi-country peer review teams etc.

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What changes in knowledge, attitude and skills that helped bring this change about?

A commitment to demonstrating 'good' deliberative practice has seen M-POWER network members be proactive in sharing research results and testing new approaches in partnerships with MRC, governments, donors, hydropower developers, and CSOs. The network has built relationships and searched for productive entry points for action research to contribute to policy change.

M-POWER organised a multi-stakeholder hydrological modeling roundtable to discuss and debate models being used in the Mekong Region. This roundtable drew from research carried out under PN67. M-POWER has regularly shared views and research results with the MRC, governments, CSOs and developers thus defining entry points for further collaboration to take our action research to impact policy change.

What were the PN67 strategies that contributed to the change?

M-POWER continues to carryout action research but is also establishing a new niche organising Panels of Experts to Peer Review documents and provide high-quality comments.

Quantifying the change(s)

2010 example: Multi-stakeholder roundtable to discuss and debate models being used in Mekong Region water resources policymaking, grounded in PN67 research findings.

2010 example: Peer review team to review key outputs of company-commissioned EIAs and SIAs of proposed dam cascades on Mekong River tributaries.

2010 example: Contribution of regional team members (ie. people from the Mekong Region) to form an independent Panel of Experts (POE) to review the key outputs of MRC BDP 2nd phase.

Changes with greatest potential for constructive impact?

Many of the changes discussed above, and shown in Table 1, have significant potential for constructive impact.

At the strategic level, the deliberative turn in regional water politics is likely to lead to more substantive discussions between all countries of the Mekong Region. The types of knowledge that informs these new deliberative spaces will be critical to their outcomes and eventual impact.

For example, effective deliberative process in the implementation of the PNPCA is important, but equally important is that the knowledge inputs provided for deliberation are of sufficient quality and readily available to the public to enable high-quality discussion of critical development issues and choices. Specifically, the SEA and BDP inputs must ensure that all key issues are illuminated prior to or during transboundary negotiations.

Normalising the use of MSPs as a tool for constructive engagement has huge potential in the Mekong Region.

Normalising peer reviewing, whether by POEs or other means, is also a straightforward change that has major potential.

What still needs to be done?

Much more can still be done to improve Mekong water allocation decision-making. PN67 was just one modest effort that has learned and engaged in some of the relevant political arenas.

Beyond PN67, there are many avenues open to PN67, the M-POWER network and other Mekong colleagues to continue with constructive work. Several of these have been mentioned in Table 1. For example, there is ongoing CPWF and M-POWER work, supported by AusAID, exploring the usefulness of the HSAP in the Mekong Region. CPWF Mekong Phase 2 is also taking forward various parts of the PN67 agenda to improve negotiations and decision making. The M-POWER-MRC independent POE is also showing promise and will continue throughout 2010. The Mekong IWRM Project of MRC has substantial financial support that should provide MRCS with flexibility to continue with its deliberative turn and develop a PNPCA process worthy of the decisions that it must inform, that being whether or how to proceed with Mekong mainstream dams or other infrastructure developments that have transboundary impacts.

New support to the Lao Ministry of Energy and Mines includes governance review and a learning program for key actors in the hydropower and mining industries that will run from 2010-2013. New support to the Government of Cambodia provides opportunity for improving the way decisions are taken about irrigation and hydropower expansion across the country.

Which impact pathways were unexpected?

The change in MRC openness and adoption of progressive tools has been unexpected with the SEA, RSAT and POE.

The interest of Cambodia's SNEC in water allocation issues was also unexpected.

Opportunities to increase engagement were also opened by people shifting employment. During the life of the PN67 project, PN67 researchers have been employed by MRC, WB, ADB, AusAID and Mekong government agencies.

Engagement with hydropower developers has also proceeded faster than expected, aided by the interest shown by companies in new hydropower governance tools (HSAP, RSAT) that the companies wish to use in experiments.

The Mekong Region is undergoing a very rapid changing environment and there are numerous activities and discussions taking place. PN67 team members were able to be flexible to engage in many of these activities and discussions to take advantage of new opportunities. For example, the project was able to use some of its funds to engage in the ISH's SEA and to partly finance the POE that is focusing on the BDP.

What would you do differently next time?

PN67 has enabled substantial constructive engagement by researchers in analysing Mekong decision tools and the political economy of Mekong water allocation.

With the benefit of hindsight the team would have engaged more strongly with the Asian private sector earlier in the project, and would have moved faster to normalise peer review and deliberative processes (not necessarily always multi-stakeholder).

International public goods

Products

All research products of PN67 (Annex 2), including this final project report, are international public goods.

Methodology

The impact pathway methodology, developed by CPWF and adapted for use in PN67 was found to be very workable and could contribute further to the emerging school that is rethinking impact and outcome targeting and mapping, and periodic monitoring for collective learning in rural resource management (Earl et al. 2001, Guijt 2008).

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Insights

Key insights in the Findings section are also international public goods.

Partnership achievements

This project has been a cooperative production of the M-POWER network. The project has further developed partnerships within and beyond the network and the Mekong Region.

Within M-POWER:

All research partners in the original proposal confirmed their willingness and availability to join this research project as it shifted to implementation. New M-POWER colleagues joined where they could add value. This became critical when the decision was taken to improve the design of the research by adding specific “place and arena studies” to complement the originally planned “process and tool reviews”.

A positive aspect of the Inception Phase was the full engagement of the team, plus interested colleagues, at the Inception Workshop 2 February 2008 which followed on directly from the M-POWER Annual Partners’ Meeting. Thirty (30) researchers joined the workshop.

In addition to adding the “place” dimension to the analysis (since expanded to “places and arena studies”), Chinese experience was capitalised on and brought into PN67, via invitations to The World Agroforestry Centre and Yunnan University colleagues. We were pleased they accepted the invitation and since worked to shape their contribution. Furthermore, all researchers were present in February 2009 in Kunming, China to sit down together and critically review each others papers and provide constructive input and feedback.

A substantial example of scaling out within the Mekong River Basin is the M-POWER PN67 team designing the terms of reference, co-financing and contributing members to a new Panel of Experts (POE) to review the progress by Mekong River Commission with its scenarios analysis that are informing a Mekong River Basin ‘development strategy’ due for finalisation by end of 2010. This is creating an important bridge between researchers and policymakers as the independent POE will report to both MRC and M-POWER.

M-POWER also developed a comprehensive website to share all of our research developments and events. See: www.mpowernet.org.

Beyond the Mekong countries of East Asia, PN67 drew in key researchers and advisors from South Asia, USA, Europe, Australia and southern Africa.

Beyond M-POWER:

During the PN67 project, M-POWER engaged with a number of entities within and beyond the Mekong River Basin (Table 2). We used the term “beyond the Basin” a little differently to refer to our efforts to make a difference beyond the Mekong River Basin (800,000 km²) to the wider Mekong Region (2.3 million km²) and beyond to other political arenas we may be able to reach. Of course, our main focus in PN67 is “scaling out” (as we define it) in the Mekong River Basin. Anything beyond is possible, but a bonus. This is included in recognition that we have the opportunity via our social networks, event opportunities and working interactions to act and potentially influence beyond Asia. Numerous engagements were made to the wider research community.

Table 2. Examples of M-POWER PN67 engagement with partners

Type	Where	When	Target	Result
Regional Seminars / Conference / Workshops				
1 st MRC BDP regional multi-stakeholder consultation.	Vientiane, Laos	12-13 Mar 2008	150 Mekong stakeholders	PN67 presented in a session led by M-POWER researchers, alerting Mekong River Commission (MRC) to the expertise available in the region to contribute to their Basin Development Planning (BDP) processes, including scenarios formulation. Ten (10) PN67 researchers actively participated.
MRC BDP Program team meeting.	Vientiane, Laos	3-4 Jun 2008	MRC CEO and BDP team	PN67 introduced to MRC CEO and BDP team for input and feedback.
Dialogue between MRC and M-POWER on BDP scenarios	Chiang Mai, Thailand	Jul 2008	MRC BDP Team	Dialogue and feedback from M-POWER team to MRC on BDP scenarios methodology. Difficult process because MRC were quite set with their methodology, which was clearly more about sensitivity analysis of a narrow set of development options, and not a true, more diverse scenarios process.
1 st MRC Hydropower regional multi-stakeholder consultation	Vientiane, Laos	Sep 2008	MRC Hydropower team.	PN67 team awareness of the incompleteness and inaccuracy of the early BDP messaging to Mekong governments and the hydropower industry. Focus on hydrological impacts and freshwater fisheries. Many other issues barely addressed eg. economics, social vulnerability, navigation, sediment, nutrients, ocean fisheries, cascade management, environmental flows.
2 nd Regional multi-stakeholder consultation on Basin Development Planning scenarios.	Chiang Rai, Thailand	Oct 2009		Power point tsunami where the narrow messaging of the 'early' sensitivity analyses was continued. Methodologies for social, economic and environmental assessments by MRC were presented for consideration but limited opportunity for substantive feedback. The limitations of the compressed 2 day dialogue meeting were again exposed, conducted at high-speed in English language. Reflecting on this meeting led to M-POWER decision to propose an expert team to provide Peer Review to the MRC on their BDP work. This led to the regional members of the independent Panel of Experts being appointed in May 2010.

