

Irrigation Water Shortage and Conflict: Review of Siman Multi Uses Irrigation Systems in East Java, Indonesia

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Abstract

Conflict over natural resources such irrigation water is ubiquitous. Irrigation water and water resources are particularly prone to conflict, as the stakeholders of environmental and social functions are not those who benefit from the financial gains of conversion or management for economic gains. In many cases, these differences between stakeholder interests generate dysfunctional conflicts. Conflict should be managed: from dysfunctional to functional; from destructive to constructive, and from anarchy to persuasive systems. In the context of natural resources conflict management, an integrated analysis is needed in order to offer a broad range of resource use alternatives, to provide benefits to conflicting parties in a manner that achieves resolutions. This paper introduces an approach on how to manage conflict over irrigation water for multi purpose utilization from food-crops based farming systems, fish-pond farming, sugar factory and state electrical power generation plan.

Conceptually, the approach is named Alternative Dispute Resolution (ADR) and Conflict Management Strategies (CMS). The ADR and CMS approach were tested and implemented since 2006 to 2009 in the Siman Irrigation Systems Area, in East Java Province of Indonesia. Both methods based on participatory planning by multiple stakeholders. The ADR and CMS approach could bring advantages to all users and it is implemented in Farmer-Users Coordination Forum of Siman's Irrigation Scheme Area.

Introduction

Recurrent droughts, water scarcity due to low flow of river water, lack of irrigation maintenance infrastructures, interacting with other social and economic factors have resulted in conflicts among farmer water users. These conflicts have increased in their frequency and intensity and in the magnitude of the destruction caused by them, threatening the very livelihood of the majority the rural population (Adger and Brookes, 2001; Tarhule and Lamb, 2003). Conflicts, per se, are not bad; rather, they are viewed as necessary if societies are to evolve and develop (Moore, 2005). However, when conflict is poorly managed, it can lead to degradation of the environment and violent confrontations. For the purpose of this study conflict can be defined as "any relationship between opposing forces whether marked by violence or not" (Deloges and Gauthier, 1997).

To manage conflict well, we have to remember that there are several conflict management strategies. Five strategies from conflict management theory for managing stressful situations are: (i) collaborating (win/win); (ii) compromising (win some/lose some); (iii) accommodating (lose/win); (iv) competing (win/lose); (v) avoiding (no winners/no losers). However, some means to resolve the conflict. The conflict and alternative dispute resolution literature points to the advantages of managing conflict locally and informally versus more formal and expensive strategies (such as the courts).

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The same problem of water scarcity as mention above has resulted in conflicts between rice farmers and fish pond farmers, especially during the dry season in the Siman Irrigation Systems Area, in East Java Province of Indonesia. The rising number of fish ponds has increased the requirement for water during the dry season, while at the same time the water availability has reduced due to the irrigation is designed for rice cultivation. Abundant of fish ponds to access water sources during the dry season cause damage to crops. These conflicts have increased in their frequency and intensity, threatening the very livelihood of the majority food crops farmers (Prabowo et al. 2007).

The objective of the paper is to assist the reader by providing a step-by-step approach to manage and solve conflict among irrigation users. The approach is named Conflict Management Strategies (CMS) and Alternative Dispute Resolution (ADR)

Irrigation conflict management is not just a matter of resolving a conflict about access to, and use of, scarce natural resources. It is also about shaping, in the process, more equitable and productive relations among the different stakeholders and generating a solid social, institutional and policy environment for enduring utilization and sustainable use of those resources.

The Story of Conflict

Siman Irrigation System Area has covers of around 22,000 hectares irrigated land across 2 districts administration area, namely Kediri and Jombang respectively. The systems have 2 sources of waters are: (i) from the Siman dam (received from Medalan hydro power electric plant); and (ii) Damarwulan weir. Although theoretically the Siman system priority in irrigation allocation and development for agriculture food crops (for food security), in reality considerably several parts are put into fish pond and sugar factory schemes. The sugar factory has received total amount 250 liter per second from the authority permanently. Almost 90% of fish ponds are located in Kediri District which is the upper part or 2/3-portion of the total Siman irrigation system.

