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Journal of Marine and Island Cultures

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JOURNAL OF MARINE AND ISLAND CULTURES

Participatory integrated coastal zone management in Vietnam: Theory versus practice case study: Thua Thien Hue province

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Abstract   Sustainable management processes have undergone a shift from a top-down approach to a bottom-up approach. This bottom-up approach allows for a more apprehensive inclusion of stakeholders. In traditional hierarchical societies a combination of both is considered more desirable. This combination is described as a participatory approach that allows for bi-directional knowledge sharing. The question asked is whether this theoretical approach is viable in practice, taking into account different social, political and cultural influences. Qualitative research in bi-directional knowledge sharing and stakeholder participation in Integrated Coastal Zone Management (ICZM) was conducted in the provinces of Thua Thien Hue in Vietnam. Qualitative research was conducted using coding analysis. This analysis showed that in practice a great reluctance for change affects the implementation of ICZM. This reluctance is directly related to the level of power of stakeholders and the level to which stakeholders are embedded in the top-down tradition. Two contradicting results emerged. On the one hand the theoretical understanding of participatory ICZM is highest when reluctance for change is highest and vice versa. On the other hand a decrease in power results in an increase of the sustainability of the implementation of participatory ICZM. This research concluded that a 'platform or structure' is essential to achieve sustainability. In the Vietnamese context the tradition of power results in a platform which is both formal and non-formal. A non-formal platform is needed to create social capital, whereas a formal platform will limit the risk for arbitrariness and allow for institutionalisation.

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Introduction

Integrated Coastal Zone Management (ICZM) is defined as the dynamic process for the sustainable management and use of coastal zones (Douvere, 2008) and their impacts on both marine and land parts (European Union, 2009). As defined by Cicin-Sain (1993), 'ICZM is a process that recognises the

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distinctive character of the coastal zone – itself a valuable resource – for current and future generations'. ICZM in specific and Water Resource Management aspire a shift from a top-down approach towards a more participatory approach (Pahl-Wostl et al., 2008).

In theory this new approach aims to include stakeholders as co-designers and co-decision makers. Moreover, in theory it should allow ICZM to move from a one-directional management approach to an approach which not only allows for bi-directional knowledge sharing (Roux et al., 2006; Soncini-Sessa et al., 2007) but which demands co-management (participatory resource management). It is the hypothesis of this research that participation should not be implemented as a methodology for sustainability; participation and knowledge sharing are intrinsic conditions for sustainability in ICZM. With this research an attempt is made to determine on the one hand, whether this is a valid hypothesis in the context of Vietnam and on the other hand how this theory can be translated into practise in the contextual specificity of Vietnam.

In the initial phase of the research data is collected on the current, past and future programmes and policies on ICZM in Vietnam. Specifically, the research examined the inclusion of participation and bi-directional knowledge sharing and the interpretations given to and the understanding of the value of these concepts. Participatory resource management (PRM) in Vietnam is best understood as the concept of co-management. Co-management is defined as a knowledge partnership in which the sharing of power and responsibilities between governmental stakeholders and local resource users in a management process allow for such partnerships to come about (Berkes, 2008). PRM as a methodology was brought into relation with the designers of policies and programmes and its end-users. Each programme and policy was assessed both in its development and implementation phase allowing for further insight in the reasoning behind a use or lack of use of PRM in ICZM. The collection of data on PRM is divided in PRM-participation and bi-directional knowledge sharing; this division is however not absolute as PRM aspires bi-directional knowledge sharing. PRM or co-management is characterised by pluralism, communication and negotiation, transactive decision making, social learning and shared action/commitment (Plummer and Fitzgibbon, 2004). Bi-directional knowledge sharing is expressed by these different characteristics as such that it includes the sharing of information, decision making through dialogue, and mutual gaining of knowledge (Plummer and Fitzgibbon, 2004). Bi-directional knowledge sharing does not imply that all knowledge, to its full extend, will be shared in every setting or actions. Knowledge will be shared in the manner that is deemed appropriate according to the social and cultural contextual setting and the desires of the involved stakeholders. This article will illustrate that in order to achieve sustainability; participation and bi-directional knowledge sharing are as intrinsic to ICZM as is the coast.

Material and methods: qualitative research

Data collection

The findings presented in this paper are based on a 2 year inductive qualitative research conducted in the context of the Socialist Republic of Vietnam. The geographical scope was placed on the province of Thua Thien Hue (TTH). Thua Thien Hue province has a population of around 1,200,000 with a population density of 225 person/km^2. There are two main economic sectors in Thua Thien Hue; agriculture–forestry–fishery and industry–construction of which the latter has approximately 1.5 times the value of agriculture–forestry–fishery. Agriculture accounts for 61.1%, fishery 30.6% and forestry only 8.2%. (NCAP, 2008). Fishery activities include catching on sea and rivers, ponds, farming of shrimp, fish and other aqua-products (NCAP, 2008). Data was collected via semi-structured interviews. These interviews were conducted in Vietnamese with the aid of a translator. Interviewees were identified via literature review and were contacted with the aid of the Integrated Management of Lagoon Activities (IMOLA) programme. In order to assess ICZM programmes and policies 14 different stakeholders were interviewed (Table 1). The stakeholders consist of national and local government institutions, mass organisations, research institutes and universities, and representatives of ICZM programmes.

Instrument

Generative questions were developed for the purpose of semi-structured interviews. These questions were developed to aid but not to limit the research (Trochim, 2011). They provided insight in the function of the interviewee in his/her organisation/institute and the position this organisation/institute occupies in ICZM. Furthermore, insight was gained into whether PRM and bi-directional knowledge sharing are considered as important aspects of ICZM. Detailed information was obtained on the view of the specific organisation/institute and their view on other stakeholders. Open questions provided in-depth understanding of the challenges and needs concerning participatory ICZM in the future.

Data analysis

Manual (i.e. paper and pencil) (Strauss, 1987) coding as an inductive approach was used in this research to allow for the emergence of frequent, dominant or significant themes (Thomas, 2006). Coding is a method of analysing qualitative data (Lofland et al., 2005; Miles and Huberman, 1994; Taylor and Bogdan, 1998) with the aim of managing and organizing qualitative data and allowing for the identification of relationships between theories and case-by-case comparisons. (Gibbs, 2007). Coding was conducted in a cyclical process with the one initial coding analysis cycle (Abelshausen, 2010) and two recoding cycles. The coding structure which resulted from this initial analysis (Abelshausen, 2010) was created in chronological order which is in correspondence with the research objectives. This because ICZM programmes and policies were researched in their present, past and future form. The second and third cycles are based on the research hypothesis allowing for a more in depth analysis, independent of chronological order. Initially, identification was made of upper level categories (i.e. labels) based on the research objectives. Lower level labels were derived from multiple analyses of the raw data.