Outcomes and Impacts CPWF Project Report

Type	Where	When	Target	Result
Regional Seminars / Conference / Workshops				
Mekong field visit with CPWF donors	Phnom Penh, Cambodia	9 and 11 March 2010	Government of Cambodia reps and CPWF donors	Eight M-POWER colleagues participating in PN67 joined a CPWF-convened workshop with Cambodian and donor representatives, and later hosted international visitors at the office of CEDAC.
Public Forum on Sharing the Mekong River Basin	Bangkok, Thailand	1 April 2010	Mekong civil society, Mekong media.	Brief presentation on PN67 research findings to the public forum held at Chulalongkorn University the day before the commencement of the 1 st MRC Summit.
1 st MRC Summit	Hua Hin, Thailand	2-5 April 2010	Prime Ministers	PN67 project leader contributed to the design of the Pre-Summit Technical Conference, and ensured that an Equator Principles bank perspective (from ANZ) was included on the agenda that enabled a discussion of incentives (positive and perverse) from/to the banking sector which are impacting on Mekong water resources infrastructure investment, and hence allocation.
1 st mission of the independent Mekong Panel of Experts POE	Vientiane, Lao DPR	5-14 May 2010	MRC	Regional POE team initial assessment of the key BDP outputs, in particular the data, methods and tools used (see schedule in Annex 1). Provision of advice to MRC.
Regional consultations on MRC SEA	Vientiane, Laos	19-20 May and 28-29 Jun 2010	Government, hydropower industry, academic, and wider civil society reps.	Public examination of the draft MRC Strategic Environment Assessment of Lower Mekong mainstream dams. Provision of advice to MRC.
2 nd and 3 rd Missions of the Mekong POE	Vientiane, Laos	3-11 Jun and 28 Sep – 8 Oct 2010	MRC secretariat and the BDP Regional Technical Working Group of primarily government officials.	Regional POE team fielded with PN67 resources, joins with international team members fielded with MRC resources from Danida, to undertake more detailed assessment of the key BDP outputs, relationship to Mekong country and hydropower industry drivers, and possible impacts on Mekong water allocation decision making. Provision of direct advice to MRC to inform water allocation decisions on the agenda of the MRC Council in November 2010.

Outcomes and Impacts CPWF Project Report

Type	Where	When	Target	Result
International Seminars / Conferences / Workshops				
World Water Congress	Montpellier, France	1-4 Sep 2008	International researchers and policy makers	PN67 was presented during 3 hours of Mekong sessions being convened by M-POWER at World Water Congress
Mekong Management at a Watershed	Goteborg, Sweden	29 Sep – 1 Oct 2008	Mekong researchers, policy makers, donors.	PN67 was presented during a session at the symposium titled 'Mekong Management at a Watershed', hosted by Goteborg University.
CPWF IFWF2 Meeting	Addis Ababa, Ethiopia	10-14 Nov 2008	CPWF community.	PN67 summary paper was presented in a session and published in the Proceedings.
Implementing Environmental Water Allocations Conference	Port Elizabeth, South Africa	23-26 Feb 2009	International researchers focusing on environmental flows	Two research partners presented at the FLOW meeting in South Africa in February 2009. The paper was peer reviewed during the PN67 Writers' Workshop and subsequently presented in South Africa. This paper contributes to our tool review on environmental flows and also social impacts assessments.
Pani Satsang	Kathmandu, Nepal	Aug 2009	Nepalese stakeholders engaged in water resources management	Pani Satsang is a forum which brings professionals, policy makers and experts of various fields to discuss contemporary issues of development. Kate Lazarus was invited to share the PN67 research agenda.
Change Alliance	Wageningen, The Netherlands	30 Nov – Dec 2009	Practitioners of MSPs	Establishment of network of Multi-Stakeholder Platform (MSP) practitioners; sharing of the Mekong MSP experiences and learning. http://www.changealliance.org/news-events/launch-event/

RECOMMENDATIONS

Water allocation research

Engaged research remains critical to assist improve water allocation in the Mekong Region, as part of the wider realm of improving governance. To produce that requires engaged and critical researchers familiar with local, national and regional languages and cultures. Every effort should be made to motivate, support and strengthen a regional community of water governance analysts that understand tools, tools as boundary objects, drivers and decision-making politics.

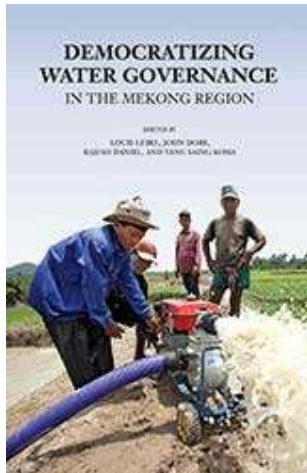
Water allocation practice will be improved when....

- ... Multi-Stakeholder Platforms (MSPs) exploring alternative futures, are being deployed to build trust and cooperation needed for actors to work together to help resolve water allocation issues;
- ... negotiation processes retain both elements of competition and collaboration, realising they will never attain a perfect consensus, but have an emphasis on consensus-building;
- ... scenario building, with participation of marginalised peoples' representatives, is used to improve transparency in water allocation by clarifying and probing actors' causal assumptions about what drives societal well-being;
- ... environmental flows assessments are used to improve effective knowledge for water allocation, by clarifying risks and benefits of different flow regimes on different water users and ecosystems.
- ... prior to making major infrastructure investments, that scenario building, flows assessments, multi-stakeholder dialogue and transparent negotiations become a part of normal practice.
- ... allocation is the result of a negotiation process which has assessed options and impacts, respected rights, taken account of risks, acknowledged responsibilities and sought to fairly distribute rewards.

Annex 1. M-POWER books

The following four M-POWER books are important foundations for PN67. The first was published in 2007, the second in 2009, the third will be published in 2010, and the fourth in 2011. All were worked on by many of the PN67 team as they moved forward with their new research. Some of the PN67 working papers will be published in Books 3 and 4.

Book 1 – Democratising Water Governance in the Mekong Region



Lebel L, Dore J, Rajesh D and Yang Saing Koma (eds)
(2007) *Democratizing Water Governance in the Mekong Region*. Mekong Press, Chiang Mai, 283.

Over the last few decades, the Mekong Region has been facing complex pressures and challenges in water governance driven by a range of economic integration efforts and relationships motivated by national self-interest. This book, the first in a three-volume series, brings together the work of researchers, scholars, activists, and leaders in the Mekong region to provide a baseline, state-of-knowledge review of the contemporary politics and discourses of water use, sharing, and management, and their implications for local livelihoods.

Over the last few decades, the Mekong Region has been facing complex pressures and challenges in water governance driven by a range of economic integration efforts and relationships motivated by national self-interest. This book, the first in a three-volume series, brings together the work of researchers, scholars, activists, and leaders in the Mekong region to provide a baseline, state-of-knowledge review of the contemporary politics and discourses of water use, sharing, and management, and their implications for local livelihoods.

The chapters critically analyse contested discourses on such topics as regional hydropower development, floods, and irrigation, along with the broader yet interrelated issues of gender, media, dialogue, and impact assessment. The writers explore the interplay of power relationships between actors such as state planners, regional institutions, the private sector, and various water users, in particular, politically marginalised groups including women, urban and rural poor, and ethnic peoples. The diverse array of topics and perspectives provides a sound basis for engaging in policy-related action.

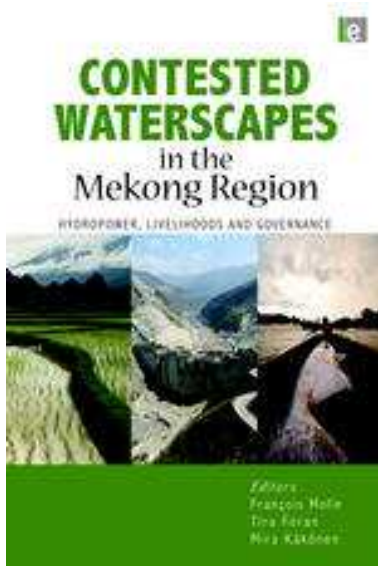
Written in straightforward language that elucidates complex issues from hydrological modeling to energy planning and reform, the volume presents the evolving study and knowledge of water governance in the Mekong region.

