



13 Linking Climate Change Discourse with Climate Change Policy in the Mekong: The Case of Lao PDR

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Abstract

Current discourse on climate change highlights the issue of uncertainty, risks and the importance of systems' resilience as a means to cope with impacts of climate change and climate variability. This chapter links the dominant approach of uncertainty as presented in the climate change discourse with policy discussions on climate adaptation strategies in the Lower Mekong Basin. Taking Lao PDR as our case study, we discuss how the idea of uncertainty can be perceived and interpreted differently by policy actors. While these different perceptions and interpretations might lead to multiple problem framings, they also reflect structural impediments and institutional barriers in the overall formulation process of climate change policy and adaptation strategies. The main message of the chapter is that understanding of these different notions of uncertainty is crucial to increase the actual significance of climate change policy. Policy and governance responses to climate change need to be formulated based on a more nuanced, sophisticated understanding of how various policy actors and stakeholders perceive and experience uncertainty.

13.1 Introduction

Climate change is one of the most alarming problems globally. Its effects on nature may range from global warming, glacier melting and rise of seawater level to a high frequency and severity of droughts and floods. Although climate change is widely accepted as a scientific fact, there are various definitions of climate change (Drieschova *et al.*, 2009). These definitions range from climate change being solely human-induced phenomena to one of a natural problem (UNFCCC, 1992). Others, like the International Panel on Climate Change (IPCC),

define climate change as combining the impacts of human activity and natural variability or change (IPCC, 2007).

The differences in the very definitions of climate change are a good starting point for discussion on how the idea of climate change uncertainties can be differently perceived and interpreted. Nevertheless, current discourse on climate change approaches the idea of uncertainty primarily within the scope and context of scientific uncertainty in global climate science (Shackley and Wynne, 1996; Pielke, 2007; Weber, 2010). A possible explanation for this might be that a narrow definition of uncertainty is preferred

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in terms of formulating climate change policy (Weber, 2010).

Globally, there is a general tendency to assume that 'policies ideally should rest on reliable, robust and hence certain scientific knowledge' (Shackley and Wynne, 1996, p. 276). Thus, perceiving scientific uncertainty as a hindrance for the formulation and implementation of climate change policies, mitigation and adaptation efforts to cope with climate change are focused on scientific measures to reduce the uncertainty (IPCC, 2007). Policy science, however, highlights that policy formulation is a highly dynamic process, shaped by policy actors' interests and access to resources (Sabatier and Hunter, 1988; Mosse, 2004). In the context of climate policy, this is most apparent from the way policy actors perceive and interpret the idea of uncertainty, not always based on their understanding of climate science.

This chapter highlights the dissonance on how scientists perceive climate change problems as mainly related to uncertainty in global climate science, and how policy makers shape climate change adaptation strategies, not always based on climate science. In addition, it sheds light on how stakeholders (i.e. farmers, dam operators) might perceive climate change from a completely different perspective, not necessarily related to either climate science or climate change adaptation policies.

It argues that policy and governance responses to climate change require more nuanced and sophisticated understanding on how differently policy actors and stakeholders perceive and experience uncertainty. Taking Lao PDR as our case study, we bring to light the need to understand multiple notions of uncertainty and their relevance for climate change policy formulation. We look at how policy actors shape climate change adaptation strategies, based mainly on their perception on how climate change might (not) impact the country's development strategies. The chapter looks at how policies have been formulated and implemented on the ground. It sheds light on the multiple notions of uncertainties and how these have shaped and reshaped the

overall process of policy formulation and implementation.¹

To understand how the idea of uncertainty is approached in climate change discourse, we conducted a literature review on the issue of uncertainty in climate change. In line with this review, we conducted key informant analysis and in-depth interviews with various policy actors and stakeholders to understand how they perceive the idea of uncertainty in climate change. We interviewed staff from the Ministry of Natural Resources and Environment (MoNRE) and Ministry of Agriculture and Forestry (MAF) as two government ministries mainly dealing with climate change policy in Lao PDR. To understand the overall shaping of climate change policy implementation in Lao PDR, we interviewed various stakeholders, working with climate change issues in Lao PDR in general and for the Lower Mekong Basin in particular. These include staff from Australian Aid (AusAid), the Commonwealth Scientific and Industrial Research Organization (CSIRO), German Development Agency (GIZ), Mekong River Commission (MRC), World Bank, United Nations Development Programme (UNDP) and Chiang Mai University.