Fig. 1 provides an overview of the final qualitative coding analysis structure. The process which led to this final coding analysis structure consisted of three intermediate steps. Each

Table 1 Stakeholder scope in integrated coastal zone management in Thua Thien Hue province.

Stakeholder level	Sector	Name	Responsibilities	Number of respondents	Function	Gender
Upper level	National government institute	Ministry Of Natural Resources and Environment (MONRE), Vietnam Administration of Seas and Islands (VASI)	Policy development on ICZM, sea use management and marine spatial planning (IOC, 2009)	1	Deputy Administrator	Male
	Local government institutes	Department of Natural Resources and Environment (DONRE)	Implementation of national decisions	1	Director of Environmental Protection Branch	Male
	Research institute	Institute of Marine Environment and Resources (IMER)	Research on ICZM in different areas in Vietnam	1	Director	Male
	ICZM programmes	Vietnam Netherlands Integrated Coastal Zone Management (VNICZM)	Cooperation between Dutch and Vietnam government on national ICZM strategy development (WL Delft Hydraulics, 2005)	1	Coordinator of VNICZM	Male
		Netherlands Climate Assistance Programme (NCAP)	Follow–up VNICZM with focus shift towards climate change (NCAP, 2008)	3	Project Coordinator/ National expert in TTH/National expert	Male
Lower Level	Local government institutes	Provincial People's Committee (PPC)	Guideline development on implementation of national decisions (Clement and Amezaga, 2009)	1	Deputy Head of Economic Division	Male
		Department of Agriculture and Rural Development (DARD), Provincial Project Management Unit of Fishery Sector Programme Support (FSPS) II, Danish International Development Agency (DANIDA)	Implementation of national decisions, participatory pilot case (MOF and MFA, 2005)	1	Vice Director of FSPS II	Male
		Division of Agriculture and Rural Development (DARD)	Development and management of fishery associations	1	Head of Division of Agriculture and Rural Development (Phu Loc)	Male
		Sub-department of Flood Control (Sub-DFC)	Apply provincial policies and control implementation by district authorities (Clement and Amezaga, 2009)	1	Head of Flood Control Sub-department	Male
		Sub-department of Capture Fisheries and Fisheries Resources Protection (Sub-decarif)	Apply provincial policies and control implementation by district authorities (Clement and Amezaga, 2009)	1	Head of Sub-department of Capture Fisheries and Fisheries Resource Protection	Male
	University	Hue University of Agriculture and Forestry (HUAF), Common Pool Resource Management (CPRM)	Pilot in participatory research in TTH (Tuyen, 2012)	1	Dean of Faculty of Extension and Rural Development	Male
	ICZM programmes	Nordic Assistance to Vietnam (NAV)	Pilot in participatory approach (NAV, 2011)	1	Development Project Manager	Male
		Integrated Management of Lagoon Activities (IMOLA)	Participatory approach pilot in ICZM in TTH (Sarti, 2012)	2	Chief Technical Advisor/ Coordinator	Male
	Mass organisation	Women Union (WU)	Mass organisation	1	Vice Director	Female
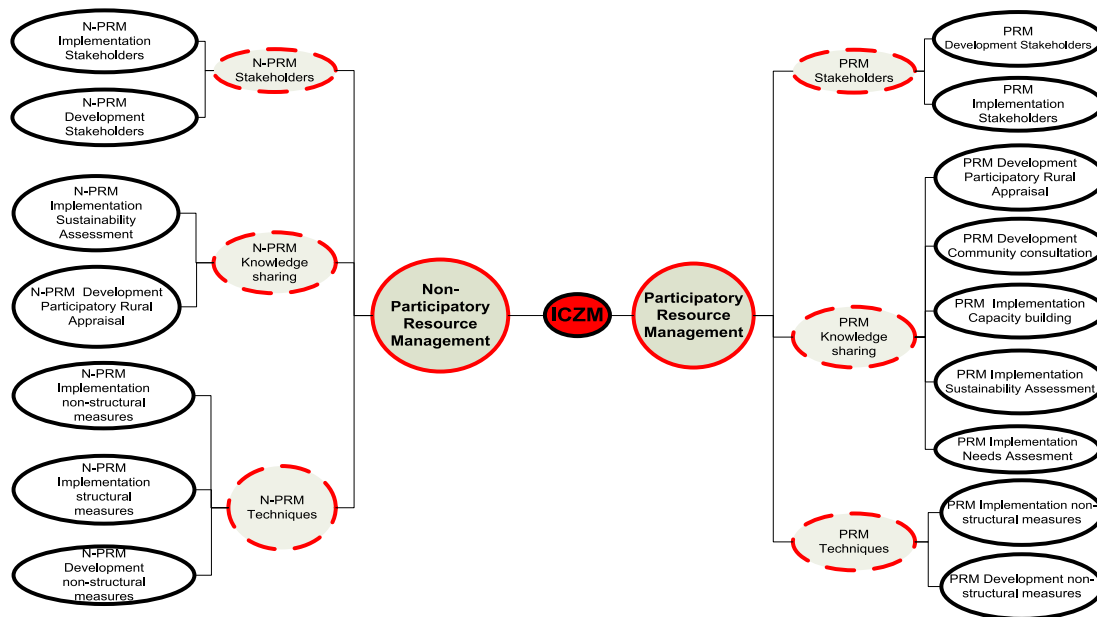
Fig. 1 Qualitative labelling analysis structure: ICZM in Vietnam includes both participatory and non-participatory resource management.

step results in an intermediate coding analysis structure; non-PRM in the development and implementation stage (Appendix A), and PRM in the development and implementation stage (Appendix B).

