Journal of Development and Agricultural Economics Vol. 3(3), pp. 121-131, March 2011
Available online at http://www.academicjournals.org/JDAE
ISSN 2006- 9774 ©2010 Academic Journals

Full Length Research Paper

Understanding water conflict and cooperation in Con Cuong, Nghe An province, Vietnam

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Accepted 14 February, 2011

This paper seeks to explore local water related conflict and cooperation based on a quantitative inventory of water related events in Con Cuong district, Nghe An province, Vietnam. It was found that the local water competition situations involve both conflictive and cooperative events, which often evolve in succession of each other. Of the identified events, the majority turned out to be cooperative and many events were often related to the development of water works established in the area. Furthermore, the recorded events mainly take place at local scale within a single community and often between water users within the same user group rather than between water users with different water use. Moreover, most events were found to remain at the local scene and among the immediate involved parties. As far as possible, conflicts and cooperation are tried to be resolved by those involved themselves, and without any involvement of third parties; if denounced to a third part, it is often to community leaders or organisations within the community. The article concludes by discussing the implications of these findings for local water governance and particularly the need to include such findings in the further development of integrated water resource management.

Key words: Water conflict, water cooperation, water governance, Vietnam.

INTRODUCTION

Water plays a central role for local livelihood and local development. In many parts of the developing world, the competition for water has increased over the last years (UNDP, 2006; UNESCO, 2009). Few years before, in 2000 the United Nations Secretary-General Kofi Annan warned that “fierce competition for fresh water may well become a source of conflict and wars in the future”. The use and management of water is affected by growing population rates, increased pressure on land, rapid climate change and the appearance of new types and structures of water uses and water users.

During the last two decades many developing countries including Vietnam have embarked on a reform process and development of legislative frameworks in the water sector (IWMI, 2006). Water laws have been developed including new institutional structures for water use and management, often at basin and sub-basin level. At the same time there has been a growing focus on understanding the dynamics of water use and management systems in relation to the development of equitable governance frameworks, for instance through Integrated Water Resource Management (IWRM).

It is often anticipated that the growing pressure on water resources particularly in water stressed areas automatically leads to an increased number and intensity of water related conflicts, which takes place among local communities and/or between countries (UN-Water, 2006) or within and between political regions (Aaron et al., 2005). While research on conflicts and cooperation at trans-boundary level has been carried out (Aaron et al., 2003) and greater understanding achieved about the dynamics at this level, there have been a lack of knowledge about the nature of water related conflict and cooperation at a local level. Furthermore, the existing knowledge of the local water scene seems primarily to focus on conflicts and leave out the important process of cooperation in local water use and management. Moreover most knowledge is based on studies of sporadic events, and less is known about the longer-term

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processes of conflicts, tensions, mediation, negotiation and cooperation. There is a need for further knowledge of local level of water management, and processes of cooperation and conflict in different types of water use, and to view this in relation to social aspects of water conflicts and cooperation, social dynamics, access to water and customary law in water governance and competition for water.

Further knowledge of these processes will help decision makers in the development of well functioning and equitable management systems and institutional structures. To fill some of this gap, the Competing for Water Programme has carried out research focusing on these sets of dynamics. The research has been carried out in five different countries, Vietnam, Bolivia, Mali, Nicaragua, and Zambia. In Vietnam the research has been carried out in Con Cuong district in Nghe An province. In this paper, we present the main findings from the work in Con Cuong focusing on competition for water, nature of conflicts and cooperation, social dynamics and poverty.

In the past decade, the water governance system in Vietnam has been targeted for many changes through the development of legal procedures, institutional structures, and mechanisms including the Law of Water Resources (LWR) (Law of Water Resources, 1998) formally promulgated in 1998, and a number of guiding documents on regulations of water management, operations, exploitation, and water use. Institutional restructure of state water management was carried out with the establishment of the Ministry of Natural Resource and Environment (MONRE) in 2002 to be responsible for the general water management, while the management of different specific water uses are divided between several ministries.

Before the establishment of MONRE, the Ministry of Agricultural and Rural Development (MARD) played a key role in water management. Under Decree No 91/2002/ND-CP, the newly established MONRE takes over the function of state management of water resources. Since the reform, a clearer separation between state management and operation of water resource services has been created. Along with the establishment of MONRE, the Department of Natural Resources and Environment (DONRE) was formed in each province.

The National Water Resources Council (NWRC) was formed in 2000, and is now housed within MONRE, but operates above ministerial level. The NWRC is responsible for promoting an integrated water resources management approach and to advise the Government on key water resource decisions such as policies, strategies, approval of river basin plans and major water resource development projects, as well as on the resolution of water sector conflicts. Following the Water Law, pilot River Basin Organizations (RBO's) in major river basins were set up following the principles of Integrated Water Resource Management. RBOs have three main functions: (1) manage river basin planning, (2) assist in the resolution of water conflicts, and (3) assist water sector organisations and authorities to coordinate their decisions and programs for the water resources of the basin. At the provincial level, the PPC (Provincial People Committees) and the line ministries DONRE and DARD are the key institutions involved in water management, while it at district level is the DCP (District People Committees).

At commune level, it is the responsibility of the People's Committee to implement and coordinate the water supply, irrigation and drainage services with the guidance of the district level and advisory centres. Most of the government support functions are implemented by the commune authorities, in cooperation with individual users. This includes responsibility for reconciliation of disputes on water resources. Local communities play a central role in Vietnamese water management. The National on Water Resources Strategy towards 2020 (Ministry of Natural Resource and Environment, 2006), launched in 2006, especially emphasized the role of community based water management, as a means to ensure sustainable natural resource use and management. In the mountainous areas, traditional community based water management models are often used, indigenous communities in these areas often rely on customary law in managing water resources rather than on the formal institutions. In customary law and traditional understanding, water management is closely related to management of land, forest and biodiversity (Dung and Tinh, 2006). Despite the structural changes in water governance in Vietnam over the last decades, water management remains to be poorly coordinated and not well integrated (Truyen, 2006; MARD and LNV, 2009). Further, water management in Vietnam is often characterized by a top-down approach, which limits room for active participation of local stakeholders including communities and farmers, in the decision making processes (Phu, 2008). The study's findings significantly contribute to the understanding of local water competition in local water management, towards the development of well functioning and equitable management systems and institutional structures.