Source: Mekong Press,

<http://www.mekongpress.com/catalog/detail.php?isbn=9789749511251>

Book 2 – Contested Waterscapes in the Mekong Region

*Molle F, Foran T and Kakonen M (eds.) (2009)
Contested Waterscapes in the Mekong
Region: Hydropower, Livelihoods and
Governance. Earthscan, London, 426.*



The water resources of the Mekong Region - from the Irrawaddy and Nu-Salween in the west, across the Chao Phraya to the Lancang-Mekong and Red River in the east- are increasingly contested. Governments, companies, and banks are driving new investments in roads, dams, diversions, irrigation schemes, navigation facilities, power plants and other emblems of conventional 'development'. Their plans and interventions should provide some benefits, but also pose multiple burdens and risks to millions of people dependent on wetlands, floodplains and aquatic resources, in particular, the wild capture fisheries of rivers and lakes. This book examines how large-scale projects are being proposed, justified, and built. How are such projects contested and how do specific governance regimes influence decision making? The book also highlights the emergence of new actors, rights and trade-off debates, and the social and environmental consequences of 'water resources development'.

'With a diverse set of authors from assorted countries and mixed walks of life, this book brings a grounded, radical and refreshing perspective to the study of water in the Mekong region, a field of research which too often descends into technological simplifications.'

– Jonathan Rigg, University of Durham, UK and author of *Southeast Asia: The Human Landscape of Modernisation and Development*.

'Contested Waterscapes is an impressive array of approaches and topics that reflect the breadth and depth of a fascinating river basin. The volume probes whether the drives for hydropower and large-scale irrigation may be reconciled with livelihoods, and suggests that political agendas backed by constructed knowledge will be the determining factor. It is particularly relevant to policy-makers and students of the Mekong at a time when uncoordinated national 'development' at every drop in the river appears destined to lead to the inequitable outcomes the agendas have created elsewhere in the world.' – Mark Zeitoun, Centre for the Study of Global Governance, London School of Economics and Political Science.

'I found this book fascinating from a number of perspectives. First, it is very informative on a range of issues. It includes a great deal of information on the politics of dam development for both hydropower and irrigation. Second, there are a useful set of maps and tables locating and defining both completed and planned dam projects. Third, the fifteen chapters are conspicuously well written. Given the fact that thirty-seven co-authors contributed to *Contested Waterscapes*, we must give credit to the editors for their fine work. Even a reader well versed in various aspects of water resource development and management will find this book a valuable reference.' – Randolph Barker, Professor Emeritus of Agricultural Economics, New York State College of Agriculture and Life Sciences, Cornell University.

Source: Earthscan, <http://www.earthscan.co.uk/?tabid=49419>

Book 3 – Water Rights and Social Justice in the Mekong Region

Lazarus K, Resurreccion B, Nga Dao and Badenoch N (eds.) (2010 forthcoming)
Water Rights and Social Justice in the Mekong Region. Earthscan, London.

The social structure in the Mekong Region is highly skewed. On one hand, there is a huge and growing segment of poor, landless farmers, small fishers, and migratory laborers, many of whom are women and minority ethnic groups. On the other, big businesses, planners, and politicians, with sufficient clout and resources constitute a powerful elite that influences and decides the trajectories of development in the region. The poor, despite their livelihoods being highly dependent on the region's water and other resources, find themselves often marginalised or under-represented in the decisions and policies on water governance including transboundary and in-country water allocation and resource access particularly for hydropower, irrigation, domestic water supply, inland and coastal fisheries, and flood management. Moreover, not only do the poor struggle to get rights of access, but also find themselves facing the brunt of the risks and vulnerabilities from these water governance policies and decisions.

Additionally, complex and multiple human- and nature-induced developments in the Mekong Region are increasingly widening existing gaps in wealth, resource access and power. Fair and equal fields for decision-making and governance are needed to strengthen not only the rights but also the resilience of vulnerable groups and communities against uncertainty, particularly for climate-related changes.

This book explores:

Power, rights and justice relationships around the use and management of water resources, particularly in terms of gender, class, and ethnicity;

Effects of unbridled exploitation of water-related resources for market-driven ends on ecosystems and on livelihoods;

Competition and conflict over water between different sectors such as: peasant agriculture, transboundary agribusiness, agrofuels, hydropower, industry, etc.

Vulnerability and resilience issues for the poor when shaping regional policies to adapt to climate change and increasing volatilities in monsoon Asia.

Book 4 – Water governance in Practice: Evidence from Local Studies in the Mekong Region

Bastakoti RC, Floch P, Kanokwan Manorum, Lu Xing, and Bach Tan Sinh (eds.)
(2011 forthcoming) Water governance in Practice: Evidence from Local
Studies in the Mekong Region. Strategic Information and Research
Development Centre, Selangor, Malaysia.

This book is about water governance in practice. It documents case studies of policies and projects in the Mekong Region prepared by people living and working in the region, reflecting their first-hand experiences engaging in local water politics.

The book opens with a discussion of the problems of going from abstract discussions of policy alternatives to specific challenges of implementation and decision-making in specific places. It deals with some common generalisations to explain policy-practice gaps and the ways these have been studied. The core of the book is organised into 5 sections with sectoral foci: fisheries, irrigation, floods, watersheds, and hydropower; exploring relationships between policy and practice.

More than twenty papers provide an overview of local water governance research experience, and collective reflections by the editors and the researchers on how to make research more policy-relevant and influential.

Annex 2. PN67 Participating researchers

Buapun Promphakping, Khon Kaen University, Thailand
Chen Liang, Yunnan University, China
Chu Thai Hoanh, International Water Management Institute, Laos
David Blake, East Anglia University, England
David Hall, Mekong Sub-region Social Research Centre, Ubon Ratchatani Uni, Thailand
Diana Suhardiman, International Water Management Institute, Laos
Dipak Gyawali, Nepal Water Conservation Foundation, Nepal
Edsel Sajor, Asian Institute of Technology, Thailand
Francois Molle, Institut de Recherche pour le Développement, France
Geeta Bastakoti, Chiang Mai University, Thailand
He Jun, The World Agroforestry Centre, China (*previously M-POWER Research Fellow*)
Jeff Richey, University of Washington, United States of America
John Dore, Griffin nrm / Chiang Mai University, Thailand
Juha Sarkkula, Finnish Environment Institute, Finland
Kanokwan Manorom, Ubon Ratchatani University Thailand
Kate Lazarus, Challenge Program on Water and Food, Laos
Khim Sophanna, Centre d'Etude et de Développement Agricole Cambodgien, Cambodia
Le Anh Tuan, Can Tho University, Vietnam
Le Thi Van Hue, Vientam National University, Vietnam
Louis Lebel, Chiang Mai University, Thailand
Lu Xing, Yunnan University, China
Ma Xing, Yunnan Institute of Environmental Science, China
Mak Sithirith, Fisheries Action Coalition Team, Cambodia
Maria Osbeck, Stockholm Environment Institute, Thailand
Mark Giordano, International Water Management Institute, Sri Lanka
Marko Keskinen, Aalto University, Finland
Matti Kumm, Aalto University, Finland
Mongkhon Ta-Oun, Khon Kaen University, Thailand
Noel Rajesh Daniel, Chiang Mai University, Thailand
Patcharawalai Priyasak
Patcharee Thunnipat, Chiang Mai University Thailand
Pattaraporn Waleetorncheepsawat, Mahasarakham University, Thailand
Philippe Floch, University of Natural Resources and Applied Life Sciences, Austria
(*previously M-POWER Research Fellow*)
Phimpakan Lebel, Chiang Mai University, Thailand
Po Garden, Internews, Thailand
Ram Bastakoti, Chiang Mai University, Thailand
Rebecca Tharme, International Water Management Institute, Sri Lanka
Robyn Johnston, International Water Management Institute, Sri Lanka
Sansonthi Boonyothayan, Nakhon Phanom, Thailand
Santita Ganjanapan, Chiang Mai University, Thailand
Songphonsak Rattanawilailak, Chiang Mai University, Thailand (*previously M-POWER Research Fellow*)
Sukhavit Buaphuan, Nong Khai, Thailand
Suparerk Janprasart, Mekong River Commission, Laos
Tira Foran, Chiang Mai University, Thailand (*previously M-POWER Research Fellow*)
Try Thuon, Centre d'Etude et de Développement Agricole Cambodgien, Cambodia
(*previously M-POWER Research Fellow*)
Ubolrattana Sunthornratana, Udon Thani, Thailand
Wang Wanying, Yunnan University, China
Worawan Sukraroek, University of Sydney, Australia
Xiaoxiao Ji, Yunnan University, China
Xu Jianchu, The World Agroforestry Centre, China
Yang Saing Koma, Centre d'Etude et de Développement Agricole Cambodgien, Cambodia
Yu Yin, China (*previously M-POWER Research Fellow*)

Annex 3. PN67 Publications

There are twenty-six (26) research papers produced by the PN67 project. A decision was taken early not to produce these papers in book form, partly because M-POWER already has the two books just introduced, and another two on the way. These working papers are almost all moving forward to formal publication in a range of Journals and other related books. The full papers will not be made available on the CPWF website as we must not compromise their passage to formal publication. Publishing targets have been identified for all papers. These include: Chinese Journal on Water Resources Protection, Political Geography, International Journal of Water Resources Development, Water Alternatives, M-POWER Books 3 and 4, Singapore Journal of Tropical Geography, IUCN Water and Nature Initiative (WANI) series, Environmental Management (Springer), and World Development.