13.2 Framing Climate Change Uncertainties

The concept of uncertainty has translated into various approaches to climate change throughout the climate change discourse. Politicians, policy actors, scholars, NGOs and diplomats negotiate on emission reductions, responsibilities and strategies for years. Still, one dominant idea has remained: effective policies, strategies and approaches can be formulated to dissolve or minimize the negative impacts of climate change only if the problem of lack of information is addressed (Pielke, 2007). This idea leads to the assumption that coping with climate change requires the collection of all necessary scientific information (Dimitrov, 2003; Tol, 2005). Coping with climate change thus means minimizing uncertainty through

statistical information, calculating the probabilities that a certain outcome occurs (statistical approach) (Dessai and van der Sluijs, 2007). It assumes that the data are inaccurately measured and errors might have been occurred through, e.g. a sample error or data inadequacy and data uncertainty, or that more measurement is needed (Heal and Kriström, 2002; Walker *et al.*, 2003). A similar idea has developed to prognosticate future climate scenarios. While there is no precise information, various scenarios can be developed about impacts of climate change potential to plan for the range of possible outcomes (New and Hulme, 2000).

Pielke (2007) coins these approaches as 'factual uncertainty' thinking. While various facts cannot be ascertained, it requires a certain degree of simplification (i.e. through extrapolation) to reduce the overall complexity or uncertainty. In earlier literature, this approach is best described as reducing risks in order to calculate the probability that a certain situation occurs (Wardekker, 2011). The risk management literature defines risk as the 'combination of the probability of an event and its consequences' (ISO/IEC Guide, 73, 2002). Risk is thus the quantitative chance of something occurring in correspondence with the value of possible outcomes (Shackley and Wynne, 1996). In environmental terms, the OECD (2006, p. 21) provides a definition for risk as the 'result of interaction of physically defined hazards with the properties of the exposed systems [...]. Risk can also be considered as the combination of an event, its likelihood, and its consequences'. This has globally translated into mitigation policies, the most prevalent being the reduction in greenhouse-gas (GHG) emissions.

On the other side of discussions are authors like Schneider *et al.* (2002), who recognize that uncertainty might not always be measurable and can also result from disagreement, linguistic imprecision or from other unquantifiable means. It highlights the importance to understand the notion of subjective valuation in climate change science. This thinking on normative uncertainties is often lost in the discussion of climate

change uncertainties. With reference to the factual uncertainty thinking, this normative uncertainty is best reflected in the assumption of ignorance of uncertainty. It reaches from substantial uncertainty of knowing too little to make any presumptions about the future or not even knowing that one does not know (Heal and Kriström, 2002; Walker *et al.*, 2003).

While uncertainty is a concept, which is always part of any discourse on climate change, it is seldom defined explicitly. Pielke provides a definition aiming at encompassing various schools of thought: 'Uncertainty means that in a particular situation more than one outcome is consistent with our expectations' (Pielke, 2007, p. 55). Walker *et al.* (2003) demonstrate that there are various dimensions of uncertainties that have to be understood by scientists and policy actors in order to develop a way of how to deal with them. One way to deal with uncertainties is the introduction of the precautionary principle – the idea that action has to be taken in order to minimize, prevent or anticipate the effects of anthropogenic climate change in a cost-effective way – the claim for a way to deal with uncertainties in policies has become more serious (van der Sluijs and Turkenburg, 2006). The UNFCCC (1992, p. 4) states: 'lack of full scientific certainty should not be used as a reason for postponing such measures'.

While various definitions of adaptation exist, the major difference lies in the interpretation of adaptation as an 'outcome' or a 'process'. Adaptation seen as an outcome might require a clear set of goals whereas adaptation regarded as a process is much broader and more open; both interpretations require a diverse set of policies, institutions and financial resources (OECD, 2006). Moreover, Carpenter and Brock (2008) showed that individual or institutional adaptive capacity may not always enhance a system's adaptive capacity. Certain forms of intensive resource management might lead into a rigidity trap, when institutions become inflexible and static, thus maladaptive. Another situation of deadlock is the poverty trap. These are 'situations in which people are impoverished

by circumstances beyond their control' (Carpenter and Brock, 2008, p. 2). Carpenter and Brock (2008) thus presented reasons why adaptation and mitigation strategies might be at their best when implemented together so that transformation and persistence of a social-ecological system might exist in parallel. This becomes especially important in situations of great uncertainties, such as in resource management under climate change conditions.