MATERIALS AND METHODS

Study area

The Con Cuong district is a mountainous district in the Nghe An province in the central region of Vietnam, with Ca River running from east to west (Figure 1). The area is located in a monsoon climate zone, and the district has an average annual rainfall of 1,791 mm; however, the spatial distribution of the rainfall is unequal due to the topography of the area. The district covers an area of 1,744 km^2 with a population of approximately 64,935 divided into 128 villages in 2007 (People Committee of Con Cuong district, Nghe An province, 2007). 70% of the population in the area is Thai people, an ethnic minority group of Vietnam. Like other mountainous districts all over the country, many economic development programs have been carried out in Con Cuong, both by the government of Vietnam, international cooperation and by national and international NGOs. Through these programs,

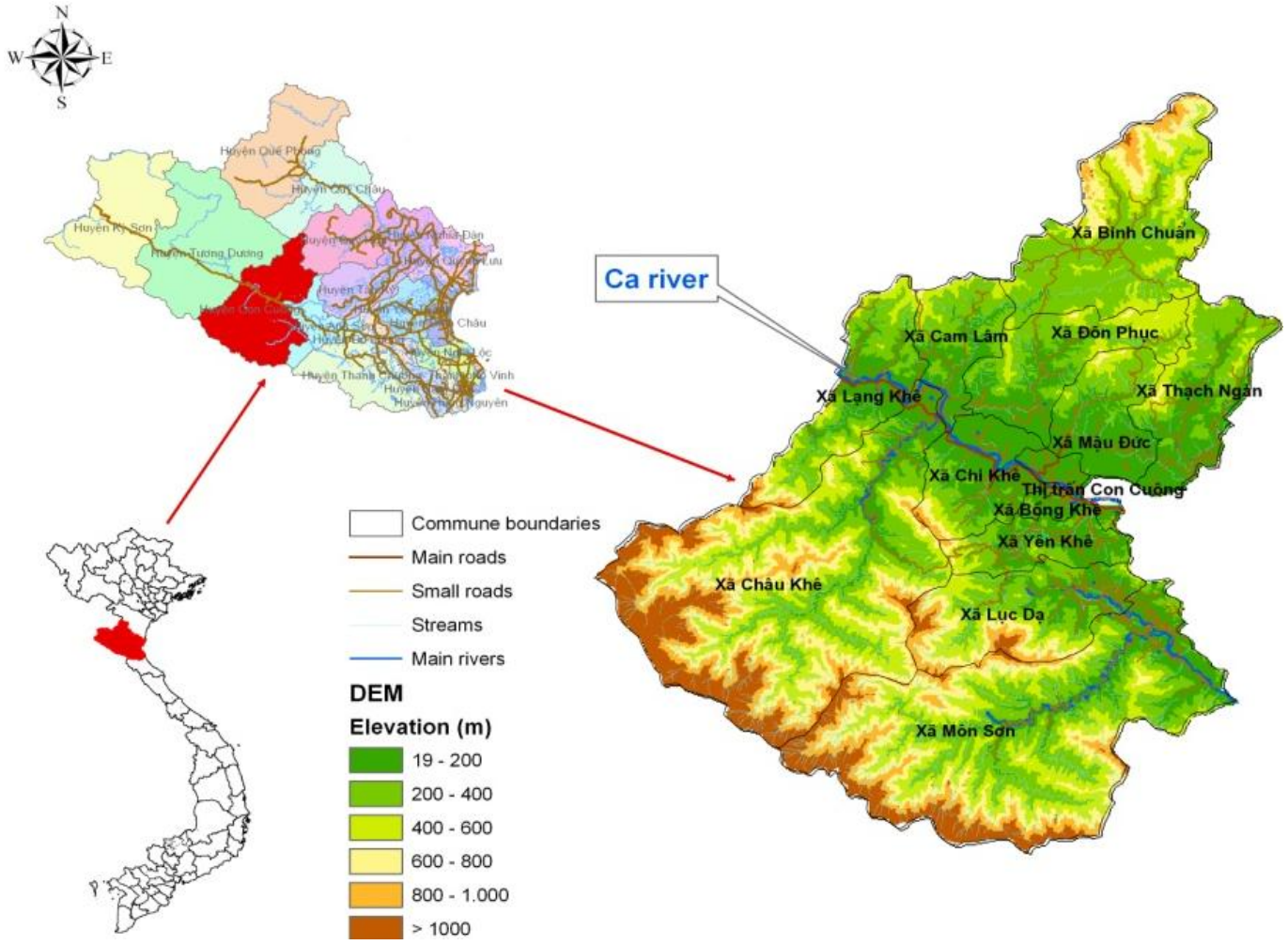

Figure 1. Study area – Con Cuong district, Nghe An province.

infrastructure and socio-economic conditions in Con Cuong have improved significantly during the last 10 years from 1997-2007 (People Committee of Con Cuong district, Nghe An province, 2007). However, due to the low agricultural area per capita, lack of local employment opportunities and capital, the area, in 2008 still had a considerably high poverty rate, amounting to more than 30% of all households, while the rate of poor households in the whole of Vietnam was around 13%. The main agricultural production in the district is annual crops including rice, maize, sweet potatoes, cassava, sugarcane, peanuts and vegetables. A smaller part of the land is used for mixed gardens, perennial crops and fish cultivation.

The network of rivers and small springs in the district (Khe Moi, Khe Choang, Khe Thoi, Gioang River) supply sufficient water for agriculture, forestry production and for domestic use (Son, 2009). However, water scarcity still occurs in some areas particularly during the dry season, mainly due to uneven rainfall. In addition, most of the rivers and springs run lower than the fields and the residential areas, the water needs to be pumped up to reach the houses and fields. Although, the numbers of private owned deep wells have increased and gravity fed piped water system (GFPWS) has been installed in many communities, clean water is still limited within the villages, mainly due to the relatively high construction costs of the wells and to poor and ineffective management and maintenance of the GFPWS. Deep wells are mainly found in better-off households. The government has supported the communities with part of the financing to construct deep wells, but many of the poor households are unable to afford paying their own contribution.

The local people tend to use the water from deep wells mainly for drinking. Open sources (spring, rivers, lakes, etc.) are the main water sources used for non-drinking domestic water use, (bathing and clothes washing water for instance), and for irrigation and other productive purposes, like animal husbandry and fishing. The largest proportion of water used within the district is used for irrigation, mainly for paddy rice. Unequal distribution of the irrigation water is one of the major challenges in water use of the local people.