Overlap between the definitions of the different labels identified in the intermediate structures led to the understanding that PRM and bi-directional knowledge sharing are not merely two separate ICZM methodologies. For example; a knowledge sharing effort (e.g. activities, policy goals) can be both bi-directional and one-directional, depending on the stakeholders who interpret the efforts. Workshops are used both in PRM and non-PRM as an environmental education methodology. In PRM these workshops are used to learn in a bi-directional manner through feedback and discussion. In non-PRM these workshops are used to inform stakeholders without discussion and feedback, limiting knowledge sharing and learning opportunities to a one-directional approach. The coding memoranda provide in-depth descriptions of both the definition of the labels and the possible overlap. A concluding comparison between the final coding structure (Fig. 1) and the initial coding structure (Abelshausen, 2010) was imperative for the understanding that bi-directional knowledge sharing efforts and PRM initiatives are stakeholder dependent and are interlinked.

Results: integrated coastal zone management in Vietnam

Definition and understanding of ICZM

In Vietnam, Integrated Coastal Zone Management is interpreted differently by different stakeholders. The impact of this difference in interpretation has a profound impact on the sustainable implementation of ICZM programmes and policies. In Vietnam, a contradiction between theory and practice emerges as this interpretation is linked to the level of power of stakeholders (Table 1).

In literature, Integrated Coastal Zone Management as a management approach was first defined by United Nations Conference on Environment and Development (UNCED) in 1992 (United Nations, 1992). The concept of ICZM exists however for much longer, with the first political approach to ICZM dating from 1972 (Vallega, 1999). Upper level stakeholders of ICZM in Vietnam (i.e. federal government officials) (Table 1) follow the definition by United Nations (1992) in theory and their understanding of the link between IZCM and PRM is profound. Stakeholders indicate that at a lower level (i.e. provincial and district) (Table 1) ICZM is interpreted differently from literature and is limited to a (economic) sector approach excluding individual stakeholders such as natural resource users. "*ICZM is a cross or multi sector management approach, whereas co-management (bi-directional knowledge sharing and participation) is just the relationship between local people, the government and management*" (Low-level stakeholder quote, 2010). Lower level stakeholders (Table 1) state that at this level the importance of PRM is recognised, the link with ICZM is however lacking.

This divergence in interpretation is even more present when ICZM programmes and policies are implemented in practice. As it is expressed by stakeholders, in practice due to a long tradition of top-down governance in Vietnam, the reluctance to include all stakeholders is great with upper level stakeholders (Table 1). This reluctance is contradictory to the profound understanding upper level stakeholders (Table 1) have of PRM and its importance in ICZM. Lower level stakeholders (Table 1), on the other hand, lack a theoretical understanding of the concept of ICZM; implementation at this level however reflects the opposite. At grass root level (i.e. lower level stakeholders (Table 1)) the inclusion of all stakeholders is achieved via the creation of fishery associations (FA's). Fishery associations are 'social-professional' organisations that constitute as a legal entity for resource rights (Tuyen et al., 2010). FA's are organised at different levels; the most basic level (as is

the case in TTH) operates at user-group or sub-village or village level and is made up of villagers who share similar aquatic resource exploitation practices (Tuyen et al., 2010). It needs to be recognised however that stakeholders who partake in these associations do not consider themselves as working within ICZM. "*Fishery associations are a part of co-management, therefore I see no relation to ICZM as co-management and ICZM are two different approaches*" (Low-level stakeholder quote, 2010).

Additionally, a small difference in geographical scope (lagoon versus coast) has led to a difference in interpretation of ICZM. The existence of programmes such as Integrated Management of Lagoon Activities (IMOLA), Vietnam Netherlands Integrated Coastal Zone Management and the existence of structures such as fishery associations has led to fragmentation. This fragmentation has however allowed for the inclusion of a large number of stakeholders.

Definition and understanding of participatory and non-participatory resource management

The coding analyses included the defining of memoranda providing the explanation given to the different labels and the inductive process used. The associated memoranda to the labels PRM and non-PRM clearly define the reasoning given by stakeholders to distinguish between activities which allow for the introduction of all stakeholders in the decision making process and activities which follow the traditional line of power.

PRM is described by all stakeholders as a combination of a bottom-up and top-down approach. The realisation exists that in order to create sustainability in ICZM both the existing tradition of top-down and the new approach of bottom-up empowerment, currently present in the Vietnamese society, need to be introduced in the ICZM approach. "*The best option is to combine; to have the top-down approach for providing background and framework and the local community fit in their comments and feedback and develop the plan*" (High-level stakeholder quote, 2010). In order to take into account the traditional values of the Vietnamese society (top-down governance) and the realisation of the importance for bottom-up empowerment, stakeholders suggest that a gradual change from top-down to a combination will allow for a more effective and realistic approach. Effective in the sense that this might allow for the inclusion of all stakeholders, and realistic to meet the needs of the stakeholders to be included and the need for ICZM to be more sustainable.

The determination of the label non-PRM is linked to the notion of bi-directional knowledge sharing. Stakeholders perceive activities as non-PRM when stakeholders are involved but are not considered as partners and/or do not act as co-managers. Non-PRM is however never applied in the strict sense and ambiguity exists. The coding analysis revealed for example that even if techniques are used to improve bi-directional knowledge sharing, the outcomes may not express this knowledge sharing and may result in a concealed form of top-down governance. "*One very typical activity is the training on the basic skills for aquaculture for the poor... They do a survey first on the demand and expectations from the local people. Based on the feedback or comments from the local people they make a plan*" (High-level stakeholder quote, 2010). This

quote illustrates that natural resource users are "consulted" but are not included in the decision making (or planning) process as full members.

Change and social learning

A participatory management approach which allows for bi-directional knowledge sharing implies social learning (Pahl-Wostl et al., 2008) which in the Vietnamese society is received with reluctance as expressed by several stakeholders. "*... Often this is the case and fishermen are very reluctant to share knowledge with them as they fear that they either will dismiss their opinions and ideas or will get into trouble. Government officials themselves often follow this reasoning and are not willing to listen to one another. The higher they are on the power scale the more reluctant they will be to listen and be open to other ideas*" (High-level stakeholder quote, 2010). In order for the Vietnamese society to evolve from a tradition in which the government is the sole decision making authority into an approach that introduces a large number of stakeholders, both change in "contemplation" and "behaviour" is needed (Pahl-Wostl, 2009). Change might be in essence a slow process as the evolution towards a new behavioural pattern requires extensive adaptation.