While there is much discussion on various conceptions of uncertainty as shown above, global policy discourse on climate change continues to be governed by the dominant approach towards risk to reduce factual uncertainty.² The overstatement of factual uncertainty in various policies is most apparent from the shaping of international policies that aim at reducing GHGs and increase data collection and future modelling of climate change. This has translated into similar policies at national level: management of floods and droughts and exact data collection can be regarded as the main policy focus. In the water sector in particular, climate change adaptation strategies have a strong emphasis on water resources planning, often without taking into account how key policy actors view the overall idea of planning in the first place.

In line with analysis of Walker *et al.* (2003), this chapter argues that understanding of the different notions of uncertainty is crucial to increase the actual significance and effectiveness of climate change policy. Policy and governance responses to climate change need to be formulated based on a more nuanced, sophisticated understanding of how various actors and stakeholders perceive and experience uncertainty. In this chapter we approach uncertainty from the perspective of a perception study, rather than simply treating it in terms of 'objective' data collection and scientific/technical perspective. It highlights how various policy actors can perceive uncertainty differently, and how various interpretations of uncertainty can influence the overall shaping of the design and implementation of a climate change policy.

13.3 The Shaping of Climate Change Policy in Lao PDR

This chapter analyses climate change policies in Lao PDR, looking specifically at the National Adaptation Program of Action (NAPA) and the Climate Change Strategy (CCS). It illustrates how climate change policies are shaped by policy actors' perceptions and interpretations of uncertainty, rather than driven by the need to collect all scientific information, as advocated in the dominant factual uncertainty thinking.

We discuss the actual policy formulation processes and how various notions of uncertainty emerge in and influence the overall process. First, it summarizes the main points described in the NAPA and CCS. Second, it shows how the dominant thinking of factual uncertainty as reflected in global climate change discourse does not match with how national policy actors perceive uncertainties primarily from the angle of economic uncertainty, within the context of the country's development strategies. Third, it highlights how climate change policy in Lao PDR is formulated mainly based on subjective valuation of uncertainty (normative uncertainty) in climate change impacts, in terms of potential disastrous impacts rather than actual incremental impacts.

13.3.1 The National Adaptation Program of Action and Climate Change Strategy

Lao PDR adopted the NAPA in 2008 and 3 years later, the national CCS. The idea to formulate a climate change policy for Lao PDR originated from the United Nations Framework Convention on Climate Change (UNFCCC). The objective of the UNFCCC was to incorporate climate change issues as part of government policies both in developed and developing countries. Like others, the Government of Lao PDR (GoL) is formally obliged to formulate climate change policy in conjunction with its signing of the international agreement on climate change. UNFCCC's objective to ensure the

incorporation of climate change issues into government policies is driven primarily by the global climate policy agenda, which is focused on reducing carbon emissions. This agenda came out after the international epistemic community realized the current failure to use the Kyoto protocol as a means to control carbon emissions of countries due, for instance, to USA, China and India's reluctance to sign the agreement. This highlights the hegemonic tendency (Edelman, 1988) in climate change policy formulation, as national climate policies are often imposed through development agendas of international donors. For Lao PDR in particular, the government formulated the NAPA³ with technical and financial support from international donors (i.e.: World Bank, WB; Asian Development Bank, ADB; donor countries to the Global Environment Facility and the United Nations Development Programme).

The NAPA as well as the CCS are in line with the Millennium Development Goals (MDGs) and aim at reducing climate change effects. Key sectors, which are likely to be negatively affected, are identified such as agriculture, forestry, water resources, energy and transport, industry, urban development and public health (NAPA, 2008/2009; CCS, 2011).

The NAPA focuses on 'reviewing various strategies and measures for managing disasters in the past, present and future, as well as strengthening capacity and assessing alternatives for adaptation to the potential impacts of climate change'. It provides statistical data of adverse effects over the last years and identifies that the severity and frequency of floods and droughts have increased and the temperature has risen. The NAPA also provides predictions of potential future changes in the climate in Lao PDR and its neighbours, relying on climate change models developed by various institutions (e.g. SEA START or the CCAM simulations). Nevertheless, the NAPA lacks a detailed plan on how it can contribute to the overall process of scientific data collection and monitoring, within and beyond the GoL's current focus to improve disaster management strategies.