Methods

Water related events, whether cooperative or conflictive, always take place within a specific reality. Focusing on the local level of water use and management means that we should understand and view the water related events within the specific local context. Such context would include the socio-economic, cultural and political setting, the exiting management practices, administrative and legal frameworks, the local customary processes, as well as the wider hydrological regime. The study understands water related events as actions taking place in situations of competition, where two or more parties seek access to the same water resource. These situations are understood as mainly conflictive or mainly cooperative and are

made up of one or more water events or actions that seek to secure one or more parties' access to water by (i) challenging other parties' access; (ii) confirming own or other parties' access; or (iii) collaborating with other parties to secure access."

A situation may have just a single water event while others could have several mutually related events forming part of the same water competition situation between two or more parties. As mentioned, the character of water events is characterized as either conflictive or cooperative. An event is conflictive if one or more parties challenge other parties' access to a particular water resource. Such conflicts may range from petty water "theft", through excessive water use (depletion or contamination), all the way to open violence and aggression. A water event is cooperative when one or more parties engage in jointly coordinated actions with other actors to secure shared water access or to acknowledge other parties' access to water. This may range from verbal acknowledgement of the rights of others, to joint water management mechanisms.

The methodology of the study in order to investigate the nature of such conflictive and cooperative water events in the local setting has involved three main components, all carried out in the five study areas, in this case in Con Cuong district, Nghe An province. The components are:

(i) A quantitative inventory database of all water related conflict and cooperation events in the period from 1997 to 2007. Two types of events were recorded. a) All formally reported events in Con Cuong, identified through mass media, records and interviews of public authorities and NGO's; b) unreported events from ten villages sampled randomly from all the 128 communities in the district. Reported events were identified through fieldwork in the sampled villages, including interviews with sample informants in the villages. The recording of events used standardized formats describing a range of characteristics of each event, which were then entered into a database for further analysis.
(ii) A household survey database: Through this survey, we investigated the relationship between poverty and access to water. 200 households in 20 randomly selected villages (10 villages from the inventory + 10 new) were interviewed in the Con Cuong district. After the development of a locally based poverty index, informants were selected through stratified sampling of household well-being. This allowed us to view the data collected on access to water in relation to three different socio-economic groups identified (Ravnborg,1999; Ravnborg, 2010).
(iii) In-depth qualitative case studies investigating selected situations and the processes of conflicts and cooperation within the local, social and cultural context. The cases were selected according to their potential to highlight particular thematical issues related to the role of the poor and women in conflict and cooperation, and involved tracing the actions, strategies and roles of the involved actors through ethnographic interviews with the involved parties and key informants. This paper mainly focuses on the data from the inventory of water related events in the villages and some findings from in-depth case studies.

RESULTS AND DISCUSSION

Nature of water related conflicts and cooperation recorded in Con Cuong

The fieldwork in Con Cuong was carried out during the period of 2007 to 2009. As mentioned earlier, the water-related events were identified in two main groups, reported and unreported events. Reported events were identified through relevant authorities and agencies from commune to national level: ministries, peoples committees, media, etc, while unreported events were identified primary through interviews at community level with civil organizations, community committees, and ordinary citizens from different social groups in the villages. In total, 190 public water related events were recorded in the district for the 10-year period. 62% (118) of these were unreported events recorded in the sampled 10 villages and 17% (25) were events formally reported in the district, while almost 20 percent (37) were both reported and unreported events. The high number of unreported events indicates that, the events mainly take place at community level and to a great extent remain as verbal agreements or disagreements between the involved parties and if denounced to a third part, it is often to community leaders or organisations within the community.

The results from the study shows that 56.3% of the events recorded were actually cooperative events and correspondingly 43.7 were conflictive (Figure 2). The cooperative events comprise a large number of events about the agreement on establishment of GFPWS and agreements developed after conflicts mainly with respect to irrigation water use. It is noted that conflict resolution is well-developed which contributes the high number of cooperative events.

Water use and water users

The two types of water uses which show, by far the most events in the district, are small scale irrigation and rural drinking water supply with a little overweight for rural drinking water supply, close to 45 (86 events) and 41% (76 events) respectively (Figure 3). The many events about drinking water supply are related to the extensive number of development programs (national programs 134, and 135), constructing new rural water supply and sanitation systems in the district during the period of 2004 to 2007. According to the district departments, gravity fed piped water systems was established in 8 out of the 12 communes. The many cooperative events found in Con Cuong might likewise be related to these infrastructure developments, which implied development of new agreements between the authorities and the local users and between local users, as well as local input in form of capital and/or labour (Figure 4).

Almost 80% of the events recorded in Con Cuong are between water users within the same user group, while 20% are between water users with different water uses. It is interesting to note that for inter-use events more than 2/3 of the events are conflictive while for intra-use only 1/3 are conflictive. Within the intra-use group most of the conflicts found were between irrigation water users over unequal irrigation water distribution as a result of uneven surface fields or unfavourable field location in relation to water sources, or among domestic water users over