In mid of 2006 during the dry period there emerged a conflict in the irrigation system over the use of a common water resource which was mostly depended by users. In this conflict, food crop farmers particularly rice farmer and fish pond farmer quarreled as a result of insufficiency of water for their needs. The main issues that caused these parties to be in conflict were firstly water withdrawal by the pond needs for their fish more than the food crop needs for water. In this case, fish pond farmers, regardless of water shortage let their pond consume mostly the available water and did not spare it for other users especially at the middle and tail-end users. Due to this circumstance, food crop farmers prohibited fish pond farmers to take-in water from the irrigation system and establish new fish pond. Because the fish pond able to generate high income value almost three times than food crops, then fish pond farmers did not agree with what other users wanted.

Alternative Dispute Resolution (ADR)

ADR refers to “a wide variety of consensual approaches with which parties in conflict voluntarily seek a mutually acceptable settlement.” ADR generally seeks to move parties from “zero-sum” solutions towards those in which all the parties gain, and these

are referred to as “positive-sum” or “integrative” solutions (Bingham et al., 1994). Negotiation, collaboration, and consensus building are the key issues that facilitate ADR. Prior to the negotiation, the pre-negotiation process is initiated by a person or institution (the convener) who has sufficient authority and stature to capture the attention of stakeholders. The convener may contract a third party to conduct a preliminary review of the conflict. A review of this type reveals the background information on the conflict as well as identifying the stakeholders (Carpenter and Kennedy, 1988). If the preliminary review indicates that the negotiation process holds potential promise for improving the situation, the third party will conduct a conflict analysis (Moore, 1986; Schwarz, 1994). This activity consists of a combination of data and personal interviews with parties concerned. The third party then designs an appropriate intervention strategy for bringing the stakeholders involved to the negotiation table. At this stage, the third party is referred to as mediator or facilitator. During the negotiation process, the parties must exchange information and share technical details. They should listen to other parties and the mediator. Above all, they should agree on creative options to seek mutually beneficial outcomes (Moore, 1986; Rothman, 1997).

At the time of conflict occurs there were three general responses that farmer communities have. First, some individuals were chosen to ignore it. Second, midstream and the tail-end farmers quickly escalate out of control and third, people may seek some means to resolve the conflict. The conflict and alternative dispute resolution literature points to the advantages of managing conflict locally and informally versus more formal and expensive strategies (such as the courts). The “alternative” in alternative dispute resolution refers to alternatives to litigation (and a reduced reliance on regulation). The ADR is mentioned in Article 88 paragraph (3) the Indonesia Law No 7 of 2004 regarding Water Resources. Figure 1 presents a continuum of conflict resolution solve by ADR (adapted from Caldwell et al., 2004).

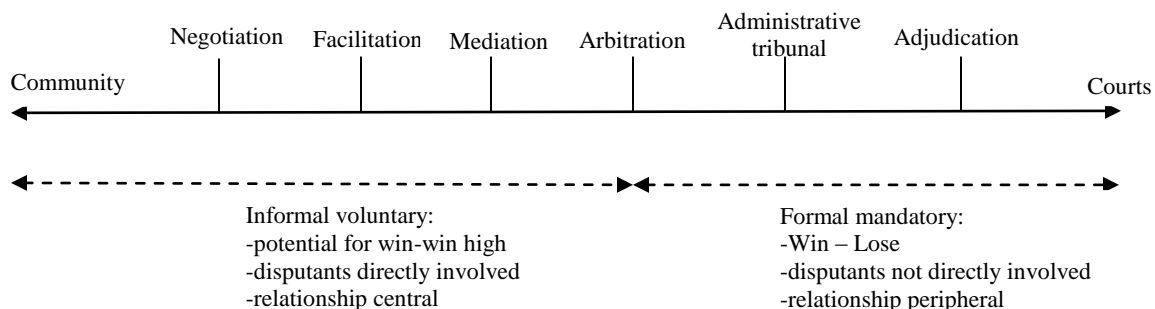


Figure 1. A continuum of alternative dispute resolution

The ADR and CMS Process

In August 2006, the Gadjah Mada University (GMU) team started to approach the communities and other stakeholders in the conflict. The GMU’s team is a partner of Balai Besar Wilayah Sungai Brantas who was in charge as an authority of Siman Irrigation Systems. A first step was to establish a rapport with the communities of Siman Systems from both districts Kediri and Jombang. Exploratory visits were made to, and conversations held with, the farmers and ponds owners, farmers association and fish pond owners association, authorities of the irrigation district, and some needed services were

provided. These contacts and services helped GMU Team to gain a minimum level of acceptance, since it would be needed to act as a mediator among the three communities. Still, a considerable amount of distrust remained and conflict resolution was still a long way off.

