

# Institutional Sustainability for Water Resource Management

--- A Case Study of Dong People's Water Resource Management in Zengchong Village, Congjiang County, Guizhou Province, P.R. China

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**Abstract:** In Zengchong village, there was a traditional *Kuan* institution for water resource management in the past, which was eventually destroyed, but now local people have constructed the *Cun Gui Min Yue* for water resource management, which was derived from traditional *Kuan*. Through analyze this dynamic process, this paper found that local tradition can be manipulated even under the modernized China today. And also this paper demonstrates how the development of local water institution articulated with outsider context.

## 1. Background and Rationale

Local community's role in today's resource management attaches more and more scholars' attention, and also Chinese government. Changing from "Big government Small society" to "Lean government Big society", the Chinese government is currently implementing policies which lead to a decentralization process. This is being carried out by strengthening the local community's role in natural resource management. How local community shoulder this role is the objective of this study.

For study local community resource management, we apply the "institution approach", which focus on how rule-in-use regulate the interactions of human with others and nature. The conceptual framework of legitimacy constructed by Muthiah (1995) was manipulated here as four interconnected elements: structure of power and interests, rules making, performance and accountability. A hierarchical layering may be discerned among the first three elements. Structure of power and interests is the fundamental element, which is universalized determining the structure of domination. Rules making element is usually more important than performance. Accountability is an integral part of all three of the other elements.

This study investigated the Zengchong village, which locate the core area of Dong ethnic group' habitat. Traditionally there was a *Kuan* institution in Dong society which functioned as alliance, safeguard and autonomous resource management. Dong society has more than one thousand history, which can be divided as four stages: clan stage; class stage; collective stage and household stage. During this long history, local water resource management system change step by step.

## 2. Changing Social Context of *Kuan* and the Reconstruction of Local Law

At the beginning of its history, there were four clans in Zengchong village. The clan was the basic unit of Zengchong village. Villagers inside each clan bear the same social rank. They were members of their clan. They produced collectively and distributed equally. Different clans had different social positions inside the village. According to the principles of local people, those who came to this village earlier were the elder brothers of the other groups, the same as the first-born babies of a natural family. This ranking principle causes the clans to be ranked as *TouGong*, *SanShiJia*, *SanGong* and *TouChao*.

This clan ranking can be demonstrated through clan location and ritual.

Different clans have different social ranks in this village. Although following this ranking, high ranking clans had more priority in resource use, all the clans have always cooperated together. This principal is held strongly by all the villagers that the drum tower of Zengchong village has four plinths, and these four plinths represent four clans. So four clans need cooperate and solidify together like four plinths co-support the drum tower.

Inside village, households within the same clan could not marry each other; only different members of different clans could marry each other. So households in different clans were connected through marriage relationships.

In the clan stage *Kuan* was the organization which keep all four clans together. There were nine leaders from four clans. These leaders consisted a committee which participated in *Kuan* meetings, executed *Kuan* law inside the village, dealt with conflicts with neighboring villages and so on. There were three committee members from the *TouGong* clan, two from *SanShiJia*, two from *SanGong*, and two from *TouChao*. The leader of this committee was from *TouGong* clan.

At the end of the clan stage, a privatization process took place in Zengchong village. Thereafter, a landowner class and landless class emerged, and the social relations were more characterized as class relationships than in the past.

In the clan stage, the clan was the unit of collective production. Privatization made the family as the unit of production, and clan became the unit for other activities. So clan relations were reduced. Following land becoming concentrated into the hand of landowners, the main social relations became class relationships between landowners and landless, for instance, exchanging land for grain and land rent between them. Usually, these relations took place inside the one clan. If a villager had to sell his land for food, first, he should go to landowners in his own clan. Then the landowner would rent his land out by giving the priority choice the landless in his clan, thus ensuring they still had land to work. This was the so-called "Inside Priority Principle." Due to this principal and their long history and therefore greater chance to accumulate land through this system the landowner covered by the *TouGong* clan was the greatest.

Land exchange and renting inside clans made the landowners leaders of both the clan and the *Kuan*. Because the landless households had to depend on renting the landowner's land for survival, they essentially became the laborers of the landowner. Through use of the local *Kuan* institution, the landowners made this relationship more stable. For example, according to *Kuan* law recorded on the stone stele of 1672, land exchange for food followed by the landless farmer and renting land from the landowner was legitimated in this village.