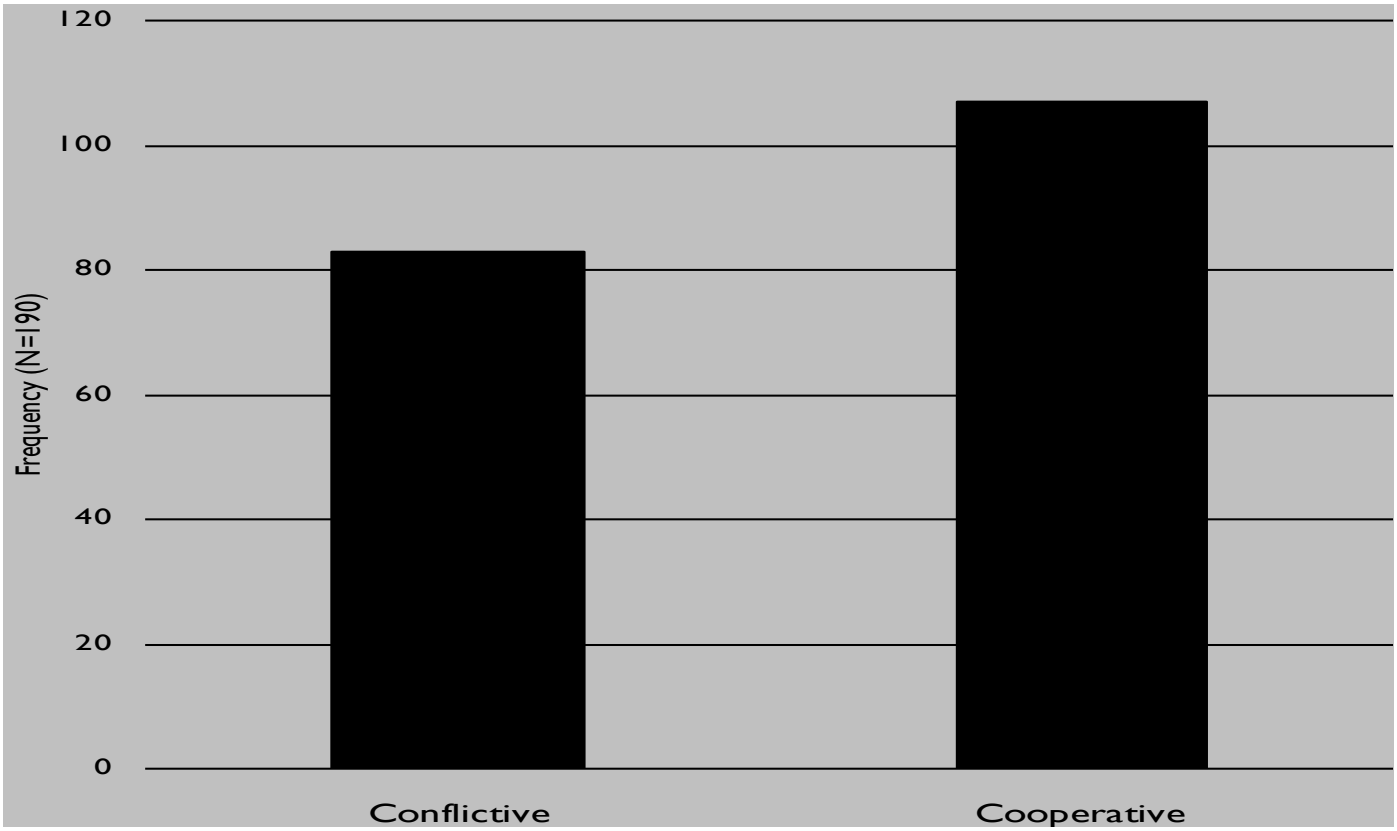

Figure 2. Character of events.

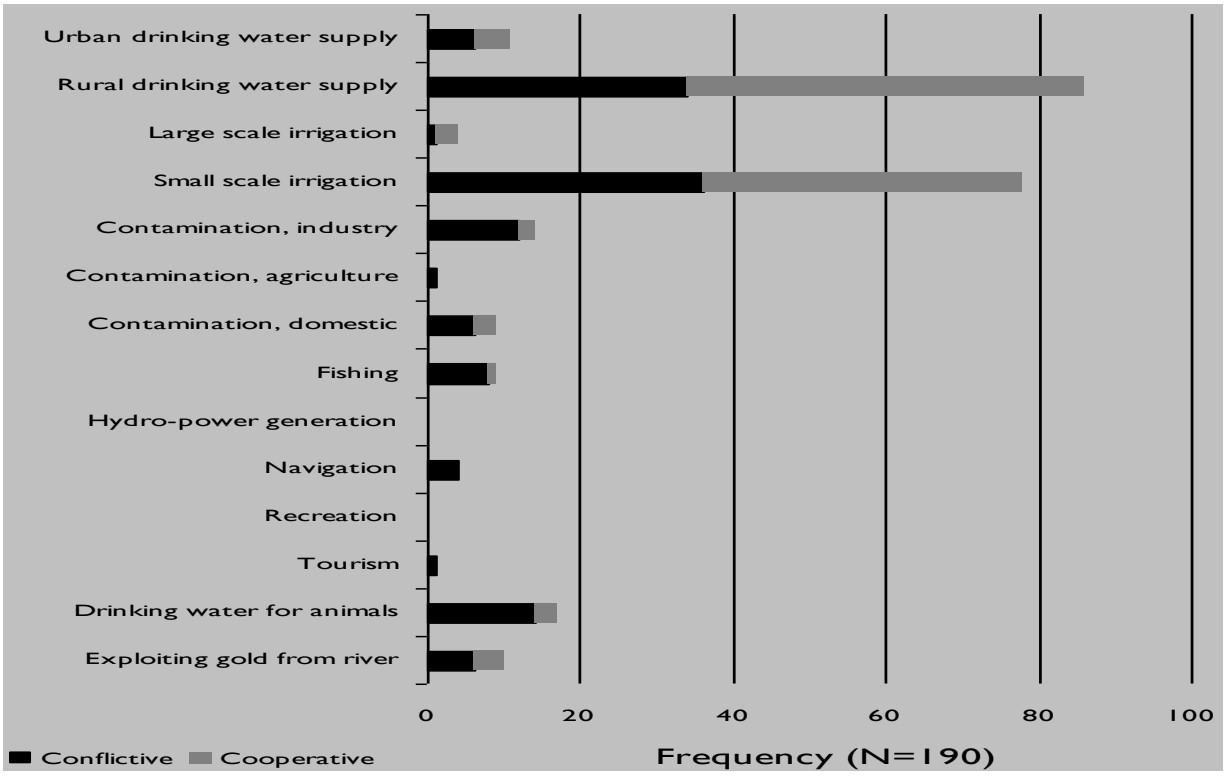

Figure 3. Water use types of conflictive and cooperative events in Con Cuong district (more than one option could be chosen).