We envisage that a synthesis of the main findings will also be published later as the 27th scientific paper product of this research.

PN67 working papers (enroute to formal publication)

- Blake DJH (2010) Nam Songkhram Basin, northeast Thailand: Place and arena study. PN67 Working Paper PN67_2010_11.
- Blake DJH, Ubolrattan Sunthornratana, Buapun Promphakping, Sukhavit Buaphuan, Sarkkula J, Kumm M, Mongkhon Ta-oun, Pattaraporn Waleetorncheepsawat, Sansonthi Boonyothayan, Tharme R, Osbeck M and Suparek Janprasart (2010) Environmental flows in the Nam Songkhram River Basin. PN67 Working Paper PN67_2010_10.
- Chu Thai Hoanh, Suhardiman S and Le Anh Tuan (2010) Irrigation expansion in the Vietnamese Mekong Delta: Back to the future. PN67 Working Paper PN67_2010_16.
- Dore J (2010) Multi-Stakeholder Platforms (MSPs). PN67 Working Paper PN67_2010_20.
- Floch P and Blake DJH (2010) Water transfer planning in northeast Thailand: Rhetoric and practice. PN67 Working Paper PN67_2010_06.
- Foran T (2010) Contentious decision making around Pak Mun Dam. PN67 Working Paper PN67_2010_08.
- Foran T (2010) Using holistic scenarios to re-write rural futures. PN67 Working Paper PN67_2010_23.
- Hall DS and Kanokwan Manorom (2010) Decision making in the Mekong: What role for scientists? PN67 Working Paper PN67_2010_29.
- He Jun, Lu Xing and Xu Jianchu (2010) Payments for Environmental Services (PES): An introductory note in the Mekong context. PN67 Working Paper PN67_2010_28.
- He Jun, Xu Jianchu and Ma Xing (2010) Payment for Environmental Services (PES): Insights from Kejie Watershed, Yunnan Province, southwest China. PN67 Working Paper PN67_2010_01.
- Kanokwan Manorom (2010) Peoples' EIA as a new approach for water governance: Case of Hua Na irrigation project in northeast Thailand. PN67 Working Paper PN67_2010_07.
- Keskinen M and Kumm M (2010) Strategic Environmental Assessment (SEA) and Cumulative Impact Assessment (CIA). PN67 Working Paper PN67_2010_25.
- Keskinen M and Mak Sithirith (2010) Tonle Sap Lake and its management: The diversity of perspectives and institutions. PN67 Working Paper PN67_2010_05.
- Kumm M and Johnston R (2010) Hydrological and water resources modeling in the Mekong River Basin: Current status, major gaps and opportunities. PN67 Working Paper PN67_2010_03.

Appendices **CPWF Project Report**

- Lazarus K, Blake DJH, Dore J and Worawan Sukrarook (2010) Negotiating flows in the Mekong. PN67 Working Paper PN67_2010_24.
- Le Thu Van Hue, Sajor E (2010) Livelihood and environment trade-off in *Doi Moi*: Industrial water use and wastewater management in a craft village in peri-urban Hanoi. PN67 Working Paper PN67_2010_14.
- Lebel L (2010) Scenarios as boundary objects in the allocation of water resources and services in the Mekong Region. PN67 Working Paper PN67_2010_21.
- Lebel L and Daniel R (2010) Governing ecosystem services from upland watersheds in Southeast Asia. PN67 Working Paper PN67_2010_18.
- Lebel L, Dore J and Garden P (2010) Deliberation, scale and the governance of water resources in the Mekong Region. PN67 Working Paper PN67_2010_22.
- Lebel L, Songphonsak Rattanawilailak, Lebel P, Bastakoti GB, Bastakoti R and Patcharawalai Priyasak (2010) Gender relations, ethnicity and water insecurities in the Upper Ping River Basin, northern Thailand. PN67 Working Paper PN_67_2010_15.
- Lu Xing, Xiaoxiao Ji, Chen Liang and Wang Wanying (2010) A study on the water allocation in Kunming. PN67 Working Paper PN67_2010_02.
- Sajor E (2010) Contestations over water quality in Thailand and Vietnam in the context of peri-urban change and globalisation. PN67 Working Paper PN67_2010_27.
- Santita Ganjanapan and Lebel L (2010) Improving water allocation through Multi-Stakeholder Platforms in the Mae Kuang watershed, northern Thailand. PN67 Working Paper PN67_2010_12.
- Suhardiman D, Giordano M and Molle F (2010) Virtual hegemony: Donors' preeminent role and limited influence in transboundary water governance of the Mekong. PN67 Working Paper PN67_2010_04.
- Thuon Try, Yang Saing Koma and Khim Sophanna (2010) Irrigation expansion in Cambodia: Understanding the process of decision-making. PN67 Working Paper PN67_2010_17.
- Yu Yin and Lazarus K (2010) Improving hydropower development? The case of the Nam Ngum 5 hydropower project in Laos. PN67 Working Paper PN67_2010_09.

PN67 publication abstracts

Blake DJH (2010) Nam Songkhram Basin, northeast Thailand: Place and arena study. PN67 Working Paper PN67_2010_11.

The Nam Songkhram Basin in northeast Thailand has a history of natural resources contestation and environmental degradation stretching back over five decades, which has to a significant extent revolved around water management policy and practice. It has been a site of multi-stakeholder conflict and local resistance that has transcended the geographical limits of the basin to involve diverse actors, interests and discourses at the national, regional and international level. Integral to the far-reaching social and environmental transformations that have occurred over this time has been a fundamental shift from predominantly common property to private property regimes which, it is argued, has had complex consequences on the way that various actors regard and manage the basin and its resource base.

While certain state agencies still work towards enabling large-scale irrigation projects, some involving trans-basin and trans-national water transfer schemes; other agencies (state and non-state organisations) nominally seek to protect parts of the lower basin wetlands as a conservation area of international standing (e.g. proposals for it to become a Ramsar Site) and yet others call for less top-down official and state-backed projects, but more empowerment and recognition of local communities' resource management practices. This report examines the complex background to natural resources management and water governance in the Nam Songkhram Basin, before training the analytical lens on a number of key case studies to illustrate the conflicting worldviews and approaches to development. Some of the main drivers underpinning water resources management decision-making, along with the web of consequences stemming from them are examined, especially with regards to wetlands ecosystems.

Blake DJH, Ubolrattan Sunthornratana, Buapun Promphakping, Sukhavit Buaphuan, Sarkkula J, Kummu M, Mongkhon Ta-oun, Pattaraporn Waleetorncheepsawat, Sansonhi Boonyothayan, Tharme R, Osbeck M and Suparek Janprasart (2010) Environmental flows in the Nam Songkhram River Basin. PN67 Working Paper PN67_2010_10.

Environmental flows (E-flows) are broadly defined as the provision of water for freshwater dependent ecosystems to maintain their integrity, productivity, services and benefits – particularly in cases when such ecosystems are subject to flow regulation and competition from multiple water users. Simply stated, E-flows can be thought of as “ecological water demand” that should be regarded as a legitimate water use sector, just as the industrial or agricultural water use sectors are. Negotiating water flows is an essential part of river basin management in the Mekong Region, but has hitherto not been well articulated or recognised by water sector policy makers or planners.

Implementing E-flows requires establishing water flow regimes, which recognise ecosystem needs whilst trying to satisfy social, economic, and cultural dimensions. Although there is a considerable amount of information, knowledge and experience behind the E-flows concept, national and international environmental policies rarely take E-flows into account. Only a few countries such as Australia, South Africa and the United Kingdom have integrated the concept into water management policy and practice. For most countries in Asia, the E-flows concept is in its infancy and local approaches have yet to be applied.

The approach explored in Thailand for the first time has been developed based on the conviction that E-flows does not only consider the importance of river flows from a physical or ecological perspective, but also relates to the socio-political side of the equation.

The research confirmed that the lower reaches of the Nam Songkhram River is still a functional floodplain system, indicated by the wide diversity of aquatic fauna still present and a broad range of habitats, both aquatic and terrestrial. Further up the river system the period of annual flooding decreases and human disturbances increase, with a corresponding decrease in aquatic biodiversity and productivity. This type of floodplain river system dependent on prolonged annual flooding and interconnectedness with the mainstream Mekong is now unique in Thailand and thus has high conservation value.