13.3.2 Scientific uncertainty and national policy actors' perception of uncertainties

As the decision of GoL to formulate the NAPA came originally from its agreement with the UNFCCC, one might assume the central positioning of factual uncertainty thinking in the overall formulation of the NAPA. Driven primarily by the global climate change discourse, one might expect the NAPA to be equipped with policy measures on how to collect necessary scientific information and data on climate change or at least with some proposal on how to address the problem of lack of (scientific) information as means to cope with climate change.

In practice, from our interviews with key policy actors at national level, it was revealed that they do not perceive the current lack of scientific data on climate change as a pertinent issue that needs to be addressed as part of the country's climate change adaptation strategies. Apart from the issue of donors' imposition in the overall formulation of the NAPA, various factors can be brought to light as reasons behind GoL's lack of interest in collecting 'all' necessary information as an integral part of their climate change adaptation strategies. First, policy actors perceive climate change impacts as not self-evident (Weber, 2008). As policy actors framed climate change impacts within the context of potential impacts, they tended to think that climate change impact is not something that they have to think of or deal with immediately. Second, policy actors perceive the country's economic uncertainty as a far greater issue that needs to be addressed, above the need to collect scientific data to make decisions/take actions to adapt to or cope with climate change.

Climate change policy is not in the top priority list of government's policy agenda. Our interviews with national policy actors further indicate that the GoL has various development priorities, which do not necessarily link to climate change or the overall objective of climate change policy to reduce carbon emission and adapt to climate change impacts. The development priority of GoL

lies in its attempts to promote the country's rapid economic growth, as means to move up its status from a least developed country (LDC) to a developing country (7th National Socio-Economic Development Plan, 2011–2015). For this purpose, GoL focuses on achieving its development targets in each relevant sector (i.e. energy, agriculture). For the energy sector, for instance, GoL focuses on hydropower development to promote the country's economic growth through revenue generation (Electricity Law, 2010). Similarly, in the agriculture sector, GoL targets irrigation expansion for increased agricultural production (National Growth and Poverty Eradication Strategy, 2010). These defined development goals and targets do not always coincide with climate change policy under the NAPA. From our interviews with relevant stakeholders, we gathered that NAPA has hardly materialized through policy/project implementation on the ground.⁴ In practice, existing projects that attempt to tackle climate change issues do not correspond with climate change policy and focus on areas that were listed in the NAPA.

Our Lao PDR case study illustrates the discrepancy between the global notion of scientific uncertainty as reflected in the climate change discourse and how national actors actually perceive uncertainties, primarily from the angle of economic uncertainty. The way factual uncertainty is positioned in global climate change discourse as the main issue needs to be dealt with in coping with climate change and does not correspond to the way policy actors subjectively value scientific uncertainty of climate change impacts, in this case, mainly within the context of the country's economic development. While the factual uncertainty thinkers (global notion) will aim at installing policies to increase scientific knowledge, national actors regard climate change policy formulation as partially important (due to its not self-evident impact) and focus on more urgent issues. These variable perceptions of uncertainties are not reflected in actual policy formulation processes by international development agendas. The discrepancy between national perception and global understanding might

lead to ineffective policies as the instruments (or means) provided to cope with climate change would vary. In the case of Lao PDR, this discrepancy is most apparent from the minimal agreement on what role climate change plays and the ponderous implementation of the NAPA.

13.3.3 Scientific understanding and policy actors' perception of climate change impacts

In Lao PDR, the dominant scientific notion of climate change impacts is reduced to the danger of extreme events like floods and droughts. From our interviews with various government staff from both the MoNRE and MAF we found that the GoL perceives climate change potential impacts as closely related to disaster management and the occurrence of extreme events (i.e. floods and droughts). The GoL's focus on disaster management is also apparent in the recent⁵ institutional set-up for climate change: climate change is part of the Department for Climate Change and Disaster Management and thus the classification is already visible within the name. The introduction of climate change as part of this department will rather strengthen the focus on disaster management.⁶

Focusing mainly on disaster management as the main policy measure to cope with climate change, key policy actors at national level do not view incremental impacts of climate change as something that needs to be measured and monitored scientifically. While a correlation between climate change and disasters is not untrue, there is a danger of neglecting the incremental impacts of climate change. These incremental impacts include for instance the gradual changes of ecosystems and consequent indirect changes of socio-economic systems or the shift in wet/dry seasons, which if not anticipated can lead to extreme events in the long term.