Having landowners in charge of *Kuan* also deeply impacted on the local *Kuan*. In the clan stage, the local *Kuan* was an autonomous organizational unit and was managed by

the local people themselves. Outsiders wanted to control them but failed to do so because of the defense of the *Kuan*. So in the clan stage, outside institutions never come into this village. As a result, the central government changed their general policy to fit the Dong. They couldn't rule the Dong through government officers. So instead, they give power to the Dong local people themselves. The best way was to select the Dong landowner as government officer to control other Dong people. This institution was called "*TuSi*". This institution was good for Dong landowners. On the one hand, they needed more powerful figures to help them to deal with conflicts with the landless class. On the other hand, they could collect more wealth through product exchange with outsiders. So landowners became the officer of central government, on top of all their other roles.

Landowners became the powerful officer in most Dong villages, and this is true for Zengchong village as well. For instance, Shi Wenda, the biggest landowner, was the *TuSi* of Zengchong village in this period. From the *Qin* Dynasty to the *Mingguo* period, this government institution changed in title but the core ideal was same. In the *Mingguo* period, they called it the "*BaoJia*" institution, which was the name of the position of government officer: *Bao* or *Jia*.

During this stage, the timber business was introduced and boomed in this village. This village was the main base of timber exporting of *Jiudong* areas. The forest in Zengchong village was clear cut and sold out by local landowners through the timber market located in *Pingjiang* dock. Through contacts with outside businessmen, landowners controlled the timber business of this village, and therefore accrued its benefit. The landless became the labor for cutting and transportation in this business, and obtained very limited benefit from the local timber business. Calculated by the local people, the monetary benefit for landowners was about 80% of whole, while others such as tree owners and labors just got the last 20%. So landowners collected a lot of wealth from the timber business.

After the setting up of the People's Republic of China, the Chinese Communist Party established local government in Zengchong village. At first, the new local government confiscated landowners' land and distributed it to every household in Zengchong village (Land Reform Policy). Equal allocation land policy made every villager became an equal land owner. Then, Chinese Communist Party launched a Socialist Rebuilding Movement, which beat down the landowner class and improved the social position of the landless. Through these social reforms performed by the Chinese Communist Party in Zengchong village, the class relationship was canceled. In the middle of 1960s, the Mutual Aid and Cooperation movement was launched in Zengchong village. Villagers were organized by productive teams to do production. Although households were collected into six small productive teams, these productive teams were only productive units. They had no decision making power. The Revolutionary Committee of Zengchong Village was the real power holder. All activities in Zengchong village were arranged by it. The arrangements made by it all followed the high-level government's plans.

After that, the Cultural Revolution took place in China. Local *Kuan* was damaged deeply by this revolution. The leaders of *Kuan* were regarded as "*Niu Gui She Shen*",

which means bad ghosts and gods, which should be beaten down. And the spirits worshiped by the *Kuan*, which were all opposed to Marx's materialism, should be beat down as well. So during this period, all the temples, such as *Sa*, *TuDi* etc. were damaged. The drum tower was the only building. During this period, *Kuan* was canceled by the local government. People did some *Kuan* activities sneakily. For instance, *JiSa* ceremony also was done a few times in the dark of the evening.

After the "Household Responsibility System" was put into practice in Zengchong village, land, forest and other productive stuffs were allocated to individual households. Productive teams were disintegrated, leaving many individual households. At the same time, the Market Economy was implemented in rural areas. Villagers not only produce for government plans, but also for the market. They could produce voluntarily for their own good, not just follow government guidelines.

As more and more opening to the market happened in this area, accidents which destroyed the local environment increased in number. For example, cutting forest for cash, poisoning fish in the rivers to facilitate their capture and so on. The local government couldn't forbid and deal with these accidents because these were small accidents for which there was no detailed state law to deal with, and also the government "didn't have enough staff to deal with so many bagatelles."