The research also confirmed and strengthened the understanding of the close relationship between the mainstream Mekong river and the Lower Songkhram River Basin (LSRB), in terms of both ecology and hydrology, in particular the role of extensive seasonal flooding arising from a notable backwater and occasional backflow effect on to the LSRB floodplain. Comparisons with Cambodia's Tonle Sap system are valid and worthy of further research, as both have “flood pulses” that underpin the biodiversity and productivity of each system.

Chu Thai Hoanh, Suhardiman S and Le Anh Tuan (2010) Irrigation expansion in the Vietnamese Mekong Delta: Back to the future. PN67 Working Paper PN67_2010_16.

Currently, Vietnam irrigation development policy directions are divided between the objective to continue increase rice production through agricultural intensification and to improve farmer's livelihoods through crop diversification and integrated farming.

While the first objective requires the construction of new large-scale irrigation system in deeply flooded area, the latter demands the modification in management of existing irrigation physical infrastructure for non-rice crops, in particular brackish aquaculture in the coastal zones. This article attempts to fine tune this division. It argues that the Government of Vietnam's plan to expand irrigated areas in the Mekong River Delta (MRD) should be discussed beyond the conventional line of food security and poverty reduction argument. Using the evolution of Vietnam irrigation policy from the last three and half decades as its reference, the article highlights the potential of polycentric decision-making concept, focusing on the concept's ability to capture the multiple forces, interests and resources essential for the future irrigation development in the MRD.

Dore J (2010) Multi-Stakeholder Platforms (MSPs). PN67 Working Paper PN67_2010_20.

This paper develops a conceptual framework for Multi-Stakeholder Platforms (MSPs), that are a part of governance in which different stakeholders are identified, and usually through representatives, invited and assisted to interact in a deliberative forum that focuses on: sharing knowledge and perspectives; generating and examining options; informing and shaping negotiations and decisions.

MSPs are an approach for constructive engagement and learning about complex problems where facts and values may be in dispute. Choices about water often involve society contesting facts, such as the most efficient way to supply water, recover delivery costs, and provide efficiency incentives. Choices about water also often involve contesting values, for example, whose priorities and needs matter most, when there is insufficient water to satisfy all demands.

Floch P and Blake DJH (2010) Water transfer planning in northeast Thailand: Rhetoric and practice. PN67 Working Paper PN67_2010_06.

Over the last decade, calls for good governance and more open, democratic planning processes have started to permeate the developing country water sector, with wider stakeholder participation in project selection, design and operation being prominent objectives in virtually all studies, policy recommendations and scholarly papers. This is in line with the observation that claims of high-quality governance pervade public-decision making rhetoric in the water sector. At the same time, contemporary analysis of planning has started to focus on the role of actors, their interaction and patterns of communication, as well as the distribution of power and agency within society, thereby questioning more institutionally embedded approaches based on ideals of rational comprehensive planning. In this chapter, we reflect on the ways planning can play out vis-à-vis its theoretical foundations and the rhetoric espoused by major actors in water resources policy making in Thailand and the Mekong Region. We do so by reflecting on a state-led planning effort concerned with proposed massive water transfer schemes from the "water rich" Laos or Mekong River to "water scarce" northeast Thailand where the participatory reality has not matched the rhetoric.

Foran T (2010) Contentious decision making around Pak Mun Dam. PN67 Working Paper PN67_2010_08.

This paper reviews contentious decision making around Pak Mun Dam, Thailand's most controversial dam, in operation since 1994. Following Pak Mun's approval in 1989, debate and mobilisation around its benefits and impacts accompanied the dam's construction and operation. The analysis covers a series of 14 decisions, beginning with decisions to design and propose a particular kind of dam (taken 1960s–1988), and ending with a 2007 decision to delegate authority for Pak Mun's annual four-month opening to a provincial-level multi-stakeholder committee. Decision making since the early 1990s followed distinctive pathways which link robust processes such as framing, mobilisation, repression, feedback (escalation), elite intervention, negotiation, and decision. These processes constitute political drivers in water allocation decision making. Although causally linked to each other, these drivers often required the presence of contingent events and processes to initiate them. Such events and processes included violence, media decisions to cover events, as well as events beyond the control of most actors (such as political instability in successive governments). The pathways and processes (drivers) model of decision making requires contextualisation. Pak Mun analysis is set in the context of Thai democratisation, accompanied by analysis of specific constraining institutions, such as power system planning, and state conflict management processes.

Foran T (2010) Using holistic scenarios to re-write rural futures. PN67 Working Paper PN67_2010_23.

This paper introduces holistic scenario analysis as a method with potential to inform water-related allocation disputes, in particular disputes driven by different approaches to defining rural development.

In the Mekong Region, qualitative and quantitative options analysis often gets labeled "scenario" analysis. Our focus however is on the use of holistic (i.e., comprehensive, qualitative) scenario analysis. Such applications are still limited in the region, but in three locally-oriented cases we review, they made modest contributions to water-related policy processes. The scenarios consisted of more- and less-desirable variations around the status quo, with the final scenario in the set conveying a particular "pro-local" vision of rural development.

Scenarios, as structured sets of narratives, can influence policy change when they are used in competitive rhetorical action. In the present Mekong development context, multi-stakeholder scenario building activities can help inform pro-poor development. Informing development can be done by generating transparent and well-reasoned counter-narratives, as well as guiding actors in their search for robust policy and project-level interventions. The review discusses content that should be covered for pro-poor rural scenarios, as well as process design choices and trade-offs involved in linking scenarios to policy clients.

Hall DS and Kanokwan Manorum (2010) Decision making in the Mekong: What role for scientists? PN67 Working Paper PN67_2010_29.

The allocation of the Mekong River's 450 billion cubic metre annual flow is being contested by those who see the river primarily as source for hydropower and irrigation and those who believe its natural flow must be preserved to sustain the livelihoods of the 'millions of people' who depend on its 'life-giving' waters. Escalating demand for renewable energy is likely to result in new dams being built – and opposed – on the mainstream in the years ahead. This paper examines the challenges facing scientists at this critical juncture. It argues that, given the vastly different perspectives on the use of the river, there is a high risk of scientific research on the biophysical and social impacts of development being either ignored or distorted to serve the interests of either those in favour or opposed to dams. It examines the very different contexts that scientists have to operate in, most of which are not conducive to objective, scientific research and the unbiased use of results by decision makers. It raises questions about the extent to which the scientific community can objectively answer the key question of how much 'development space' exists for new infrastructure development on the Mekong. The paper describes recent initiatives in the region that demonstrate that research on flow allocations can be done in a highly participatory and transparent manner. In such contexts there may be some hope for scientific research to form the basis for decision making on flow allocations. The paper ends by suggesting that scientists should assess the ethical opportunities and threats involved in social impact assessment contracts before undertaking research.

He Jun, Lu Xing and Xu Jianchu (2010) Payments for Environmental Services (PES): An introductory note in the Mekong context. PN67 Working Paper PN67_2010_28.

Today, global recognition of an economic approach to environmental management is increasing in all sectors of the economy. Payments for environmental services (PES) have consequently emerged as a concept and tool for achieving ecosystem conservation, and at the same time improving the livelihoods of environmental-service providers. As a new innovative approach, however, not only the definition of PES is not yet formalised, but also the schemes of PES are great variable. Those made some confusion in research and practice. This short paper is aimed at promoting further understanding of PES through an introduction of the basic conception of PES and PES schemes in the context of Mekong region as well as its debates. It concludes by addressing the key points linked to improved water allocation.

He Jun, Xu Jianchu and Ma Xing (2010) Payment for Environmental Services (PES): Insights from Kejie Watershed, Yunnan Province, southwest China. PN67 Working Paper PN67_2010_01.

Upland agriculture and watershed conservation are often juxtaposed in China's sustainable development discourse. Intensive upland agriculture sustains the livelihoods of a majority of China's poorest farming communities, but is perceived as environmentally destructive. Deteriorating watershed quality has prompted efforts to convert agricultural land to forest and grassland, which reduces farmers' productive land. Resolving the impasse between upland food security and rural development, on the one hand, and the need to control watershed degradation, on the other, has become one of China's most pressing development challenges.

More recently, efforts to intertwine upland development interests with downstream conservation priorities have taken a new form. Recognising farmers' lack of conservation incentives, government agencies and industry groups in China have begun to experiment with innovative payment schemes that attempt to offset farmers' opportunity costs for taking land out of agricultural production. These schemes range from national (e.g. Sloping Land Conversion Program & the Ecological Forest Compensation Program) to catchment (e.g., hydropower station-community agreements) in scale.