Our Lao PDR case study illustrates the discrepancy between scientific understanding and policy actors' perception of climate

change impacts. While the global notion on scientific uncertainty emphasizes the need for incorporating a plan to collect scientific data and improve technical tools such as modelling and assessing methodology with regard to both potential and actual climate change impacts as part of the NAPA, national policy actors do not view such a plan to be important beyond the context of disaster management. The discrepancy between global and national understanding of climate change (potential) impacts might lead to ineffective discussion on the overall shaping of climate change adaptation strategies, especially taking into account the important role played by international donors in the overall formulation process of the NAPA.

13.4 The Emergence of Institutional and Financial Uncertainty

This section illustrates how the formulation of climate change policy in Lao PDR resulted in the emergence of other types of uncertainty: institutional and financial. It brings to light the issue of institutional uncertainties in the overall shaping of climate change policy and how this can be a hindrance to effective policy implementation. In addition, it illustrates the existing problem of funding uncertainty and its policy implications, which often result in the inconsistency between projects listed in the NAPA and projects actually implemented on the ground. In summary, it illustrates how multiple notions of uncertainties in climate change policy in Lao PDR manifest in a massive disconnect between climate change policy and concrete activities on the ground.

13.4.1 Institutional uncertainty: a hindrance for effective policy implementation

While climate change could be a topic mainstreamed into all ministries and sectors, in Lao PDR there is a lack of institutional clarity on where to locate issues related to climate change. Initially, the Water Resources

and Environment Administration (WREA) under the Prime Minister's Office was in charge of dealing with issues related to climate change. In line with donors' recommendation, a climate change office was formed under WREA, and climate change technical working groups (TWG) were formed in each relevant sectoral ministry. The idea was to mainstream climate change policy into their respective sectoral ministry's development plan. In practice, the group has not really functioned, as staff/officials have not seen direct benefits of incorporating climate change policy into existing sectoral development programmes. Similarly, the climate change office at WREA could not deal with the rapid and increasing issues and problems of climate change. In 2011, the GoL decided to move some staff from the Department of Disaster Management under the Ministry of Labour and Social Welfare to strengthen the MoNRE⁷ and form the Department of Climate Change and Disaster Management.

Now, the Department of Climate Change and Disaster Management under MoNRE is in charge of the formulation and implementation of climate change policy in Lao PDR. In practice, however, while this department can formulate climate change policy, it cannot ensure the policy incorporation or its implementation by each sectoral ministry.⁸ Moreover, there is still much confusion as there are currently two departments of climate change and disaster management: one located under MoNRE and the other under the Ministry of Labour and Social Welfare. This institutional discrepancy leads to a further level of uncertainties in the climate change policy formulation: national actors are bound to secure their working space, practise new ways of communication and act in their new mandate.

Within the MoNRE itself, various uncertainties exist in relation to its status as a newly formed ministry. The communication channel, the decision-making abilities and the role division and mandate for each department have not yet been precisely defined. This lack of certainty is part of the notion of normative uncertainties. However, internationally and also nationally,

these uncertainties are not regarded as a hindrance for effective policy implementation. The relevance of these institutional uncertainties is not reflected in international discourse on climate change policy formulation, even though they certainly influence decisions on climate change in every country. The incorporation of institutional uncertainties into policies such as the NAPA could lead to more effective implementation on the ground.

13.4.2 Funding uncertainty and its policy implications

The NAPA identifies 12 high-priority projects, which should be created as part of the GoL's climate change adaptation strategies. As listed in the NAPA, these high-priority projects should address the following needs, to: (i) strengthen the capacity of the national disaster management committees; (ii) promote the secondary professions as mitigation measures; (iii) raise awareness in water resources management; (iv) map flood-prone areas; (v) establish an early warning system; (vi) strengthen institutional capacities in water resources management; (vii) study the possibility of building multiple use reservoirs in drought-prone areas; (viii) improve drinking water and sanitation; (ix) strengthen capacity building; (x) survey underground water sources; (xi) eradicate slash-and-burn practices; and (xii) strengthen forest management.