So in the early 1980s, the *Kuan* institution was rebuilt by Zengchong villagers informally to rule villagers' actions. At first, *Kuan* law used to deal with conflicts inside the family, for instance between husband and wife. When conflict took place, husband and wife would go to see the elders or invite the elders to come to their house, and let the elders deal with the conflict because the elders knew *Kuan* law and had more experiences in such conflicts. Gradually, the elders were asked to deal with conflicts between households. They knew the history of everything inside village. So the elders were organized to set up an association which functioned as a conflict solver. Based on the traditional rules, villagers made community regulations titled "*Cun Gui Min Yue*" informally practiced in Zengchong village.

The Elders Association (EA) used this regulation to manage affairs inside village in a similar way to *Kuan*. But at the same time community leaders did the jobs which they were instructed to do by high-level government, such as collecting tax, extending agricultural technology, and so on. Because the leaders of the community didn't know about *Kuan* law, and because *Kuan* institution hadn't been accepted by government, this division continued for a few years.

In 1998, through the "Village Democratic Construction Law", the community became an autonomous unit. This state law dictated that "the community was an organization governed by villagers themselves; villagers could select their leaders, and make decisions on their affairs by themselves; everyone should be allowed to know all information in the village" and so on. This loose environment left local institution enough space to play.

In the next period, the Villager's Committee substituted for the Elders Association. Through the communal practice *Kuan* law, all the villagers knew the rules well. They progressively refined these rules. They negotiated with government, they saying that community law was a supplement of state law. Through this discourse they were able to get *Cun Gui Min Yue* accepted by the government. So Zengchong village's *Cun Gui Min Yue* was recorded in the township office as local regulation, and villagers managed all their affairs following this law. In the case of serious crimes which would impact on the local government, they would go to report these to the local government and let the state law take over for instance, in a case of murder.

Sometimes *Cun Gui Min Yue* was in conflict with the state law. There was a case in 2001 in which one villager cut a tree in another's forestland. He was found and punished by *Cun Gui Min Yue*. According to this law, he had to pay 500 Yuan to the community. After being punished, this person thought the punishment was too strict. So he reported it to the state courts. And the state court judged that the community was wrong in judging this case and asked the community to give back the money. After that, a few *Cun Gui Min Yue* rules were changed so that they followed state law.

### **3. Dynamic Water Utilization**

#### **● Irrigation**

Rainwater is very important for agricultural production in mountain areas. Agriculture in these areas is different from the plain areas, in which it is easy to irrigate through a big canal system. In mountain areas, the land is distributed at different height levels, and mostly the land is higher than the river, so it is very difficult to construct a big canal system. In Zengchong village a so called "Rain-fed Agriculture" is practiced, which means that rainwater is the most important source for agricultural production. In this village, which is a typical mountain village, land is distributed along the hillsides and the river is at the bottom. In the clan stage river water couldn't be used to irrigate. So the rainwater was quite important for irrigation of this village's land.

From the perspective of local people rainwater was renewed by the *Sa* spirit. So Zengchong villagers worshiped the *Sa* spirit in the first day of every New Year. They hoped the spirit would make a good arrangement of rainwater. The worship was run by *Kuan* leaders at the *Sa* temple and all the villagers participated in the worship.

To fully use rainwater, agricultural production was arranged based on the rainy season. *Yang* was used to be an explorer in this area. He knew the rainy season and how it related to agricultural practice well. Through inviting *Yang* to be the leader of agricultural production (*HuoLuTou*) and every household in Zengchong village following him in his agricultural activities, local agricultural production was able to be matched to the rainy season. Which day to harrow the fields, which day to seed, which day to remove the seedlings and so on were all arranged so they related well with the rainy seasons. Even today this is so.

Spring water was also the main water source for irrigation in the clan stage. The ancestors of this village assart the paddy fields starting from a springhead, and then

moved down to the lower areas where there was more space. So there was an ecological gradient in the local production of Zengchong village, moving from the top to the bottom, in turns there were forests, paddy fields, village areas and river. In the rainy season, rainwater would be used to irrigate paddies, and excess rainwater would go down to the river. In the dry season water from springs continued to irrigate their fields. The spring water was water which had been kept in the forest from the rainy season. In later times people didn't assart their fields in the top area of the mountain because there was no spring water. And also they knew that if they cut the top forest, the fields, in the middle slopes, would not have spring water.