This paper provides an overview of the promise and pitfalls of payment mechanisms for watershed services in China's upland areas, drawing on a specific case study from Kejie Watershed. Although preliminary surveys and experience with actual arrangements have demonstrated its potential in China, payment schemes are regularly hindered by a lack of the awareness, market infrastructure, and institutional support necessary for their success. The lack of grassroots participation and poor governance structure in PES implementation has limited its initial success.

Kanokwan Manorom (2010) Peoples' EIA as a new approach for water governance: Case of Hua Na irrigation project in northeast Thailand. PN67 Working Paper PN67_2010_07.

This paper aims to introduce the concept of a Peoples' EIA as a model for a more participatory and transparent EIA process that can be potentially used as an innovative consensus-building tool for water governance. Direct experiences of participatory action research implementing of a Peoples' EIA entitled Social Impact Assessment of Hua Na Irrigation project of Si Sa Ket Province in the northeast region of Thailand by the author is presented in this article. The project had been carried out during January 2008-August 2009 and was funded by the Royal Irrigation Project.

The findings of the Hua Na experiment show that Peoples' EIA can greatly improve water allocation fairness and reduce the severity of disputes by allowing stakeholders to participate in all steps of the EIA including developing issues to be studied, data collection, analysis, rechecking and writing a report in a more accessible manner that allows all stakeholders to understand the process and findings. People also participate in a consensus building on impacts, mitigation plans and measures, implementation of mitigation plans and measures, decision making and long term impact monitoring. The Peoples' EIA is a good lesson learned as pressure mounts throughout the Mekong Region for large infrastructure projects.

Keskinen M and Kumm M (2010) Strategic Environmental Assessment (SEA) and Cumulative Impact Assessment (CIA). PN67 Working Paper PN67_2010_25.

The Mekong River Basin is facing rapid changes, including intensive plans for water resources development. While the different water-related projects are considered important for economic development of the riparian countries, the negative impacts that they are likely to cause for ecosystems and livelihoods are estimated to be remarkable. Assessing the likely impacts of such development at different geographical and temporal scales is therefore crucial for successful planning and decision-making. Yet, existing impact assessment (IA) processes seem in many cases to be inadequate to capture even the actual magnitude of the impacts at different levels and scales. They are also predominantly expert-driven processes with a macro-scale view, leading easily to the neglect of local knowledge and contexts. Due to their technical nature, the assessments are also easily described in language that excludes most of the people from the discussion of their methods and results.

It has been argued that impact assessment in such a dynamic and complex setting as the Mekong River Basin requires better coordination between assessments at different levels, and overall, more adaptive approach that makes better use of assessments from local level up to the regional level. Impact assessment also requires the recognition of highly political nature of water resources development and related planning processes, including the decisions on the ways the IA approaches are used. The impact assessments should therefore not be only responsive, but also address the more strategic, policy-level issues related to water resources development. At the same time impact assessments form only one part of the planning and decision-making processes, and they should therefore be studied in the broader context which they are being used.

This tool review looks at two major impact assessment methods, namely the Strategic Environment Assessment (SEA) and Cumulative Impact Assessment (CIA), and discusses their current use and future potential in the Mekong Region.

Out of these two approaches, the SEA is a more strategic assessment approach that aims to anticipate the environmental impacts of planned development already in early phase –and at higher level– of planning and decision making. CIA, on the other hand, aims to evaluate the cumulative impacts of multiple different activities. While CIA can be used to support SEA, its use is usually more common on later stages of planning when many of the decisions about the focus and form of the development have already been made.

Several IA frameworks and methodologies providing possibilities to look at impacts at different levels and phases already exist in the Mekong Region. However, the use of different IA methods has so far been rather non-systematic, with weak linkages between different assessments. Also misunderstandings related to impact assessment methodology and terminology are common.

Neither the SEA nor the CIA has –yet– been extensively used in the Mekong. They have, however, already for long appeared in the plans and strategies of both regional organisations and the governments of the riparian countries, and increasing amount of actors are including SEA and CIA as part of their planning process. Yet, the implementation of both of the methods seems still to be sporadic and weakly connected to the actual decision-making. The importance of understanding the possibilities and limitations of the two methods is therefore just increasing.

The tool review seeks therefore to answer particularly to the following two questions: What are the general definitions of SEA and CIA, and what are the differences between the two (plus between them and other IA methods)? And, in which ways have the two IA methods been used in the Mekong, and what can be learnt from the recent SEA and CIA work undertaken in the region?

Keskinen M and Mak Sithirith (2010) Tonle Sap Lake and its management: The diversity of perspectives and institutions. PN67 Working Paper PN67_2010_05.

This research paper focuses on Cambodia's Tonle Sap area and its institutional setting. The Tonle Sap is, due to its unique flood pulse system and immense aquatic production, most likely the single most vulnerable area to the negative impacts of major water development plans in the Mekong Basin. Due to its remarkable fish production and role as a leveller of the Mekong floods, the importance of the Tonle Sap extends far beyond its own basin as well as the borders of Cambodia. This, in turn, makes the management of Tonle Sap very much a regional issue as well. At the same time the Tonle Sap basin itself is seeing increasing plans for development, particularly in terms of irrigation and agricultural development. These changes are, together with the existing challenges with fisheries management, likely to have an impact to the lake's aquatic production as well. Tonle Sap and its management make therefore a particularly important case study both locally and regionally.

This paper analyses the current institutional setting of water-related management and development of the Tonle Sap area, and seeks to recognise possibilities for improvements through utilisation of different water allocation tools. The paper first discusses the overall context as well as current management challenges in the Tonle Sap area, including the differing perspectives that the actors at the different levels have on Tonle Sap. Following that, the paper looks at how the current institutional setting for the area's management has been developed during past 10 years or so. In particular, the study seeks to look at the actual driving forces for the differing plans for the management of the area, and to discuss why certain management initiatives have ultimately been more successful than others.

Specific focus will be on the planning processes that have aimed at establishing a management organisation for the Tonle Sap area. Three most important such processes are the Tonle Sap Biosphere Reserve (TSBR) and its Secretariat, ADB's Tonle Sap Initiative and related plans for the Tonle Sap Basin Management Organisation (TSBMO), and the Tonle Sap Basin Authority (TSBA).

Kummu M and Johnston R (2010) Hydrological and water resources modeling in the Mekong River Basin: Current status, major gaps and opportunities. PN67 Working Paper PN67_2010_03.

Water Resources in the Mekong River basin today are facing rapid development particularly in China, Laos, Vietnam and Cambodia. Hydropower development is the most remarkable and its impacts will be potentially felt by all other water uses in the Basin. Simulation models may assess such impacts. There have been various modeling activities in the Mekong during the past years. The hydrological models have been developed and applied in basin-wide scale, and more local scale. The other large modeling entities are the hydrodynamic models applied to mainly to the floodplains in Cambodia and Laos, and economic and policy models.

In this paper we give an overview of the modeling activities in the Mekong basin with a particular attention to the modeling activities to the ones used for basin-wide impact assessment. The paper identifies the major gaps in the modeling activities, analyses the challenges that hydrological modeling faces in the basin, and identifies opportunities that emerge from such challenges. The paper gives also a brief introduction to the recent development activities and plans in the basin. We also attempt to give state of the art syntheses on the macro level water allocation issues by identifying the main development activities in the Mekong and reviewing how those will impact on hydrology in different spatio-temporal scales.

Lazarus K, Blake DJH, Dore J and Worawan Sukrarok (2010) Negotiating flows in the Mekong. PN67 Working Paper PN67_2010_24.

Negotiating water flows should be an essential part of river basin management in the Mekong region. If put into practice, the concept of environmental flows could prove useful. Environmental flows or E-flows are defined as the water regime provided within a river, wetland or coastal zone to maintain ecosystems and their benefits where there are competing water uses. Central to the E-flows concept is the recognition that ecosystems not only have their own intrinsic value, but also provide humans with essential services

Implementing E-flows requires establishing water flow regimes, which recognise ecosystem needs whilst trying to satisfy social and economic demands. It also requires the integration of a range of disciplines including engineering, law, ecology, economy, hydrology, political science and communication. In the Mekong region there have been a few experiments with E-flows as a tool for negotiating river basin management. The results from the existing case studies indicate that E-flows have the potential to significantly contribute to decision-making for improved water governance in the Mekong region. However, a basin-wide approach to E-flows is still lacking in the region, as is the involvement of multiple stakeholders and dissemination of vital data.

Le Thu Van Hue and Sajor E (2010) Livelihood and environment trade-off in Doi Moi: Industrial water use and wastewater management in a craft village in peri-urban Hanoi. PN67 Working Paper PN67_2010_14.