However, only one project (IRAS) has yet been established⁹ to strengthen institutional capacities in water resources management. From our interviews with national policy actors we discovered that project implementation was often halted due to funding uncertainty. Donors' strategies might be mainly to technically and financially support the government in developing its climate change policy and assume that they will implement this policy using the government budget. In practice, the government does not perceive climate change project implementation as a high-priority development agenda.

Donors like ADB and WB structure current climate change project financing by distinguishing between regular and additional climate change activities. Applying and implementing NAPA fall into the regular climate change activity. Additional climate change funds cannot be used to fund project implementation under NAPA. Thus, even if the GoL/MoNRE is intrigued to develop more concrete projects based on NAPA, these donors (who promoted and funded the NAPA formulation) are not able to fund it from additional climate change funds.

Climate change policy implementation takes place through projects funded by various donors in Lao PDR, especially those who are not involved in the climate change policy formulation processes. As the channelling of these additional funds would require the formulation of new climate change activity, not included in the NAPA, this not only makes it difficult to materialize potential projects defined in the NAPA, but also rules out actual implementation of projects dealing with climate change from the NAPA.¹⁰ Sometimes, these projects are materialized as other donors have decided to fund them under their climate change or other development themes. For instance, the project by WB on disaster management and climate risk reduction fits perfectly with the conception of the NAPA. Nevertheless, as many projects seem to be separately implemented, interviews reveal that MoNRE as the agency in charge of climate change policy formulation and implementation often does not know of the existence of certain projects.

The lack of clarity in funding and the lack of information of an overview of existing projects are clearly uncertainties which are not taken into account by existing policies. This leads to a massive disconnect between policy and project implementation.

We argue that synergizing how scientists, policy makers and stakeholders perceive climate change is crucial to increasing the actual significance of climate change policy. In Lao PDR, policy actors and stakeholders do not perceive the lack of scientific certainty as the major problem in coping with climate change (Pielke, 2007). It is more likely that various actors and

stakeholders might experience uncertainties primarily in relation to their actual working condition, access to funding and natural resources (predominantly land and water), and livelihood options. Farmers might perceive the actual timing for rice transplanting more important than reducing scientific uncertainty (in terms of rainfall variability) for establishing long-term crop planning; government officials might be more concerned that their department will remain in existence over the next legislation period. Similarly, international donors might have the tendency to focus on certain formalities for funds disbursement, regardless of its role and objectives to clarify long-term future scenarios.

Despite current efforts to reduce scientific uncertainty for instance, shaping of climate change policy remains problematic in terms of its implementation (Termeer *et al.*, 2009). Current practice shows that many climate change policies (especially those in developing countries) are formulated without setting any target in terms of carbon emission or any other indicators to measure climate change impacts.

In the case of Lao PDR, the discrepancy between predominantly scientific uncertainty and the way policy actors perceive uncertainty is most apparent in the overall formulation of the NAPA and the CCS, its focus on disaster risk management of floods and droughts, and the current disconnect between climate change policy and projects implementation. While existing projects include various understandings of uncertainties – depending on the institution implementing it – these projects seem not to be in large part coordinated and harmonized. Some projects aim at enhancing social and environmental resilience or increase farmers' adaptation, others target at modelling scenarios and collecting data in order to reduce the scientific uncertainties (Table 13.1).

13.5 Conclusions

Our Lao PDR case study illustrates the existing discrepancy between global climate

change discourse and how climate change policy is formulated and implemented. We argue that this discrepancy is rooted mainly in the current misfit between the dominant factual uncertainty thinking and how policy actors perceive and interpret scientific information.

The dominant scientific notion of uncertainties in the climate change discourse only resembles a fragment of a bigger picture. This is highlighted in the way water scarcity can be viewed differently by various actors and stakeholders at multiple scales, depending on their role in the overall water management. Water resources planners, for instance, perceive water scarcity induced by climate change in close relation to issues of rainfall variability; irrigation system operators tend to look at water scarcity in relation to their ability to increase the flexibility of overall systems operation; farmers would experience water scarcity primarily in relation to shifting seasonal patterns and changes in their surrounding ecosystems.