Still today, from the perspective of local villagers, the forest is seen as water keeping forest. So they use the *Kuan* law to protect the forest. In the clan stage, trees were only cut for firewood, house building and other domestic uses. Villagers cut the tree's branches and throw them in the tree growing area. In this way, the foot of the tree will be protected very well for next years tree growing. Moreover, villagers always cut trees rotationally. One area cannot cut more than twice in five years.

There weren't any canals between lands since all the lands in a big area (one mountain side) belonged to one clan. And all the lands were built into terraces. This land use mode kept soil in a plot and didn't let it be washed away by rainwater. The bank between two terraces was built with stone and soil. Water flowed from upstream land to downstream land through a ditch in the bank. The ditch-dam was usually kept at a certain level which enabled the upstream land to have enough water for grain growing, and allow excess water to flow down to the next land. Spring water irrigated the hill terraces gradually through a lot of these ditches.

The paddy fields close to springheads were usually used as fishponds after the harvest. This was not only a good way to raise fish in paddy land, but also stored and regulated the spring water for the land downstream of the fishponds. In the year following filling, the fishpond will release water to catch fish, and this outflow could be used as irrigation water for downstream land. So these fishponds also had utility as water storage ponds to keep spring water for the use of downstream land in the following year.

In the class stage, the main change came from spring water shortages. Since the spring water storage forest had been cut extensively by landowners for sale, spring water became less and less. Spring water shortage had impacted directly on downstream lands because there was no longer enough water to flow through the ditch-dam down. These downstream lands, located beside the river, were collected gradually by landowner in this stage. Landowners put canal and waterwheel technology into use to utilize river water for irrigating these lands. Since the landowners in this stage had become the leaders of *Kuan*, the rules of *Kuan* were used by them to guarantee their private water utilization.

During the collective stage, all the villagers were organized together to do collective production. There were six cultivation zones for each of the six small productive teams in this village. In each cultivation zone, a lot of irrigation facilities were constructed by small productive team members. Through control facilities construction and local

production, irrigation management was controlled by the Revolutionary Committee of Zengchong Village, not by the *Kuan* since it was destroyed by this committee.

In the household stage, land, forest and other materials were distributed into individual households. This division was implemented at the small productive team level. All the lands in one cultivating zone, which belonged to one small productive team in the collective stage, were distributed to every household in this small productive team. Forests were divided on the proximity principle, which meant that the forest located most close to one's land, should be allocated to that person. This division made forest management and spring water management be linked together for each household. If he managed his forest well, spring water alone will be enough for irrigating his land. Hence, supported by the government and World Bank, villagers planted a lot of trees, such as pines and firs which could grow quickly in their forest land. And their forests were managed under "*Cun Gui Min Yue*." Through reforestation and good forest management, local spring water became very abundant in this stage.

### ● Fishery

Villagers have two ways to raise fish. One is raise fish in the river. The other is to raise fish in the paddy fields. In clan stage, the river around the village was divided into four sections for the four clans to do fishery. In each river section the owners built two-layer dams. The first layer was built with stone and soil mixed tightly to keep river water in. The second layer, above the first layer, was built using tree branches, which can keep the fish inside, and at the same time let river water flow through it. Each section is used like a fishpond for one clan to do fishery collectively. When the fish were harvested, every member in this clan would get a share. Paddy fields were also used as fishpond. In the winter, villagers raised fry in their river section. About seven days after seedlings had been planted in the paddy fields, fry were also moved into paddy field. Fish were raised in paddy fields until harvest. When the harvest season came, water in a paddy field would be removed to catch fish.

In the clan stage, the river was used as a fishpond by clan. In the class stage, land and forest was occupied by individual households through the privatization process in Zengchong village. Private fishponds also emerged in this period. Through practice of canal building technology, villager could carry river water into the village. So they dug fishponds inside the village and built a canal connecting these fishponds with the river. Mostly, these fishponds and canals belonged to landowners, because they could mobilize the labor necessary to build canals and fishponds. Although river sections continued to be managed collectively by clan, the fish in each river section was mainly used in clan festivals not split amongst all clan members. This was not a disaster because landowners could still get fish from their private fishponds. In this class period, the number of fishpond was an indicator of a landowner's possible wealth. So landowners built lots of fishponds along canals. Up until now some fishponds also existed in Zengchong village.

Since spring water became less and less in this stage through deforestation, paddy fields lacked the water to raise fish. So fishery was mainly practiced in individual fishponds in class stage.