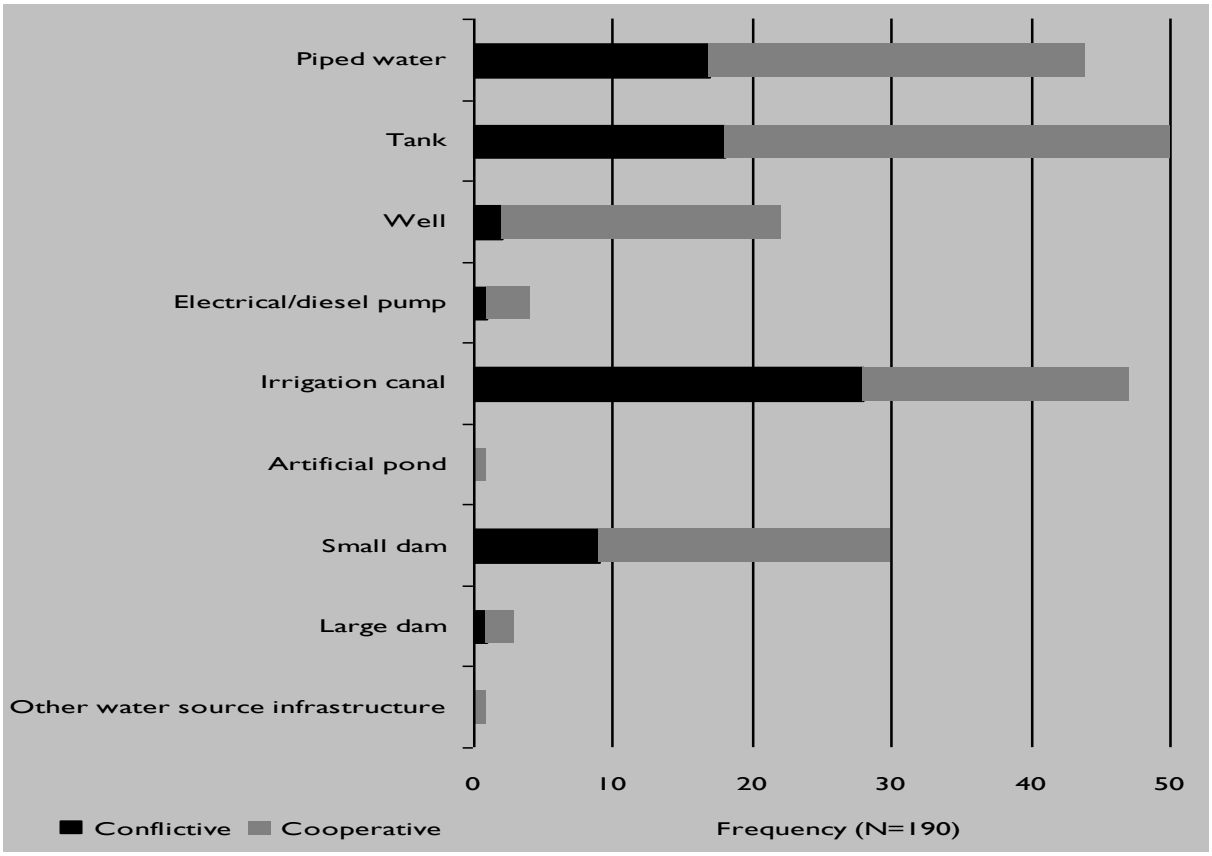

Figure 4. Water infrastructures involved in conflictive and cooperative water-related events in Con Cuong district (more than one option could be selected).

water use from gravity fed piped water system. Within the inter-use group of events water contamination was thecentral issue of conflicts. The conflicts often take place between local water users and new water user such as mining companies.

Seasonal distribution of water related conflicts and cooperation

Although, the hydrological study of the program shows that the current water demand for domestic and productive use (agriculture and livestock), could be satisfactorily met by the existing water sources (Son, 2008), water scarcity especially in the dry season and mainly as a result of uneven distribution, is a main reason for the significant increase in number of events in the dry season, both conflictive and cooperative.

However, it is important to note that the relation between conflictive and cooperative events in the dry season and in the wet season is almost equal, even with a small increase in the percentage of cooperative events in the dry season (Figure 5). This leads us to say that, water scarcity/increased competition leads, not only to the increase in the number of conflicts, but also an equal (or even bigger) increase in cooperation. Water scarcity for irrigation is a good example of this: Lacking water particularly in the dry season leads to conflicts among farmers and/or with water regulators over water quantity and water distribution (but not necessarily conflicts with higher intensity), but it also leads to cooperation, resolving problems such as negotiating time of cultivation, collective digging of canals to lead water to the fields, etc. What often happens when these water situations are discussed and/or communicated through media are that, the focus is on the increase in conflicts and not much on solutions or cooperation, and likewise, it is anticipated that competition produces conflicts of higher intensity. It is often left out that, conflicts are followed by a dynamic of finding solutions - cooperation. The study suggests that scarcity/competition leads to action but not more conflicts.

Related water sources in conflicts and cooperation

Natural springs are the main water source for both domestic use and irrigation in Con Cuong and a large number of both conflictive and cooperative events, almost 2/3 of the total number, was identified in relation to

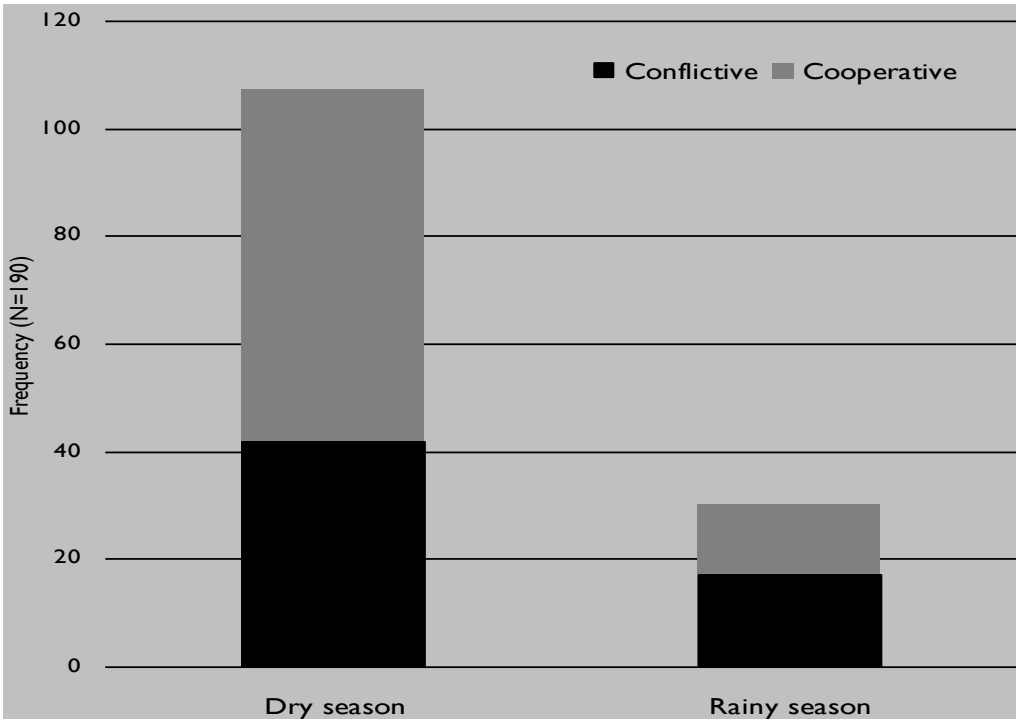

Figure 5. Starting season of events by event character.