The actual significance of climate change policy is determined not only by whether it has the 'right scientific' rationale, but also by how policy actors perceive and interpret the overall idea of uncertainty, and how such perceptions shape climate change policy formulation processes. While this highlights the importance to incorporate normative uncertainty thinking in the overall shaping of climate change policy, climate change policy formulation in Lao PDR has also created other types of uncertainty: institutional and funding uncertainty. Current literature on climate change policy highlights this institutional and funding uncertainty by showing for instance how domestic authority is so often overlapping and divided when dealing with climate change issues, and how the mainstream approach in climate policy needs to rely on upscaling models which are envisaged to extract lessons from local adaptation processes.

Understanding of the different notions of uncertainty (normative, institutional and financial) is crucial to increase the actual significance and effectiveness of climate change policy. Our Lao PDR case study shows, for instance, how the overall shaping of climate

Table 13.1. List of stakeholders and climate change projects in Lao PDR.^a

Name of project/ stakeholder	Implementing agency	Responsible government agency	Funded by	Financial resources	Year	Region	Goal/key activities	Policy impact	Part of existing climate change policies?
IRAS (interview with Manfred Staab)	UNDP	NAFRI, MAF	GEF, LDC Fund, UNDP	n/a	2012–2015	Savannaketh, Xayaboury	Improve the capacity of farmers and government staff in order to deal with the effects of climate change	Little	Part of the NAPA (one of the two projects of agricultural priority)
Lao Local Demonstration Project of the MRC Climate Change and Adaptation Initiative (Interview with Dr Kien)	Lao National Mekong Committee (LNMC) and the MRC Secretariat	Lao National Mekong Committee Authorities of Savannakhet Province and Champone District	For the CCAI: Australia, the EU, Denmark, Germany, Luxembourg, Sweden, Finland	US\$10,000	2011–2013	Savannaketh (in Lao PDR) as a demonstration site	Climate change impact assessment and adaptation planning and implementation within the Mekong River Basin Testing of some local adaptation measures (for Lao Demonstration Project)	Lao Demo-Project assisted provincial authority to mainstream CC into development plans	No
Exploring Mekong Region Futures (interview with John Ward)	CSIRO	MoNRE	CSIRO AusAID Research for Development Alliance	n/a	2009–2013	The Mekong Future Program worked in GMS with Lao National component	Improve the sustainability of the MR by investigating the complex relationships between the production, distribution and use of energy, food and water of the region	No	No
Climate Protection through Avoided Deforestation (interview with Dietmar Bräutigam)	KfW/GIZ	MAF, Department of Forestry	KfW/GIZ	€4 million	2009–2012	Luang Prabang Province, Xayaboury	At intermediary level, the necessary policy and institutional framework and initial implementation strategies are in place for effective forest conservation in line with the international debate around REDD+. As well as helping to protect climate and biodiversity, this also improves the conditions under which the rural population live	Yes, including REDD into policy	Not sure?!

Continued

Table 13.1. Continued.

Name of project/ stakeholder	Implementing agency	Responsible government agency	Funded by	Financial resources	Year	Region	Goal/key activities	Policy impact	Part of existing climate change policies?
Clean Air and Climate Change Mitigation for Smaller Cities in the ASEAN Region	GIZ	ASEAN- Secretariat	GIZ	n/a	2009–2012	Vientiane	Smaller and medium-sized cities are increasingly able to develop and implement measures to improve the air quality and contribute to sustainable city development	Not sure	Not sure?
Environmental education to cope with climate change	GIZ	MoNRE	GIZ	n/a	2012–2014	National	Few members of the general public or even decision makers in politics and business are aware of the danger because they know little about the correlation between environment and climate change. The project goal is to educate those	Yes, results shall be included in the action plan and new CC strategy	Not yet, but should be included in the new action plan
Climate Change and Disasters Program	Save the Children		AUD, AusAID	Over US\$2 million	Started 2008	Mainly central and southern Lao PDR (Xayaboury)	Child Centred, Child Led and Child Focused DRR, recognizing children as agents of change and encouraging participation of children and communities in the DRR measures which aim to improve the lives of children facing disasters	Through the project 'Establishing Disaster Information Systems', they have influence of policies	A Disaster Information System is part of the NAPA; however, it may not be the programme implemented by Save the Children
Mainstreaming Disaster and Climate Risk Management into Investment Decisions	World Bank	MoNRE	World Bank	US\$2.77 million	2011–2015				
Capacity Enhancement for Coping with Climate Change	ADB	MoNRE	Water Resources & Environment Administration (WREA)	US\$3.4 million	2010	National	Addresses several capacity barriers by providing support to National Climate Change Office and the institutions responsible	Policy support	Not as a real project, but as part of the underlying aims