Change

In Vietnam, change differs in relation to the level of power that is given to the different stakeholders, which for some stakeholders is more time consuming then for others. When the change from a 'prediction and control' model to a more participatory approach is researched, it can be noted that in Vietnam a divergence in change occurs based on a differentiation in a level of power given to stakeholders. In the following paragraphs the divergence between higher level and lower level stakeholders is studied through the influence of time on change, the tradition of power in Vietnam, win–win situations and the inclusion of natural resource users. For high level stakeholders change has occurred in theory; however on a practical level this change is incomplete. There exists a clear difference between a change in 'thinking' and a chance in 'action'. For lower level stakeholders this change has occurred in practice, but not in theory. These stakeholders have changed their behaviour, but not their thinking.

When talking about change, the theoretical change conceptualisation by Fry and Killing (2000) is accepted for this research. Change or 'behavioural change' as it conceptualised differentiates between a change in "contemplation (thinking)" and a change in "behaviour (acting)". Fry and Killing (2000) differentiate four stages of change; contentment, denial, confusion and renewal according to the Janssen Change Model. Contentment is the phase in which people are 'content'; they feel comfortable and confident. Denial refers the phase in which people are afraid to admit that change occurs; they place great value on 'how things used to be'. In the phase of confusion less energy is spent on the past and openness for constructive activities is created, although not yet fully confident. Subsequently, in the phase of renewal a lot of energy exists for creative activities. These four stages are used to frame the level of change the stakeholders find themselves in. However the differentiation between the change in 'contemplation' and 'behaviour' is essential to understand the differences

that occur between the level of reluctance for change that exist between lower and higher level stakeholders.

PRM is introduced in Vietnamese ICZM programmes both on a national and a provincial level. However, even if PRM is present in these programmes in theory (contemplation,), on a practical level (behaviour) the implementation is not complete. The Vietnamese tradition of top-down governance prevents lower level governments (Table 1) to adapt programmes according to the needs of local stakeholders including the introduction of a more participatory approach. "… *there has been some successes created on this and that most parties who have participated in these projects understood the concept of ICZM very well and acknowledged the importance of knowledge sharing. However these people often change position or are held back by a higher ranking official*" (High-level stakeholder quote, 2010). However, these lower level governments challenge the upper level government by gradually presenting them with success stories in which they have included a participatory approach. "*We bring up pilot with bottom up with success and good for make them aware to change perception*" (Low-level stakeholder quote, 2010). The experience they possess with local stakeholders has provided them with the necessary insight in the win–win situation that can be created by the use of PRM. Via a slow process, due to the sensitive nature of challenging existing governmental power structures, they present their insight and attempt to change the current balance of power. Fishery associations are a clear example of such a success story. These associations allow for collaboration between all stakeholders and are a sustainable manner in which policies from upper level governments can be implemented. This process of reversal of power is however not without its difficulties. On a national level the shift towards a more participatory approach is considered inevitable and necessary (i.e. change in contemplation), the reluctance is however greater than this understanding and the reality of the situation is not yet recognised (i.e. lack of change in behaviour).

Governmental stakeholders (Table 1) experience change in a different manner than other ICZM stakeholders. When comparing the different stages of change identified from the empirical research with theories presented by Fry and Killing (2000) it can be stated that on a national level little progress has been made especially on an implementation level. In the Vietnamese society governmental stakeholders (Table 1) have always been in a phase of contentment (Fry and Killing, 2000) in which they are confident and comfortable (Fry and Killing, 2000). Currently however, they are undergoing a shift towards a phase of denial where they are afraid of change and try to hold on to the past (Fry and Killing, 2000) as they are reluctant to shift from a top-down approach to a participatory approach. Some government institutions, mainly at the lower level (Table 1), have already entered the phase of renewal where they still experience fear but are willing to change (Fry and Killing, 2000).

It is recognised by all governmental stakeholders (Table 1) in Vietnam that time is an important factor in the introduction of PRM in ICZM. "*Slow process, the challenge is to provide pilot study to indicate that it is not always success with top down. I think in Vietnam already change, but some institute very slow changing at higher level. Fe policy implementation*" (Low-level stakeholder quote, 2010). "*Power has to be distributed better and corruption has to be addressed. This of course is not an easy task and will take a long transition phase. But even with this*

obstacle it is important to address the situation, try to make progress (even if it is very slow) and try to improve the current situation".(high-level stakeholder quote, 2010). Successes have been made and steadily the shift towards participatory ICZM is become visible and positive attitudes indicate that this will continue to happen. The time consuming nature of change however leads to a lack of financial resources and knowledge. Because PRM is not yet fully recognised as an intrinsic part of ICZM, funds and opportunities to improve expertise and technical capacity is limited. This indicates that even if PRM is recognised as an intrinsic part of ICZM in the near future, the process will still be slow as capacity needs to be build on an institutional level. Mass Organisations, NGO's and ICZM programmes, both national and international, are speeding up this process. Most of the stakeholders apply some form of PRM in their approach. The successes achieved by these stakeholders give a good idea of how PRM can influence ICZM. The partnership between these organisations and governmental stakeholders (Table 1) allows both partners to benefit from each other's experiences. This partnership in itself is considered as PRM and is the first real expression of PRM in ICZM in Vietnam. Furthermore, this partnership is recognised as a constructive activity that can be implemented only if the phase of confusion is reached where the realisation of the need for change can be achieved (Fry and Killing, 2000). The realisation of a win–win situation is an essential aspect in the shift towards PRM.

The process of change becomes even more complicated when natural resource users are introduced. Both governmental stakeholders as organisations struggle with the inclusion of natural resource users as stakeholders in ICZM. Governmental stakeholders do not accept natural recourse users as equal partners even when they recognise that PRM with natural recourse users is necessary. This reluctance is linked to the phase of denial (Fry and Killing, 2000). Governmental stakeholders are unwilling to share knowledge in a bi-directional manner as the knowledge natural recourse users posses is not considered valuable. "*For macro policy development, local people have a lack of information and they do not have enough expertise which makes it is very difficult to involve them*" (High-level stakeholder quote, 2010) Knowledge possessed by natural resource users is tacit knowledge; based on experience and only verbally shared (Roux et al., 2006). Those governmental stakeholders that have reached the phase of confusion (Fry and Killing, 2000) have recognised the importance of this tacit knowledge and have made attempts to include this knowledge in ICZM. These attempts have however a very limited reach and have not allowed for a structural change.