In collective stage, river sections allocated for clan management was canceled by the Revolutionary Committee of Zengchong Village, because it was a symbol of the clans. Nonexistence of clan and class was required by committee for socialist rebuilding by the Chinese Communist Party. Villagers were organized together in small productive teams to do fishery in the river. The river was divided into three sections. Every pair of small productive teams in connected cultivating zones managed one river section. In each section, no dam was built by the villagers. Rules were arranged so that each small productive team could catch fish in their section. So the river wasn't used to raise fish like a manmade fishpond, just as a natural fish field. Fishery was practiced mainly in fishponds inside village. These fishponds were also divided into small productive teams. The members of each small productive team raised and harvested fish collectively.

Not all of the paddy fields were used as fishponds in this stage. Because government wanted to improve the agricultural productivity of paddy fields, new rice species and new cultivation technology had been introduced in Zengchong village. These new methods were clashed with local in paddy fishery practices. For instance, according to the government plan after harvest the land was to be used to cultivate rapeseed in the winter, not to raise fish.

In the household stage, river was taken as common property of the whole village not allocated to individual households. Every household was allowed catch fish in the river. Except using some wrong methods, such as poisoning and explosions, which killing all of the fish including the small ones. Although there was a strict law (*Cun Gui Min Yue*) forbids these wrong ways in Zengchong village, but in other river sections, which were belonged to other villages, people never stopped poisoning fish. This killed all fish in the river. So the number river fish decreased quickly all at once, and so the river finished being the main fish source for Zengchong villagers.

Since the population has recently increased fast, many fishponds inside the village and around the edges of the village have been used as the foundations for new houses for new generations. Fishponds inside the village decreased quickly. And in the past, villager only used the paddy field which close to spring water as fishponds. But after a few years of planting new trees under the two-mountain schemes spring water became abundant again and weirs and canals were constructed a lot in the collective stage. Paddy fields started to have good enough water for fishery. So paddy fields which were close to springhead, canals and weir were all used as fishponds in household stage.

Based on my investigation during the fieldwork, there are only thirteen small fishponds and one big fishpond (owned by six households) in Zengchong village. The other households (more than two hundred) use their paddy fields as fishponds. So in the household stage, fishery is mainly practiced in the paddy fields.

#### **4. Legitimation of water institution**

There are four stages in Zengchong village's history. In each stage, different local water institutions were legitimated by their institutional practices. In clan stage, there



were two principles for water management: 1) The Priority Principles: giving better access to higher ranking clans; 2) The Principle of Survival: all clans co-operating together to ensure subsistence needs were met. Higher position clans or those who came into Zengchong village earlier could occupy the area close to the springhead to start their paddy fields. The water allocation rule for spring water gave priority to those farmers who owned plots close to spring water through ditch-dams. Every terrace was kept with its terrace ditch-dam at a fixed height or fixed water level. Then water went across the ditch-dam down to the others. In the dry season, if water was not enough, it could be kept in the upstream land by damming channels in the terrace wall (through the construction of a “ditch-dam”). So arrangements of spring water gave highest priority to land closest to the spring, which were owned by the clans who came into this village earlier and had higher social ranking. At the same time, spring water use gave priority first to grain growing which is the subsistence needs, and secondly to fishery. In practice, this was done by adjusting the height of ditch-dams. If water was abundant, the ditch-dam of the upstream plots would be kept at higher levels to keep more water in, for raising fish. In the dry season, if water was not enough for downstream grain growing, the upstream plots would decrease the ditch-dam height to release water to support downstream grain growing. This principle helped to sustain the low ranking clan members who owned the downstream plots.

In this stage, the village was consisted of four clans. Each clan selected their clan leaders, and all the clan leaders together made up the *Kuan* committee. The rule in this period was that of *Kuan* law regulated by a *Kuan* committee. Through *Kuan* committee meetings, rules were made. There were two rules related to water resource management, called “*GongShui*” and “*JieShui*” in the local dialect. *GongShui* means to steal water from upstream. If the plots close to the springhead were short of water, and at the same time the plots lower down kept water, the owner of the downstream plot would be judged as *GongShui*. *JieShui* means to stop the water moving to lower. If downstream plots lacks water for grain growing, and at the same time the upstream land had water in excess of their needs for rice growing, enough water for fishery, the owners of upstream land could be viewed as *JieShui*. These two kinds of behaviors could be punished by *Kuan* law.