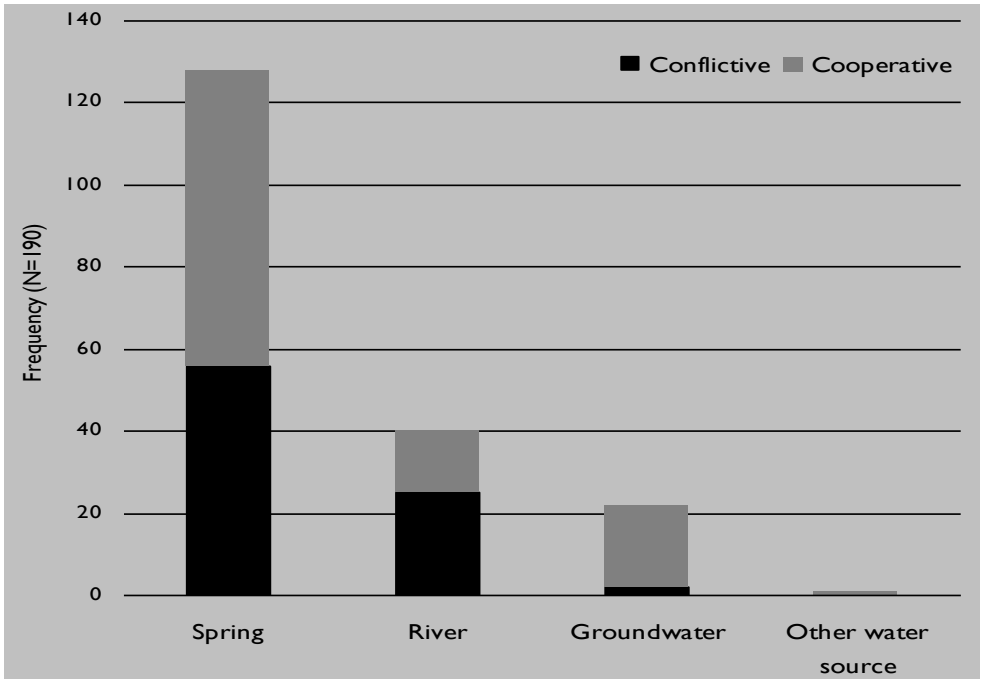

Figure 6. Water sources involved in conflictive and cooperative water-related events in Con Cuong district.

natural springs (Figure 6). Secondly, a high number of events was identified in relation to rivers as the water source, these were mainly conflictive events related to discharge of contamination from gold mining, service activities or management of irrigation water. As shown in Figure 6, there are 22, mainly cooperative, events related to groundwater. Groundwater is only used as drinking water. Constructing wells with the support from the

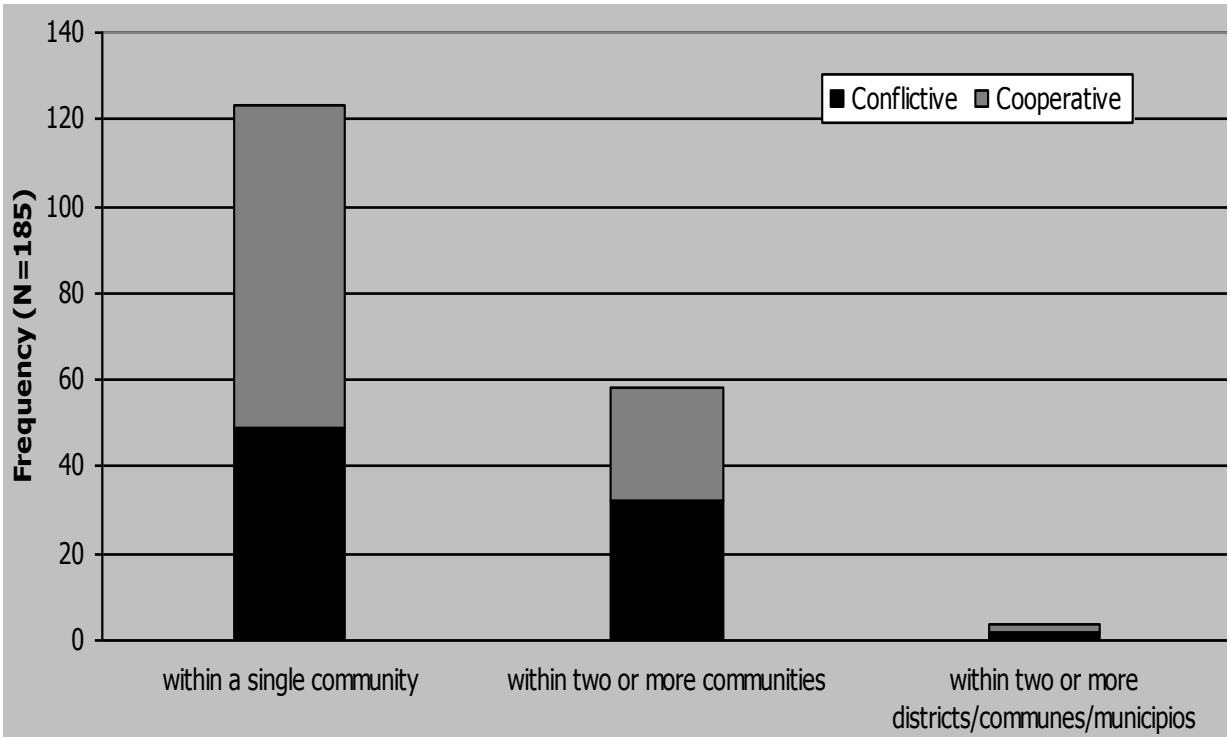

Figure 7. Spatial scale of conflictive and cooperative water-related events.

government or sharing well water among households are main actions of these events. Sharing of water from the deep wells between several households is very common in the district, as it is in most parts of rural Vietnam, particularly, in the highlands.

Spatial distribution of conflicts and cooperation in Con Cuong

As has been mentioned earlier, most of the events in Con Cuong are locally based, and as can be seen in Figure 7, almost two third of the identified events took place within a single community while 32% (58) occurred between two or more communities or among two or more districts (UN-Water, 2006). This also means that most of the events (the intra community ones) each affect a smaller amount of people typically between 100 and 900, while the inter community events each affect between 1000 and 9000 people (Figure 8).