Organisational stakeholders also struggle with the inclusion of natural resource users. Their attempts to include natural resource users have however realised more structural changes than the attempts made by governmental stakeholders. Organisational stakeholders have reached the renewal phase (Fry and Killing, 2000) and are attempting to realise change. The limited realisation of change by organisational stakeholders is due to a lack of capacity in contrast to the unwillingness for change by governmental stakeholders. Fishery associations are a clear example of the attempts being made. The inclusion of governmental stakeholders as partners in these associations provides them with the opportunity to evolve into the phase of renewal (Fry and Killing, 2000).

Even though this contrast exists, both governmental stakeholders and organisational stakeholders apply a top-down approach when developing ICZM programmes and policies. The difference lies in the reasoning behind it. Whereas governmental stakeholders are unwilling to change, organisational stakeholders are unable to change. At this time governmental stakeholders have not yet reached the phase of renewal and therefore it is not possible to predict whether these governmental stakeholders will encounter the same challenges, i.e. inability to change, as organisational stakeholders experience in the renewal phase.

Social learning and the need for structure

The need for structure is based on the idea that in order to achieve bi-directional knowledge sharing trough PRM in ICZM all stakeholders must be brought together. For these stakeholders to interact with one another a platform needs to exist that allows for bi-directional knowledge sharing. This discussion is framed in the notion of social learning. As described by Pahl-Wostl et al. (2007) the need for social learning stems from the idea that a management approach which includes multi-stakeholders needs to be created as one practical group of stakeholders can no longer learn on behalf of all other stakeholders. Social learning is essential to build up the experience needed to cope with uncertainty and change (Pahl-Wostl et al., 2007). The understanding that different stakeholders are in different phases of achieving change allows for the linkage with social learning.

Different stakeholders deal with change in different manners and the time-frame for these stakeholders can differ greatly. When this realisation is linked to the concept of social learning, it can be explained why lower level governments and grass root stakeholders are more advanced in the realisation of change than upper-level governments (Table 1). This realisation is essential to understand why bi-directional knowledge sharing is not fully achieved and PRM is not yet implemented throughout ICZM. Pahl-Wostl et al. (2007) describe the social learning process as a multi-scale process. This process is influenced by the government structure in which it is imbedded. Social learning occurs at two or three levels. Level one entails a short to medium time-scale collaboration between stakeholders. Level two works on a medium to long term scale at the level of change in actor networks. And the final level refers to a long term change in government structures (formal and informal institutions, cultural values, norms and paradigms). Level two and three are very closely linked and a distinction between the two is not always necessary (Pahl-Wostl et al., 2007).

The link between the levels of change and social learning is very apparent in Vietnam. The first level of social learning is realised in a short time span and is achieved by the existence of collaboration. Lower level stakeholders (Table 1) accept the importance of PRM more easily as they have practical experience with co-management. These stakeholders have had to collaborate in order to achieve common goals and have realised their interdependence (win–win) through a change in behaviour, however not yet in fully in contemplation. In TTH, the fishery associations are an example of a grass root structure which allows for bi-directional knowledge sharing, although not yet to its full potential. These experiences and realisations are not achieved by the upper-level governments (Table 1) as their experience with the inclusion of all stakeholders as co-decision makers is limited. In order to achieve the second and third level of social learning stakeholders need to move through the process of change and not submit to reluctance. Both the stages of contemplation and behavioural change need to be realised to imbed PRM and bi-directional knowledge sharing in ICZM and allow for sustainability.

Social learning and bi-directional knowledge sharing

The link between social learning and change is not the only factor that influences the level of social learning. The type of knowledge which needs to be shared and from which one has to learn is an important factor. For example, the reluctance towards bi-directional knowledge sharing was very apparent when dealing with natural resource users as they possess tacit (more implicit) knowledge. The inclusion of the tacit and explicit dimension of knowledge in the discussion on bi-directional knowledge sharing is essential as both types of knowledge acquire a different strategy. Explicit knowledge can be expressed by words, text and diagrams and is more easily shared whereas tacit knowledge consists of expertise, insights and intuition and cannot be explicated as directly (Bapuji and Crossan, 2007). Tacit knowledge cannot be easily required and it poses great challenges when sharing it between stakeholders.

High level stakeholders have reached a change in contemplation, however not in behaviour. This lack of change in behaviour again leads to a lack of change in contemplation due to a lack of understanding of the importance of tacit knowledge. On the other hand, low level stakeholders have reached a change in behaviour, as the collaboration with natural resource users has led to the understanding of the value of a win–win situation. However, also they have not reached the second level of contemplation, in which they understand the concept of ICZM and the associated inclusion of natural resource users. The difference lies in the reason for this reluctance for change. For high level stakeholders, the reluctance is framed in a fear for change (stage of contentment and denial), for low level stakeholders this reluctance for change is framed in a lack of understanding (contemplation).

The difference between these knowledge types indicates that a model needs to be created which allows for the sharing of both tacit and explicit knowledge. Tacit knowledge is believed to best shared via common practice (Pahl-Wostl et al., 2007) whereas explicit knowledge is very easily shared in a direct manner (Bapuji and Crossan, 2007). As social learning is a process in which different stakeholders are allowed to learn from each other's tacit and explicit knowledge, a structure which allows the sharing of both these dimensions is necessary. With this model/structure, the development of an approach and methodologies is suggested. These need to both incorporate methodologies specifically for bridging the science, management and end-user divide, and an approach which allow for time to be taken to empower stakeholders by giving them a voice and the opportunity to build capacities, knowledge and skills (Hong et al., 2010). The frame of this model needs to be both formal and non-formal as is explained in relation to practical and policy recommendations.

A need for an approach, methodologies and defragmentation

A history of corruption and the associated political structure in Vietnam have not created the opportunity for the existence of an approach and methodologies in which this social learning can be framed and in which change can follow its natural, time-consuming course. This need for an approach is clearly presented by the different stakeholders and the lack of this approach is perceived as the greatest challenge. The creation of this approach is difficult and requires more than a national strategy.

Additionally, the need for an approach is challenged by financial processes. ICZM programmes are funded primarily on an international basis even if responsibility lies with the national government. Funds whether from NGO's, international bodies such as the United Nations or governments are conditional and short term goals are often set. This results in a fragmented situation in which different projects receiving different funds need to fulfil their separate goals which often overlap and become redundant. Beside the overlap in goals, the plurality of ICZM programmes in a country such as Vietnam which is heavily supported by NGO's and foreign governments increases this fragmentation. Local stakeholders express that they have reached their limit concerning short term actions by NGO's and foreign governments.