The punishment demanded that the rule-breaker to walk around inside the village announcing his wrong doings. This was called “*XueQinZhiFa*” locally. Performance of this type was enforced by the leaders of the wrongdoer’s clan because if someone was punished by the other clan leaders, it would lead to one clan wanting to revenge the other. This kind of performance and its enforcement by the wrongdoer’s own clan leaders, could avoid conflict between two clans.

Judgment on every punishment was judged through *Kuan* committee meetings in the drum tower and punishment of the rule breaker was recorded by leaders of the clan. To enforce the committee decisions, the belongings, such as the clothes or tools of the rule-breakers would be taken and put on display at the drum tower until he/she corrected his mistake and the *Kuan* committee could be sure that he/she would not break that rule again. Then, their belongings would be brought back.

The leaders in this stage were clan leaders selected by clan members. So accountability in this stage was downward accountability. The clan leaders were accountable to the clan members. The mechanisms for accountability were:

- Leader selection: the committee of the *Kuan* contained clan leaders who were selected by clan members. Usually, some preconditions had to be fulfilled by potential leaders, such as, they had to be elders who had high seniority in clan hierarchy and were well informed of the *Kuan* law. These old men could perform *Kuan* law and were well able to deal with uncertainties and communicate with others. Before *Kuan* meetings, clan members would select their leaders to join *Kuan* meetings. If the leaders did wrong doings or became over aged, they would be removed by clan members through a clan meeting.
- Transparency: the *Kuan* law was announced openly in the village meeting. And all the *Kuan* law was edited as songs and stories which were spread through the village. The performance process was also transparent for all villagers with a clear record of the rule breaker's confession and presentation of evidence to the public.
- Independent monitoring and adjustment: the *Kuan* law was revised through villager's meetings. The *Kuan* leaders who came from each clan had to be reappointed by clan meeting for each *Kuan* meeting.

In class stage, the priority principle, which was used in spring water management, was continued. Lands which were close to springheads also got priority water use. But these lands were occupied by landowners in this period. Landowners controlled spring water use through continuing the priority principle. In spring water management the survival principle used in clan times was cancelled. Since forest was badly damaged by landowners tree cutting, the spring water for paddy field irrigation was short, especially for the lands in far downstream areas. Spring water shortage left just enough water for growing grain on land close to the springheads. Paddy fields couldn't be used as fishponds anymore. At the same time as there were natural shortages, landowners deliberately tried to reduce the water for other people who owned downstream lands in every way. This is a possible explanation for these people who lost land because they lacked food in the dry season. A new principle emerged in the class stage. It said that the ones who owned private canals and waterwheels also owned the water. In this period, since the new tools to carry water, canals and waterwheels had been created, river water was used to irrigate these downstream lands. Since landowners had enough labors to take over from the landless, and also enough wealth and materials to build canals, they built a lot of canals to irrigate their accumulated lands, and these canals became landowner's private property. So the owners of these canals controlled the river water in this period.

As in preceding periods in this stage, rules were titled *Kuan* law and made through the *Kuan* committee. But landowner became the leaders of the clans and also the leaders of *Kuan*. So the rules were really made by landowners. Through the *Han* culture introduced into Dong areas by the government, *Han* language and writing had been learned by the Dong people. So *Kuan* law can be recorded in writing. Usually during that

time, *Kuan* law was marked on a piece of stone tablet, and stood in the drum tower. The oldest stone tablet I found in Zengchong was made in July 3, *KangXi* 11<sup>th</sup> year of *Qin* dynasty. It is 1672, about 330 years ago. The rules on that stone tablet included regulations about all the affairs in Zengchong village.

Rules related to water resource management were punishment of stealing water, including stealing water from upstream and canals. If the upstream land which close to spring water was short of water in the dry season, and at same time the lower down lands owned a lot of water, the owner of lower lands could be judged have stolen water from higher up land. If the canal wall had been dug at the place which would release water to irrigate a certain person's land, that person would be judged to be the one guilty of stealing canal water. Stealing water would be fined about 500 doits, and also should compensate in cash for the grain loss resulting from water stealing. This punishment was very strict. The size of cash fines could lead people who had limited land lose it all.