Vietnam's economic reforms that started in 1986 have changed the whole make-up of the country and have been called 'one of the greatest success stories in economic development' by the Asian Development Bank in 2003. Rapid growth has occurred in both industrial and agricultural sectors, which contribute more than half of the country's gross national product. Since then, living standards have improved gradually, both in urban and rural lowlands. A 1999 report on poverty prepared by the World Bank indicated that the number of people living under the poverty line declined from 58% in 1993 to 27% in 1998 due to rapid economic growth and government policies. By 2002, the poverty rate reported by the United Nations Development Program was about 12%.

While the country's economic reforms have undoubtedly resulted in a major expansion of industrial and agricultural outputs and in an overall reduction of poverty rate, these have posed serious problems and challenges on the state of environment. Several scholars have pointed out that the country's strategy has implied a drive towards optimal utilisation of the country's natural and human resources for fast-track economic growth and the subordination of long-term environmental concerns. But ironically, unlike other countries in Southeast Asia, Vietnam entered this period of catch-up industrialisation and modernisation with a large catalogue of unresolved environmental problems. It is thus forced to play a delicate balance between economic growth and environmental concerns. In this context, economic growth too often becomes the overriding priority to the exclusion of environmental considerations despite principles that have already been set in official discourses.

One of the hallmarks of Vietnam's ongoing economic reforms has been private sector development and its enhanced integration with the global economy. It is in this sector that tension between fast track and rapid economic development on one hand, and the environmental concerns on the other hand is being intensely played out. This chapter examines this tension through a primary research of industrial water use and wastewater management in a craft village of Vietnam. The private production case examined in this study is a most pervasive mode of privatised industrial production in Vietnam – the household-based artisanal production – that is linked to domestic and international markets. There are presently 1439 craft villages in Vietnam, of which 70% are located in the North of the country. The majority of craft villages (up to 80%) are household-based artisanal production. Craft villages create employment for 11 million people, which account for 30% of the labor force in the rural and semi-rural areas. Products of these craft villages contribute an amount of 600 million USD/year to the national economy through exports. The particular craft production (i.e. metal manufacturing) too, which is the subject of this paper, is not only a popular form of livelihood in peri-urban and rural areas. Incidentally – and paradoxically – it performs an important environmental function of recycling while itself creating new and heavy local environmental and health burdens.

Lebel L (2010) Scenarios as boundary objects in the allocation of water resources and services in the Mekong Region. PN67 Working Paper PN67_2010_21.

Scenarios are internally coherent stories of the future. As such they are an important tool for long-term planning and policy. They can be qualitative or quantitative, look forward or backwards and be constructed at different scales. Scenarios have been widely used in business and the military to plan in situations of high uncertainty with respect to opportunities and threats. More recently scenarios have been used in studies of environmental change, natural resources management and development to understand dynamic vulnerabilities and explore alternative, long-term, policy responses.

Scenarios can be understood as learning processes or products. Emission scenarios in the IPCC process have been crucial foundation to understanding and communicating possible future changes to climate. In the Millennium Ecosystem Assessment process, for example, scenarios were seen as helping with education, communication, and decision-making.

Strong engagement of stakeholders in construction and interpretation of scenarios in the sub-global assessments enhanced mutual learning about interests, capabilities and beliefs.

Scenarios and associated mathematical models – including, the graphs, maps, images and figures used to summarise their outputs – may function as boundary objects. A boundary object is an artifact which serves as interface among different communities of practice. In climate science, for instance, the parameterisations of new model components are boundary objects structuring the relationships between modelers and observers of climate change.

In scenario planning constructing storylines requires people with different viewpoints and knowledge to work together. Quantifying parts of a scenario using models again demands that scenarios do boundary work between more holistic qualitative experts and modelers. Scenarios as products may also be objects around which experts, policy-makers and other stakeholders discuss implications. The IPCC's emission scenarios, for example, are a result of both science and negotiation. They are boundary objects around which scientists and policy makers have come together constructing and refining individual scenario storylines and sets.

This paper is a review of how scenarios have been used to address allocation of water resources and services in the Mekong Region. We focus on regional applications with a significant international component often contrasting the use of scenarios by the Mekong River Commission (MRC) and partners with possibilities suggested by other studies.

Lebel L and Daniel R (2010) Governing ecosystem services from upland watersheds in Southeast Asia. PN67 Working Paper PN67_2010_18.

The ecosystem services derived from upland watersheds are important to the well-being of people living in them, others living downstream and to society more widely. Perceived or realised services often include providing food, timber, fuel-wood and non-timber products, pollination and pest control for crops, water for irrigation or hydropower, sites for cultural activities, flood protection, buffered base flows, carbon sequestration and water filtration. The specific benefits people obtain from a watershed are highly dependent on the mixture of ecosystems present, landscape structure and social contexts.

As a consequence of this variety of valued services pursuing multiple management objectives is a practical reality for most upland watersheds in Southeast Asia. It is also a source of contestation and conflict. Managing a watershed for one particular service or user may result in trade-offs in provision of other services and for other actors. Local communities and governments have frequently tried to prioritise, eliminate or integrate use of different services with combinations of plans, rules, incentives and information.

Spatial planning has been the favoured approach. Governments have devised classifications for land, forests and watershed and used these to restrict or encourage particular activities. Upland communities have also made spatial plans, but with typically more flexible and overlapping systems of rights for using different resources – that is, with a less strictly territorial perspective.

An important adjunct of plans is to associate landscape units with rules of use and responsibilities. Rule making can be by, or in consultation with, users or it can be dictated by more remote authorities. Co-management models have often been promoted because they provide opportunities to consider services valued at different levels.

Although many rules are do's and don'ts, alternatives that create incentives may be more effective in some situations. Markets for ecosystem services have been established in various parts of the world as an alternative to regulations to encourage conservation of valued services. Their performance depends on institutional design details and socio-political contexts.

In this paper we deepen an earlier short review with a more focused analysis of experiences in the southeast Asia region. We remain interested in both institutional and political dimensions of governing ecosystem services from upland watersheds.

Lebel L, Dore J and Garden P (2010) Deliberation, scale and the governance of water resources in the Mekong Region. PN67 Working Paper PN67_2010_22.

Scale is a key feature of regional waters and its politics cuts across 'basin' boundaries. In the Mekong Region there is a recurrent demand for water resources development projects and major policies proposed by government leaders and investors to be scrutinised in public. As the size of these projects increase there is also need to consider the benefits and risks not only within, but also across, borders. Deliberative forms of engagement are potentially very helpful because they encourage supporters and critics to articulate assumptions and reasoning about the different benefits and risks associated with alternative options. Deliberative processes may compliment and inform more conventional representational and bureaucratic approaches to planning and decision-making. But they are also likely to be subject to the sort of scale politics which can confound institutionalised decision-making. Scale contests arise in dialogues and related arenas because different actors privilege particular temporal, spatial and administrative levels in their analysis, arguments and responses.

This paper explores how deliberative engagement has been affected by, and responded to, the politics of scale. Five case studies from the Mekong Region are analysed. We find evidence that scale politics can affect who participates, the format, the content and outcomes of deliberative engagement. Conveners have sometimes responded to, and overcome, debilitating forms of scale politics, for example, by creating multiple venues, altering languages and styles of interaction, and supporting representation by otherwise silent interests, but deliberative engagement is still far from being a norm in the Mekong Region.

Lebel L, Songphonsak Rattanawilailak, Lebel P, Bastakoti GB, Bastakoti R and Patcharawalai Priyasak (2010) Gender relations, ethnicity and water insecurities in the Upper Ping River Basin, northern Thailand. PN67 Working Paper PN_67_2010_15.

Women often have less access to water and related natural resources than men; what access they do have often depends on relationships with men. Differences in property rights between men and women are often an underlying reason for differences in access. Formal ownership rights and management responsibilities in irrigation, for example, often rest with men. Men and women also have different needs and concerns in water use. Water is typically not just used for irrigation, but also for fishing, aquaculture, home gardens and livestock. Irrigation water user groups often neglect the multiple uses of water and in doing so neglect the interest and concerns of women. Although women may be farmers and water users they are often under-represented in water and river management organisations.

Unequal representation may be a contributing cause to water-related insecurities experienced by women. In response more and more interventions by state agencies and non-governmental organisations look to increase the visible participation of women in water governance bodies. The challenges are often underestimated. There are a several common reasons.

First, pre-existing gender relations often require sustained effort to change that goes beyond immediate water-management related issues and short-term recruitment and facilitation projects to establish new water user groups. Cultural norms with respect to what is considered masculine or feminine activities and thus the “proper” roles and tasks for men and women are not easily re-molded.

Second, many interventions follow primarily an instrumentalist logic – increased representation of women it is argued would lead to higher production or more efficient water use or greater conservation of natural resources – rather than having empowerment of women or addressing skewed gender relations as their core objective. Increased participation in these situations may do little for gender equality if it just translates to more responsibilities and work.