While approaching the communities, the GMU team tried to generate interest among the development agencies present in the region to support a negotiated resolution to the conflict. The first agencies addressed were agriculture extension and fisheries extension services in both Kediri and Jombang District. The agriculture, fisheries and irrigation services have the responsibility of fostering farmers to increase their commodities production as well as economic income within its jurisdiction, and of guaranteeing the provision of social services. Contacts were also established with other municipal agencies that it was hoped would play a role in the resolution of the conflict, including the Office of a Regional Planning and Development (Bappeda), in charge of integrated planning and development. The BBWS Brantas was involved to observe and certify the overall process and procedures.

After this preparatory groundwork, a joint meeting of the two communities (food crops farmers and fish pond farmers) was held in Jombang, which was attended by mediator team and representatives of other agencies. At this meeting it was agreed to settle the conflict in a peaceful way and to establish a conciliatory committee for that purpose. The committee was based on Article 11 paragraph (3) the Government Regulation No 20 of 2006 regarding Irrigation, multi purpose irrigation committee namely *Forum Koordinasi* (FK). However, as later events showed, the agreement was fragile and the idea of a negotiated solution had not yet really taken root among the communities. In February 2007, the conciliatory committee FK began its activities, with the task of discussing the issues at stake, discovering ways of resolving them and finding equitable rules for all. The committee was composed of representatives (fish pond and food crops farmers) elected by the communities and members nominated by FK. The GMU Team as well as BBWS Brantas representative were not a member of the committee, but attended the meetings in the role of initiator and facilitator of the process.

In spite of the efforts undertaken to ensure a smooth process that would lead to an agreement, reconciliation and conflict resolution were far from easy to obtain, especially at the beginning. There was no solid basis of trust: FKS was considered by the food crop farmers communities to be an adversary, associated with confiscating illegally utilize water. GMU team was not completely trusted either, because of its long-term relationship with the local condition. The team had to prove to the fish farmer communities that it was impartial, and it had to learn, by trial and error, to act as an effective mediator. The FKS community representatives did not show a strong will, or the necessary openness, to analyze and discuss the issues. The earlier attitude towards the conflict had been avoidance; however, representatives exhibited certain rigidity and did not feel free to modify formerly held positions. This situation was extended until the mid of 2008.

Since the mid of 2008, the communities became more motivated and were able to discuss the conflict in a more open and flexible way. This was a result of various interacting factors contributed to enhancing the willingness of the communities to seek a peaceful solution, balancing rights and obligations, The extension services staff from these two districts wishing to mix their official responsibilities with the negotiation process by simultaneously acting as judge, guide and participant. Nevertheless, their

presence had created a positive effect by convincing the communities of the vital importance of settling their dispute in a negotiated and peaceful way. GMU Team and BBWS Brantas remained available for consultation.

To make progress in uniting the two communities, it was of utmost importance to implement adequate and equitable procedures, promote dialogue among the communities and their FK Siman representatives, and provide proper follow up to the agreements reached. For instance, it was then decided that community representation on the FK be increased to include at least two members of each community, so that decisions did not rest with one community representative. As the process advanced and the FK Siman became more and more connected with the communities, a hidden agenda and particular interests were eventually discarded and lost the support of the community.

After several months' intensive meetings between FK Siman and their communities they were able to understand, agreed and made consensus to solve the problems among users. This enhanced their willingness and capacity to analyze the problems in an open and just manner, and to seek a mutually agreeable outcome. In time, the FK became firmly rooted and broadly accepted in the communities. This positive change was stimulated by parallel increasing quantity and quality of water distribution especially at the end-tail irrigation scheme. They have been proposed important program such as walk-through activity to identify infrastructure problems. The activity was involved FK committee and other government stakeholders related to Siman Irrigation System management. As part of the extension strategy, excursions were organized to visit same communities in other province, which broadened the participants' thinking and created a genuine interest in shaping better relations with other communities and development agencies. It also improved their capacity to interact and negotiate with outside agents.