^a This list might not be exhaustive.

change adaptation strategies is influenced by how key policy actors perceive the overall notion of economic uncertainty in relation to the country's development strategy. It illustrates how different notions of uncertainties are linked to various interpretations of climate change impacts (i.e. potential disastrous impacts as opposed to actual incremental impacts). In addition, it highlights the importance of institutional uncertainties (i.e. government agencies' formal mandates, roles, bureaucratic affiliations, and access to resources) and funding uncertainties (donors' funding regulation) in shaping the actual implementation of the NAPA.

The dominant tendency to focus on scientific uncertainty in climate change discourse and policy formulation might in fact decrease the real issue at stake faced by farmers and other local and national actors (i.e. bureaucratic uncertainty, uncertainty of weather and seasonal pattern). Similarly, current lack of recognition of multiple uncertainties in global climate policy formulation might result in a national climate change policy that does not resemble national/local actors' perspective on how to cope with climate change. Understanding the different notions of uncertainty is important to avoid the shaping of climate change policy merely as a blueprint. As stated by Weber (2008, p. 133): 'Too often the debate over climate change is overly simplistic. Given the scale of the problem and the assumption of catastrophic harm, the tendency is to rely on top-down, one-size-fits-all governance solutions'.

Policy and governance responses to climate change need to be formulated based on a more nuanced, sophisticated understanding of how various policy actors and stakeholders perceive and experience uncertainty. Jones *et al.* (2012), for instance, highlight the role of social capital like trust, norms and social networks in influencing how people perceive uncertainty related to climate change impacts. What could be observed on each level of analysis is that various policy actors and stakeholders perceive and experience uncertainties in a very diverse way. While these uncertainties are not translated into policies, they are implied in the way policy actors shape the

overall process of climate change policy formulation and in the way stakeholders shape the policy implementation. This can be often seen as the missing link between theory, policy and practice. Hence, it is pertinent to incorporate the diverse notions of uncertainty as an integral part of climate change policy formulation processes.

Notes

- 1 Globally, climate change is an important issue. The establishment of the IPCC evidenced not only the importance of the issue but also the need to tackle it at global level, primarily with regard to how to cope with climate change impacts. Scientific understanding of climate change impacts shows how climate change can have both long-term (i.e. accumulated incremental impacts) and short-term (i.e. on extreme events) impacts. For Lao PDR in particular these impacts will be both incremental and extreme events.
- 2 This standardized approach might not translate into effective policy implementation. Even if normative uncertainty is also recognized it might not be perceived as equally important.
- 3 For an outline of the content of the NAPA and the SCC, see the following section.
- 4 For more information on projects on the ground, see Section 13.4.2.
- 5 For more information on recent institutional development, please see Section 13.4.1.
- 6 This change in institutional set up will be further elaborated in Section 13.4.1.
- 7 WREA was upgraded into MoNRE in 2011. Unlike earlier, MoNRE has full status as a government ministry and does not function under the official mandate of the Prime Minister's office as did WREA earlier.
- 8 Here, the issue of institutional discrepancy becomes closely related with the issue of bureaucratic competition and sectoral fragmentation.
- 9 This information is based on interviews in December 2012 and might already be outdated.
- 10 Many NGOs, development institutions and the GoL have been involved in climate change projects. The aims of the projects are as diverse as their locations: reaching from capacity development, adaptation enhancement and disaster management to mitigation programmes like Reducing Emissions from Deforestation and Forest degradation (REDD), environmental education and clean-air programmes. The

projects are sometimes located in specific regions (mainly Xayaburi and Savannaketh) or even have a national scope (often based in Vientiane). While the variety of project interests and locations might not intrinsically be wrong, there is limited connection to the official policies.

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