Third, gender as a social category rarely acts in isolation of other ways of discriminating among people, in particular, socio-economic class, ethnicity or livelihood. Both self- and external perceptions of difference can impact rights of access and fairness of allocation. Again the specific attributions and assumptions made by one group of stakeholders about another are also likely to vary with cultural contexts.

Overall, gender relations are an important, but still relatively neglected dimension of efforts to expand stakeholder participation in water management. Gender relations, we suggest, are one of the important driver of social differences that underline water insecurities experienced by men and women. At the same time water insecurities, over time, may also feed-back to influence social differences and the evolution of gender relation, especially as livelihoods and socio-economic contexts shift. Either way improving understanding how women (and men) engage in conventional and new ‘participatory’ water management initiatives is important to addressing insecurities.

In this paper we assess efforts at two contrasting locations in the Upper Ping River Basin in northern Thailand to reduce water-related insecurities of men and women by individuals, households and through multi-stakeholder processes. The first site was in a peri-urban transition zone with several hundred years history of locally built and managed irrigation systems overlain with modern canals and management regimes. The second site was an upper-tributary mountainous watershed in which sprinkler irrigation for cash crops has expanded among Hmong and Karen ethnic minority farmers, also with a long history of settlement. We focused on insecurities related to shortages of, and conflicts over, water in the dry season.

Lu Xing, Xiaoxiao Ji, Chen Liang and Wang Wanying (2010) A study on the water allocation in Kunming. PN67 Working Paper PN67_2010_02.

This research explores the provision of water to the perpetually water-stressed, expanding city of Kunming in China’s Yunnan Province, now home to more than 2 million people. This paper explains drivers of the water allocation problems and the steps taken by Chinese authorities to deal with it. In doing so, it provides a history and analysis of the many different types of decisions that have been taken.

Sajor E (2010) Contestations over water quality in Thailand and Vietnam in the context of peri-urban change and globalisation. PN67 Working Paper PN67_2010_27.

In the Mekong Region, peri-urban change driven by globalisation seriously affects local water resources. This can occur in two ways – through intrusion in the agricultural landscape of urban land uses that negatively impact on local water; or through livelihood diversification of households and their engagement in new own-account entrepreneurial activities that immediately reconfigure and complicate pre-existing water uses in the periphery.

This article investigates the latter through the use of two local case studies in Sam Rauen sub-district in Thailand and in Van Mon commune in Vietnam. The cases show how new water-using entrepreneurial activities of village households have created new demand for an appropriate quality of water in irrigation canals (in the case of Sam Rauen) or generates new water pollution (in the case of Van Mon) that jeopardises traditional uses of local water bodies and increases disputes. Existing water- and land-related institutions in Thailand and Vietnam, which have remained single-focused, administratively fragmented and territorially bounded, and lacking in tools and capacity for regulating dispersed household based production, are not useful in managing water and the environment in the midst of this development. The author argues for a distinctly peri-urban perspective in water management in the rural-urban interface, which among others, should address both water quantity and quality issues, macro-national and local transboundary problems, and most importantly, the complex trade-offs between livelihoods and environment/health at household and community level.

Among countries in the Mekong Region, Thailand and Vietnam have in recent decades experienced the most rapid urbanisation and peri-urbanisation. They have also linked most robustly with the global, particularly with the international market and capital by liberalising their trade and investment.

Thailand's economy became transformed from an agriculture-based to an export-oriented manufacturing and service economy in the 80s, with the unprecedented rise of foreign direct investment and ballooning of exports. This development has become spatially expressed in urban expansion, and massive land conversions in the urban periphery with dramatic consequences on the state of water resources in these areas.

Vietnam's economy has been undergoing reforms since the middle of the 1980s, after the *Doi Moi* policy that radically liberalised foreign investments, and introduced privatisation and market reforms. This has also spurred the expansion of its main cities, and the transformation of extensive rural landscapes into peri-urban zones, with major consequences on land and water resources in the localities.

This paper investigates how transformations in the peri-urban of these two countries, influenced by the broader forces of globalisation, have resulted in changes in local water resources. It departs however from a focus on the link between land use change and water degradation. Instead, it particularly investigates local socio-economic changes as response to globalisation and how these lead to new contestations on water use and associated water quality in communities and households in the peri-urban. This is obviously a less dramatic change in the peri-urban water resource domain; but no less important and perhaps, even a more pervasive change process unfolding.

Santita Ganjanapan and Lebel L (2010) Improving water allocation through Multi-Stakeholder Platforms in the Mae Kuang watershed, northern Thailand. PN67 Working Paper PN67_2010_12.

This paper analyses the establishment, activities and impacts of the Mae Kuang River Sub-basin Organisation (RSBO) and Upper Ping River Basin Organisation (RBO) and how they have interacted with other pre-existing institutions and platforms in the Mae Kuang watershed. So far the Mae Kuang RSBO has not been an effective MSP. Farmers note it has been largely irrelevant to their water allocation problems that are managed by *muang fai* and the Mae Kuang Dam organisations. Irrigation officials note that the RSBO works outside the Mae Kuang irrigated areas and so is irrelevant to their core work. Water users in the Northern Industrial Estate in Lamphun obtain their water through other channels and address water quality issues in other venues. Despite limitations with stakeholder participation in, and resources for, RBOs, various other water user groups and networks continue to be active in addressing water management problems. Pre-existing institutions – in short – remain crucial to negotiation and conflict resolution processes. A watershed-oriented RSBO in Mae Kuang is still needed to help deal with complex water allocation and quality challenges among sectors and locations, but must be built in coordination with pre-existing and alternative platforms.

Suhardiman D, Giordano M and Molle F (2010) Virtual hegemony: Donors' preeminent role and limited influence in transboundary water governance of the Mekong. PN67 Working Paper PN67_2010_04.

International donors have played an important role in shaping transboundary water governance in the Mekong for over half a century. However, formal governance practice and scholarship related to the Mekong has often overlooked the linkages between donor-driven, often regionally articulated programs, on the one hand, and nationally-defined policies and decision-making landscape, on the other. This missing linkage is often manifested in the non-adoption or non-application of donors' development agendas at the national level as well as in the subversion of nationally defined policies and development goals at the regional level.

This article highlights the complex bureaucratic landscape that exists in the Mekong and the important role played by national government bureaucracies in shaping the actual significance of international donors' actions and desires. It thus highlights the need to link transboundary water governance with the national-level decision-making reality, and vice versa, if regional programs are supposed to be translated into national-level policy formulation processes. From a scholarly perspective, it highlights the issue of bureaucratic competition and fragmentation in government bureaucracy, and questions academic approaches that tend to black box the role of the state in transboundary water governance.

Thuon Try, Yang Saing Koma and Khim Sophanna (2010) Irrigation expansion in Cambodia: Understanding the process of decision-making. PN67 Working Paper PN67_2010_17.

The push for irrigation expansion has been an important public policy issue and the subject of numerous development discourses in Cambodia. Some of the key policy makers in Cambodia argue that without large-scale irrigation schemes, subsistence farmers will remain trapped in a life of poverty and hunger. However, with limited government budget allocation, the sector remains weak and dependent on external assistance both financially and technically.

One of the new donors interested in irrigation development in Cambodia is the well-known oil-rich Kuwait that has promised to loan US\$ 546 million in soft loans to Cambodia for infrastructure projects primarily focused on the agricultural sector. Of this amount, US\$ 360 million may be used to construct an irrigation system (130,000ha) and a hydropower project (40 MW) on the Stung Sen tributary of the Mekong River in Kampong Thom Province.

This paper attempts to review the politics of decision-making behind the current irrigation expansion in Kampong Thom Province, which is one of the six provinces around the Tonle Sap / Great Lake. There have been 488 irrigation schemes identified in the province with potential irrigation areas of 140,000 ha. The study explores an existing irrigation system bordering the Stung Chinit tributary and the current plan for a hydropower and irrigation system on the Stung Sen tributary.

Yu Yin and Lazarus K (2010) Improving hydropower development? The case of the Nam Ngum 5 hydropower project in Laos. PN67 Working Paper PN67_2010_09.

This research focuses on the Nam Ngum 5 hydropower project and the decision by a Chinese company, Sinohydro, to gain approval for political risk insurance from the Multilateral Investment Guarantee Agency (MIGA) of the World Bank Group.

Appendices **CPWF Project Report**

The paper discusses the key water-related development and management issues in the Nam Ngum River Basin, and then through a frame of China's Going Global Strategy in search for natural resources abroad. We then explore the background and role of China's leading engineering and construction company, Sinohydro, in hydropower development in Laos followed by its decision-making process and collaboration with MIGA. The research dissects the driving forces and decision-making processes within Sinohydro that led the company to seek collaboration with MIGA on the Nam Ngum 5 project, and the implications this decision has on future investments by the company in large hydropower projects in the Mekong Region.

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