It became clear to the other two communities that GMU Tim and BBWS Brantas were not just a friend and supporting the process, that it was not acting as a "spy" and that its aim was not simply to suppress conflict among two water users. It also became obvious to them that legalizing their both agriculture activities might lead to better and more productive relations with outside development agents. Another factor that helped to gain the trust and support of the community FK Siman was the provision of training program and other institutional support by local district government official. The growing interest expressed by the outside agencies in finding a fair and sustainable outcome to the conflict was also important. Their motivation increased when they realized that the process of conflict resolution helped them to fulfill their own institutional mission and achieve unity in vision and action.

Lesson Learn

1. The CMS strategies

To manage conflict well, The GMU Team have used several conflict management strategies. The key to managing conflict well is choosing and executing the strategy that best fits the situation. There is a menu of strategies the GMU team was chosen during resolution conflict situations:

- **Forcing** – using Article 11 paragraph (3) the Government Regulation No 20 of 2006 regarding Irrigation the GMU team possess to satisfy solve the irrigation conflict with.

- **Accommodating** - allowing the two communities to satisfy their concerns while neglecting the team own.
- **Avoiding** - not paying attention to the conflict and not taking any action to resolve it.
- **Compromising** – the GMU team and the communities try to resolve a conflict by identifying a solution that is partially satisfactory to both sides, but completely satisfactory to neither. Compromise is on the path toward collaboration, somewhere between competition and accommodation. It's about giving up some ground in order to gain other ground elsewhere. You win some, you lose some! This is a useful conflict management strategy. Also, compromise is useful when one party can't force their solution on the other.
- **Collaborating** - cooperating with the other stakeholders to understand their concerns and expressing the GMU and BBWS Brantas concerns in an effort to find a mutually and completely satisfactory solution (win-win).

There are many advantages to using a collaborating strategy to handle interpersonal conflict situations. Collaborating with the other party promotes creative problem solving, and it's a way of fostering mutual respect and rapport. However, collaborating takes time, and many conflict situations are either very urgent or too trivial to justify the time it takes to collaborate. In the case of Siman Irrigation System it was take for two years to compromise between the communities. Compromising strategies include several steps namely understanding of the problems, interacting to make a commitment and following by consensus development how to solve the problems. Managers who are very skilled at conflict management are able to (a) understand interpersonal conflict situations and (b) use the appropriate conflict management strategy for each situation.

2. The Alternative Dispute Resolution

Arbitration as a step process to solve conflict could not implemented in water resources and related aspects due to the Law No 30 of 1999 regarding Arbitration and Alternative Dispute Resolution. According to the law No 30 of 1999 the reasons are due to:

- arbitration is the way to solve dispute among the legal firm under trade law based on trade agreement is setting before;
- Both firm have an agreement are subjected to laws, trade law as well as public law;

However, since irrigation management in Indonesia closer to social relations among the users rather than legal business systems, therefore arbitration is not accepted. The rationale for ADR is similar to those of preventive diplomacy: it is cheaper and the solutions are more robust when issues are resolved through dialog rather than litigation (or combat), and Clark et al. (1991) offer settings and cases to back the argument up. However, the ADR is time consuming and patient action of the volunteer is needed.

Results

Conflict among irrigation water users could be hindered and resolve effectively by local approaches. Local approaches to the management of water resources promise benefits beyond those associated with a purely regulatory approach. In the cont ext of managing surface water for purposes of irrigation, these initiatives promise the following advantages:

- Local control - Peer led approaches are likely to be less intimidating with a reasonable chance of acceptance and compliance

- (ii) Lower cost – Voluntary action will almost always be less expensive than regulation.
- (iii) Win-win – The sharing of resources (water) and related benefits is enhanced when all parties have an interest in the process and an opportunity to influence the outcome.
- (iv) Reduced regulation – The greater the success at managing local water resources, the less need there will be for regulations.
- (v) Wider compliance – Community leadership can contribute to community acceptance of shared goals related to water management.
- (vi) Trust – A well-designed and implemented process will contribute to trust and a greater acceptance of the common good.
- (vii) Maximization of water resources – Water supplies, for purposes of irrigation, are essential but limited. Local involvement can enhance or maximize the sharing of this resource.

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