Although constituting a smaller number of events, inter-community or inter-district events do have an important impact as they affect a large number of people. The inter community events are mainly about water contamination, resulting from newly established industries in the district, such as gold mining and paper powder processing. What is important to conclude is that, while the lager scale events have impact on a large group of people and the consequences of course can be severe, the many more local events put together, affect a much larger group of people. Understanding the dynamics of the local nature of the events is an important aspect of discussions on local governance.

Third parties and social groups involved in conflicts and cooperation

Most of the conflict and cooperation events recorded are part of the local context of the community and part of a community's everyday life. Most events are found to remain at the local scene or among the immediate involved parties. As far as possible, events are tried to be resolved by those involved themselves and without any involvement of third parties. Of the recorded events, only 29% (55 events) was reported to third parties (Figure 9). The data shows that when events are reported, community leaders and rural community committees are the most important third parties called upon when needed. The involved actors also report issues to third parties at community level, if they do not feel they themselves can contact higher authorities and get results. The community leaders will then represent those involved further up in the system. Data shows that, 50% regarded community leaders or rural community committees being called upon, as the third parties. Calling for commune party committees as third parties records the second highest numbers for calling third parties (15%).

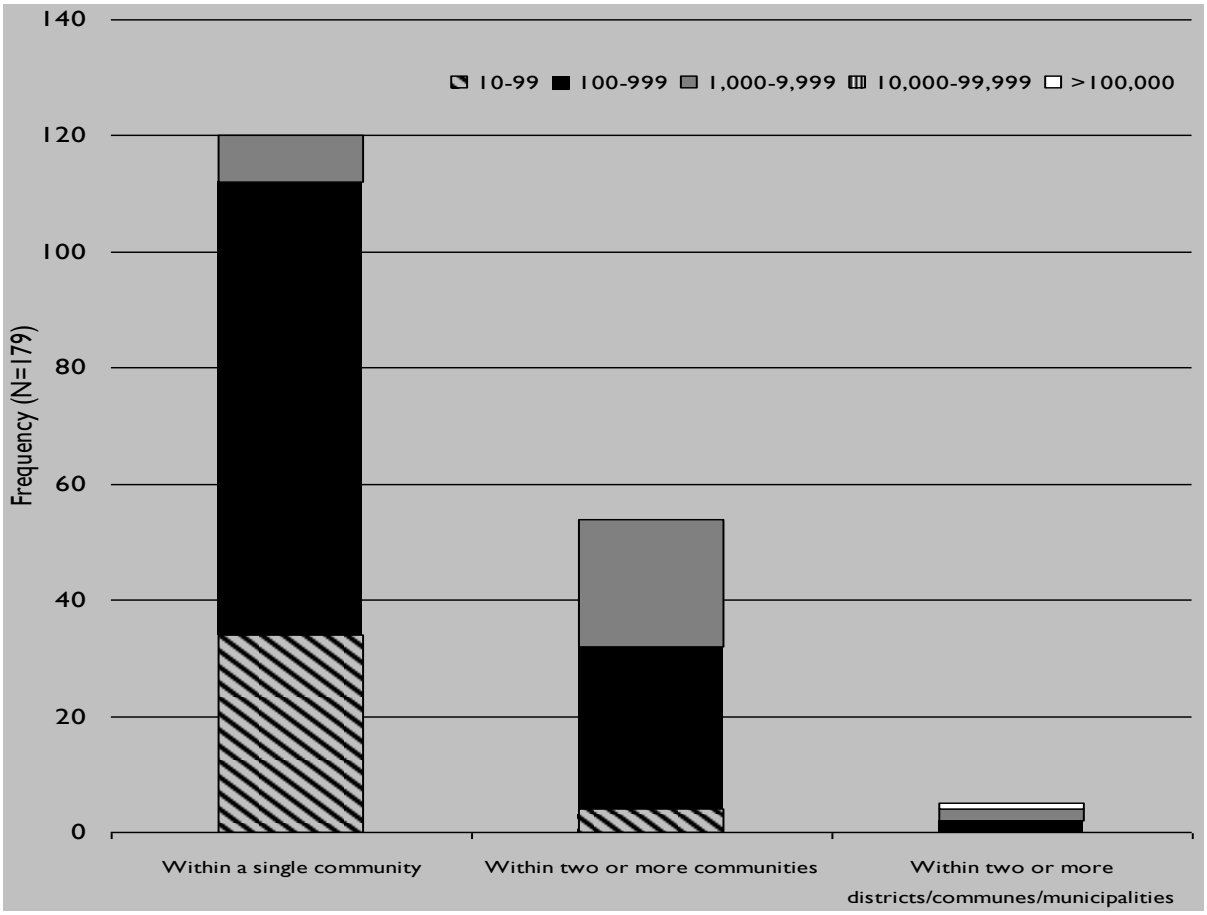

Figure 8. Spatial scale of events with different number of people affected in Con Cuong district.

The data from Con Cuong shows that, there is a close relationship between the different events identified in the water situations; there is a process of shifting between conflicts and their solutions, – often some kind of cooperation. At the same time, the data shows that this processes to a great extent is dealt with without involvement of any third parties. However, even those solutions are found in the local setting between immediate stakeholders, it does not itself mean that all stakeholders are actually left in a favorable position. These actions take place within the structure of water management, but also within the economical and social power structures of the village. By developing a locally based poverty index (Ravnborg, 2010) for the project area we have, through our household survey, been able to analyze issues of access to water for the different wellbeing groups, but to investigate further what strategies are used by the different wellbeing groups involved in conflicts and cooperation, we have carried out in depth studies of specific cases.