Discussion

Practical and policy recommendations

Empirical research shows that in order for PRM and bi-directional knowledge sharing to become intrinsic parts of ICZM in Vietnam, change and social learning need to be achieved. The achievement of both change and social learning are linked to one another and to the notion that an approach is needed in which bi-directional knowledge sharing and PRM can exist. The questions however remain how change and social learning towards bi-directional sharing and PRM can be organised. Who are the developers and how can a combination of both formal and non-formal learning and sharing of opportunities be ensured. In Vietnam, the rigid political structure does not allow for the creation of such a system as the top-down approach precludes the existence of co-decision making. In order to change this rigid structure a more non-hierarchical model of governing needs to be promoted in which different stakeholders can collaborate in the formulation and implementation of public policy (Pahl-Wostl et al., 2007).

Empowerment

A shift towards the development of change and social learning is more easily achieved at grass root level due to strong interactions and dynamics within a cohesive social environment. Therefore this shift should start with empowerment at this level. Empowerment here indicates the creation of conditions for a self-bonding and self-awareness process. This process needs to be able to act as a catalyser towards group oriented goals. Stakeholders at local level should possess the skills needed to manage their own process and be able to provide explanation, argumentation and follow-up to each other (articulation & bonding) and to other stakeholders (bridging). Specifically this would include informative analysing skills,

collective research training, consensus workshop meetings and reporting and lobbying. On a higher level governments need to be empowered in order to create a form of collaborative governance. This change management approach should include raising awareness and urgency for integral policy formulation and participatory decision making, changing mentality and behavioural patterns, and incentives for participatory practices.

Specifically, the challenge created concerning a difference in interpretation of the concept of ICZM as a result of a lack of bi-directional knowledge sharing needs to be addressed. Currently, it is recognised by all stakeholders that ICZM needs to be adapted to the country's specific social, environmental, economical and political needs, as well as its cultural and institutional characteristics. If bi-directional knowledge sharing is not achieved then this adaptation will not be possible as a difference in interpretation will still exists and fragmentation will not be resolved. If the knowledge capacity of all stakeholders is improved by bi-directional knowledge sharing then it will become more intrinsic to ICZM and more easily implemented. This process of bi-directional knowledge sharing to become more intrinsic to ICZM will allow for the potential for more efficiency, more effectiveness, a higher impact and a better relevance of ICZM, i.e. sustainable ICZM (evaluation criteria of development action; OECD 1991; OECD 2002).

Formal and non-formal approach and methodologies

The structural context of a country can have a significant influence on the participatory process (Pahl-Wostl et al., 2007). Therefore it is important that when the approach and methodologies are developed they are placed in the context of Vietnam. When the structure for ICZM is merely formal, than the possibility exists that it will become as rigid as the current Vietnamese structure. Non-formal platforms however also do not provide a conclusive answer. A non-formal platform implies the absence of formalised rules for planning, implementation and strategy (Pahl-Wostl et al., 2007). This may lead to a lack of accountability and may create situations of arbitrariness which makes it more difficult to change power relationships and rigid structures (Pahl-Wostl et al., 2007). These challenges are further expressed by and framed in a duality in participation in Vietnam which challenges the creation of an approach and methodologies (Abelshausen et al., 2014). On the one hand stakeholders in Vietnam express the need for a formal structure based on the history of a reliance on government intervention (Abelshausen et al., 2014). On the other hand stakeholders in Vietnam express the need for a 'voice' which will allow them to participate in the decision making process as co-design and co-decision makers (Abelshausen et al., 2014).The provision of this 'voice' can be established through the development of a non-formal structure. Therefore it is argued that a platform needs to be informal in order to create social capital, but it also needs to be framed in (at least) a modest level of assuring the milestones, appointing responsibility, spreading the learning results, formulating and sticking to the objectives, in other words: institutionalisation (Pahl-Wostl et al., 2007).

Tacit and explicit knowledge sharing

As the differentiation between tacit and explicit knowledge influences the inclusion of stakeholders, specifically natural resource users it is important to include these concepts in

future research. Concerning tacit and explicit knowledge it is important to realise that when tacit knowledge is being shared, a system of communication and exercise needs to be present. Therefore, it is recommended that further research on how tacit knowledge can be shared needs to be conducted. Furthermore, a clear definition of the different knowledge types in relation to tacit and explicit dimensions is essential. This definition will allow for a more in-depth understanding of the challenges and successes of knowledge sharing. However, it needs to be realised that even if a general consensus exists, a division between tacit and explicit knowledge is a reality. Contradicting arguments however also have valid points. For example, Pahl-Wostl et al. (2007) indicate that all knowledge is both tacit and explicit and should not be devised as such. This reasoning does not exclude that further research will create insight into how knowledge sharing of both dimensions can be improved. For this reason, this division should not be considered as crucial as it might limit further insights. Furthermore, it is essential that this additional research is not limited to ICZM as knowledge sharing difficulties occur in all management approaches. Therefore insight from other disciplines such as organisational management, change management and social psychology can contain very valuable information. The assessment of knowledge sharing in all these different approaches would be very valuable for knowledge sharing in ICZM. Limiting this research to knowledge sharing in ICZM would even be counterproductive as different management bodies from other sectors are stakeholders in ICZM. Their specific views on tacit knowledge sharing will form an essential portion of the research.

Linking bi-directional knowledge sharing and participatory resource management

Bi-directional knowledge sharing and participatory resource management in ICZM are closely linked to the concepts of social learning and change. The linkage of bi-directional knowledge sharing and PRM indicated that PRM is only effective if knowledge is shared in a bi-directional manner. When additional research focuses solely on social learning and change management than this realisation might be diminished. Concerning bi-directional knowledge sharing, the recommendation is made that as the shift towards PRM is made, bi-directional knowledge sharing is included into this process. More research needs to be done on the importance of this bi-directional knowledge sharing in this process so that a shift towards a more participatory approach can be made.