The water in the world is enough for human consumption for domestic, agricultural and industrial uses; however, the poor are systematically excluded (UNDP, 2006). When competition for water increases between users and uses, the poor and otherwise disadvantaged groups are less in securing their access to water. In particular, entitlements to access water for productive purposes are limited for the rural poor (DIIS, 2006). The household survey confirmed that the poor households have limited access to both domestic and productive water. When sources such as water are scare, the poor are more likely to enter into competition (Lecoutere et al., 2010) and to respond with conflictive behavior to water scarcity (Lecoutere et al., 2010). Several examples in our case studies showed that, the poor often choose not to take action in conflicts, even that their access to water might be challenged, in order not to risk their relation to more powerful groups in the village. The poorest groups in the villages often felt uncomfortable in taking the word in larger groups or meetings, and often refrain from carrying forward their complaints in formal water governance settings. Social position and a relative dependence of the poor on non poor households often resulted in taking decisions which would not put them and their water access at risk. Thus, poor people often seek alternative strategies for coping with the problem causing the conflict without confronting with more powerful groups. The actions mentioned in the

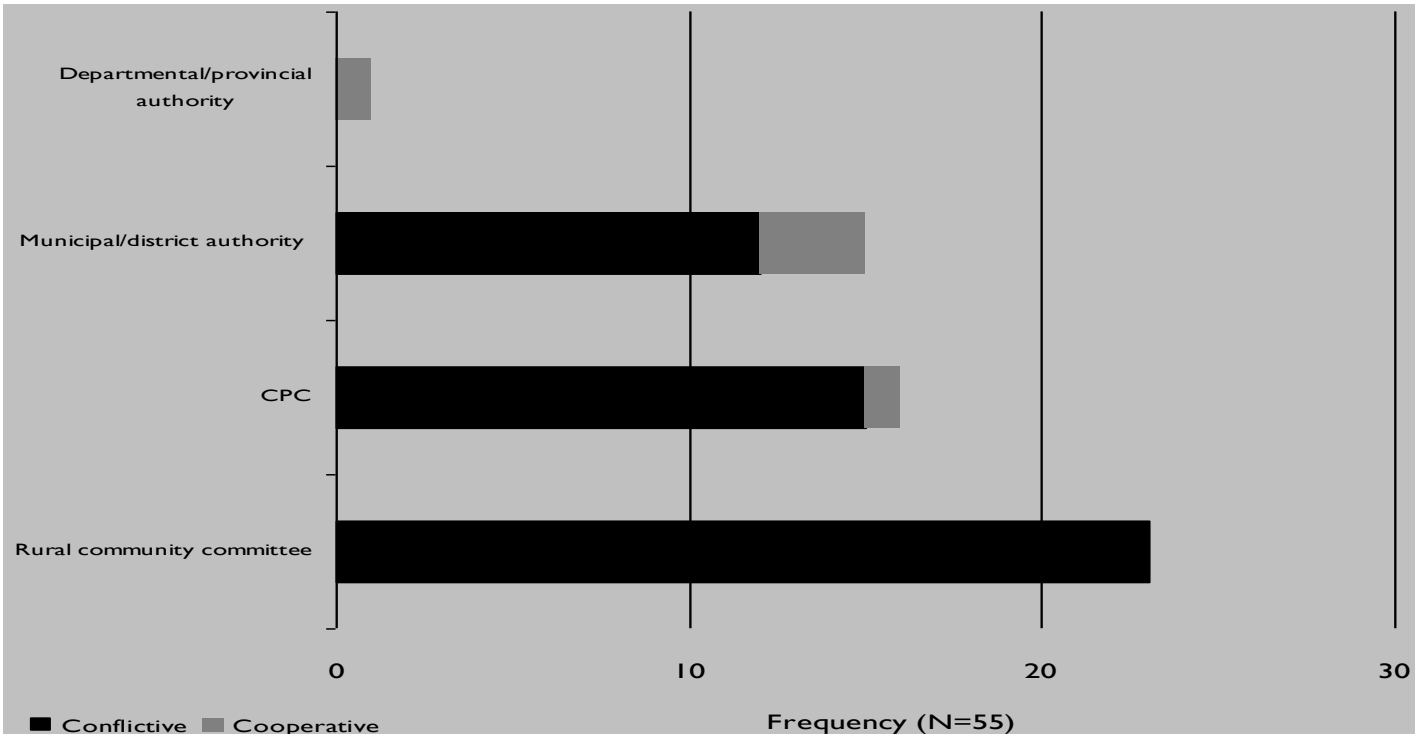

Figure 9. Stakeholders are called upon as third party *(*more than one option could be selected).

interviews in the case studies included seeking other water sources, even that it might make life more difficult or force them to continue using contaminated water.

Conclusions

The Vietnamese water law and national strategies outline the overall governance framework and the responsibilities of local and provincial authorities, and the National Strategy on Water Resource to 2020 focus specifically on the role of local communities in management including development of IWRM strategies. The aim of this study is to contribute to the understanding of local water conflict and cooperation, in relation to local water governance, and the findings from Con Cuong presented here (and backed up by findings from the four other study areas), suggest some significant features very relevant for water governance at the local setting. One striking feature is that more cooperative than conflictive events have been identified. Even in the dry season which have a higher number of events because of less abundant water, the percentage of the cooperative events are higher than in the rainy season. Of course, this could indicate that each situation requires more events to settle a conflict during periods of scarcity of water, but it also indicates that scarcity or increased competition does not necessarily produce more conflicts but indeed more actions.

The data also shows the identified events to be highly localized, almost 65% of the events registered in Con Cuong took place within a single community and the involvement of third parties as mediators tended to be at community level, which highlights the importance of understanding the local processes and dynamics of dealing with events in the communities. It further suggests that, there is a need to consider giving community authority a higher-level mandate or water governance role even where they actually do not have authorization. At the same time the study shows that, only 29% of the events has involved any third party in coping with these events related to water use. When taking into account that local community committees were understood as third parties, it is obvious that the largest part of the events have been dealt with at the very local level, by the actual stakeholders themselves. In some of the mountain areas in Vietnam the local structures involved in dealing with water events are often also interacting with traditional and customary rights as part of organising and managing water uses.

These local structures, traditional rights, mechanisms or governance frameworks, though not necessarily water related bodies, seams to be playing an important part in the organising of water use at the local level in Con Cuong, and should be closely examined and used as inspiration when working on development of models for new institutional equitable water governance frameworks, including IWRM approaches. However, our results from the case studies also indicate the importance of taking local structural power systems into consideration when analysing local water management. Our case studies

show that, development of cooperation sometimes also results in actual exclusion of groups of people, often poor people, from being part of the cooperation. In some instances, when challenged with some kind of water management issues, whether it is contamination of their use water, or development and organising of new infra-structure or other, they might choose alternative strategies, as to avoid confronting other more powerful groups, or if the time invested will be too demanding. Only a very small fraction of the events are reported to third parties again, indicating the importance of closely investigating the local context of not only existing governance processes but also power structures and the possibilities for poor households to voice any discontent with the outcome of actions caused by competition for water, whether it would be a conflict or cooperative outcome.

In conclusion, the analysis of the nature of water-related events in an upland district of Vietnam can provide lessons for local water governance and would help decision makers in the development of well-functioning management systems and institutional structures towards sustainable water resource management.

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