Decrease fragmentation

Although fragmentation is not a challenge inducted from the analysis, quotes from stakeholders (high level) indicate that funding structures lead to fragmentation and therefore it is mentioned here as a recommendation. Stakeholders state that institutions and organisations need to tackle the problem of fragmentation. Fragmentation needs to be addressed both on a national and on an international level. International organisations and foreign governments need to allow Vietnam to develop a long-term strategy which allows for change and social learning. Short term goals and conditional financing need to be diminished. Foreign expertise and financing need to be provided in such a manner that bi-directional knowledge sharing can be achieved in the initial development of a programme or policy. The current structure of foreign financing does not allow for this bi-directional knowledge sharing and therefore works counterproductive. Furthermore, different initiatives need to be better aligned. The Vietnamese government needs to create a country strategy or needs to improve its donor consultation. Although all these initiatives have their impact, sustainability can however not be achieved if a unified ICZM strategy is not created. The IMOLA project for example enabled the existence of the fishery association and has therefore been highly valuable to ICZM in TTH. The Vietnamese government and international institutions and organisations however have to be aware of the existence of these impacts and need to prevent repetition and redundancy.
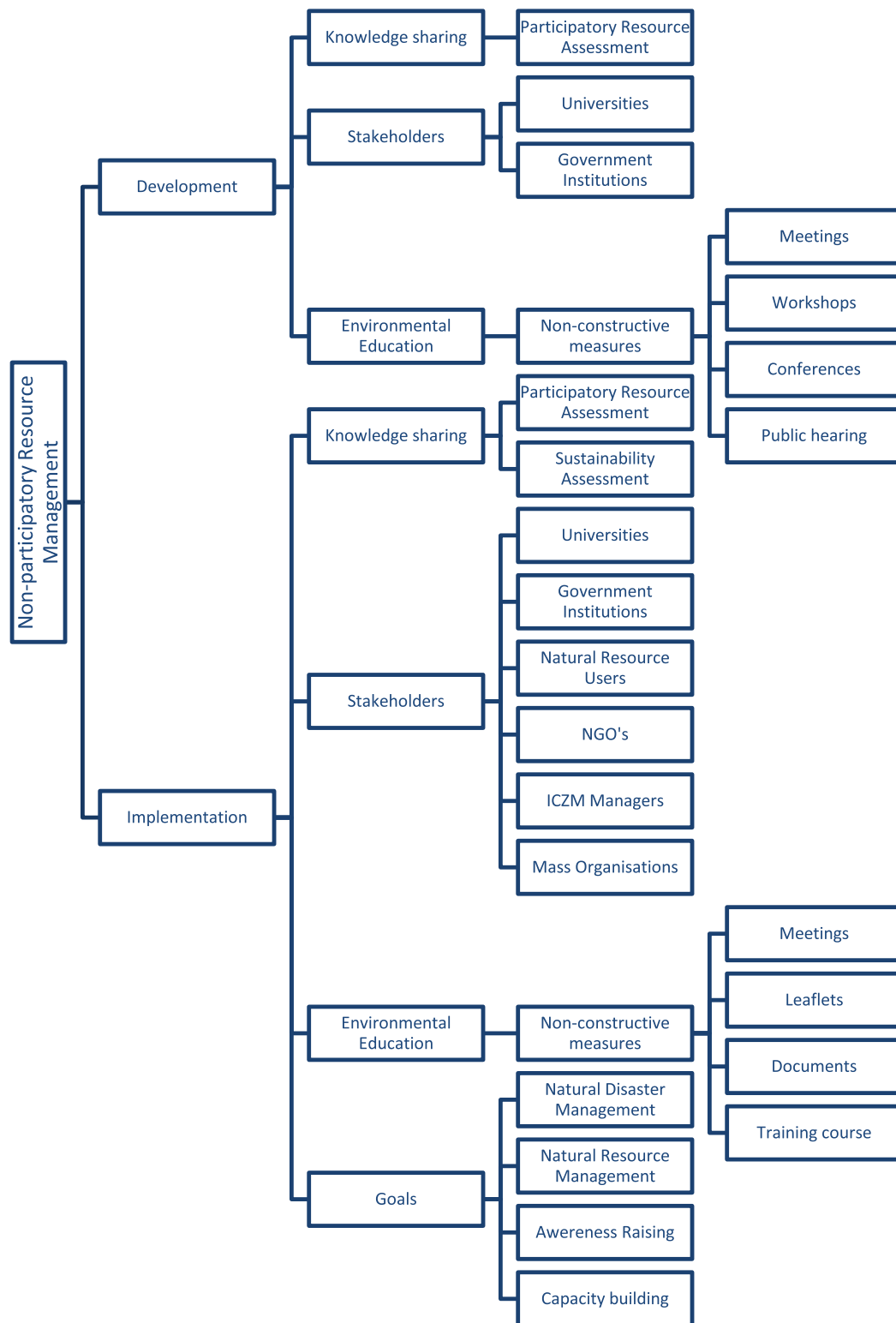
Limitations and future research

This research attempted to gain insight into whether PRM is used in ICZM as merely a methodology or whether it is considered as an intrinsic aspect of ICZM. PRM in relation to ICZM is seen as a methodology which includes stakeholders; the manner in which these stakeholders are included however differs. Therefore, different types of participation were examined according to their suitability and desirability in the frame of the Vietnamese context. Research into which type(s) of participation is (are) desirable in a changing but still traditional society as Vietnam, is limited. Therefore it is advisable to conduct further research into which types of participation are suitable for a policy approach as ICZM in relation to a country's specific cultural, social, economical and political characteristics.

Moreover, bi-directional knowledge sharing in ICZM programmes and policies is also not elaborately researched. Roux et al. (2006) has provided insight in this subject however the focus is placed on bridging the gap between science and management. Research into the effects of bi-directional knowledge on the sustainability of ICZM programmes and policies is practically non-existing. Research into bi-directional knowledge sharing in ICZM would provide further insight in the understanding of the value of different knowledge types specific to the stakeholders. Furthermore, research into bi-directional sharing might frame research into stakeholder specific participation. Participation in ICZM is often researched in frame of one stakeholder group (e.g. public participation). Research on participation of all stakeholders at the same time is limited. Research into bi-directional knowledge sharing might provide an answer to this gap, as it allows for the possibility to insert all stakeholders in one research project.

The link between bi-directional knowledge sharing and participatory resource management is still unclear. In this research it was concluded that participation in its most extreme type of co-design and co-decision making requires bi-directional knowledge sharing. Stakeholders clearly expressed that participation of all stakeholders is essential. And thereby it was concluded that bi-directional knowledge sharing of all knowledge types (i.e. tacit and explicit) possessed by the stakeholders is essential.

Furthermore, this research was limited in time which led to a restriction of the research scope, specifically in relation to the inclusion of all stakeholder groups in ICZM in TTH. For example land-based farmers who are represented by the Farmers Union in TTH. Their exclusion was due to time restrictions,

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Non-participatory Resource Management
├── Development
│   ├── Knowledge sharing
│   │   └── Participatory Resource Assessment
│   ├── Stakeholders
│   │   ├── Universities
│   │   └── Government Institutions
│   └── Environmental Education
│       └── Non-constructive measures
│           ├── Meetings
│           ├── Workshops
│           ├── Conferences
│           └── Public hearing
└── Implementation
    ├── Knowledge sharing
    │   ├── Participatory Resource Assessment
    │   └── Sustainability Assessment
    ├── Stakeholders
    │   ├── Universities
    │   ├── Government Institutions
    │   ├── Natural Resource Users
    │   ├── NGO's
    │   ├── ICZM Managers
    │   └── Mass Organisations
    ├── Environmental Education
    │   └── Non-constructive measures
    │       ├── Meetings
    │       ├── Leaflets
    │       ├── Documents
    │       └── Training course
    └── Goals
        ├── Natural Disaster Management
        ├── Natural Resource Management
        ├── Awereness Raising
        └── Capacity building
```
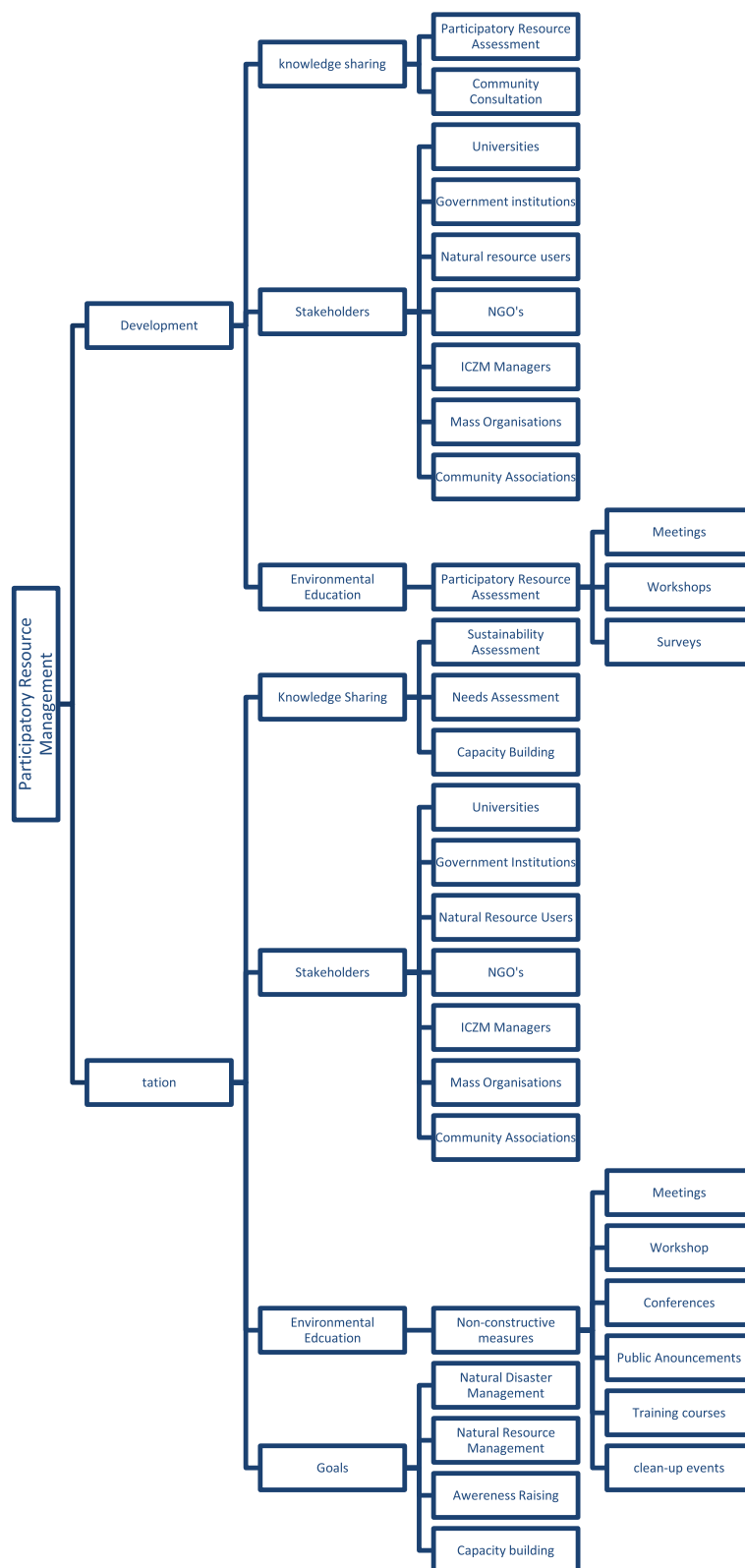
Appendix A   Non-PRM in the development and implementation phase.

but also to a lack of understanding of ICZM. The Farmers Union of TTH did not consider themselves as stakeholders in ICZM. This exclusion was partially addressed by including the Ministry of Agriculture and Rural Development. However, this led to the exclusion of the implementation of ICZM policies and programmes concerning farmers.

Conclusion

The research in TTH has shown that in order to achieve sustainable ICZM, knowledge sharing via a participatory approach needs be recognised in its intrinsic nature. A country like Vietnam with a strong top-down tradition poses great

Appendix B   PRM in the development and implementation phase.

challenges towards achieving a sustainable management approach. However, the potential for change is clearly present and the process of social learning is already on its way. Social learning and change need to be given the time needed in order for the Vietnamese society to evolve into a society in which ICZM can be framed. This new approach needs to respect the social, cultural, economical and political values of the Vietnamese society and at the same time allow for enough

flexibility that both these societal values and the goals of ICZM can be achieved.

Appendix A

(See Appendix A).

Appendix B

(See Appendix B).

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