This punishment was carried by landowners themselves. Since sometimes the performance was resisted by the poor villagers who had to steal water for their survival, the landowners performance was sometimes practiced through force. For example, punishment of water stealing was done using guns. This was supported by the government because the landowners were the government's agents in Dong communities.

The power was held by landowners, and all the rules of water resource management served for them. So accountability in this stage only involved landowners being accountable to themselves.

The principle for water resource management used in collective period was that "all the water resources are our socialist country's property; they should be used to serve for our great socialist country's development." This principle was created by the central government and implemented by the local government. In Zengchong village the Revolutionary Committee of Zengchong Village was the local government.

Different small productive teams produced collectively in different productive zones. One productive zone was a small watershed, such as one hillside. So there was no conflict in water use between small productive teams, or between households in each small productive team. Water use conflict came from the demands of different water functions in this stage, for instance, water use for agricultural production or fishery, for agricultural production or hydropower. The rules to deal with these conflicts were made according to the government plans in that period. For example, in the "Smelt Steel Movement" period, water was used mostly for smelting steel as directed by the central government.

The Revolutionary Committee of Zengchong Village was the basic power holder of the government. Accountability was upward to higher-level government, that is, to the township government. All the members of the Revolutionary Committee were appointed and adjusted by the township government. Their work, power and duties were given by the township government. The monitoring and adjusting of their work was also carried

out by the township government. Their wages, office expenses and water construction expenses were supplied by the township government.

Starting from 1979, after the “Household Responsibility System” was introduced into Zengchong village, land, forest and other materials were distributed to every household. Land allocation was based on principals of equality. First, lands were classified into three categories considering their fertility level, and more importantly, their access to water sources. Not only access to spring water, but also access to canal water was the most important characteristic in deciding the value of each piece of land. Each type of land was distributed equally to each household. Each household had some land far from water, and also some land close to water. This was called “*ChaHua*” distribution in the local dialect.

This kind of land distribution has let all villagers have more equal power in accessing to water. Because every one has land close to water and also far from water, negotiation between villagers can take place on an equal basis. If A doesn’t let B carry water across A’s land in order to irrigate the B’s land, A could face the same sanctions from someone else. So all the villagers keep good relationships with each other and always depend on each other in times of irrigation.

Based on lands *ChaHua* distribution, villagers have organized using water by negotiation with each other and through dependence on each other. No body has had more power than the others. This “interdependent” power structure has introduced new power structures to local water management so as to “benefit each other and help each other”.

Local people construct the *Cun Gui Min Yue* which continues to use the rules of *Kuan* to manage water resources. The same as in *Kuan* law, there are two rule-breaking activities such as *GongShui* and *JieShui*. But the meanings of the rules have been partly changed. Today, *GongShui* means crossing water without upstream land owners’ agreement; *JieShui* means rejecting water crossing in a situation where it is needed and there are no legitimate reasons to refuse water crossing. Each illicit activity will be punished by a fine of 100 Yuan, and recorded on the board beside the drum tower.

At the beginning, Revolutionary Committee of Zengchong Village was also upwardly accountable to higher-level government. When the Villager’s Committee was substituted for it they continued upward accountability to the township government. Later, the Elder’s Association was set up to manage water and other resources. They used downward accountability mechanisms, same as with *Kuan* institutions in the clan stage. Through the independence of the Villager’s Committee, the Villager’s Committee became the manager of water and other resources. In coexistence with upward accountability, the downward accountability mechanism was also continually carried out by them.

***Downward accountability:***

Some leaders (*Cun Zhang* and *Cun Weiyuang*, who are the administrative leaders) of the Villager’s Committee are selected every three years by a meeting of the villagers.

Rules are made and adjusted through villagers' meetings which also happen every three years.

The accounts and community affairs are announced on the board beside drum tower at the end of every year.

Villager can monitor the leader's activities: If the leaders break the rules, they will be punished by cash fines or removed from the Villager's Committee. There was an example in 2000, when the leader corrupted the community money he was removed from employment and amerced.

***Upward accountability:***

Some leaders of Village's Committee, for example *Zhi Shu* who is the leaders of Community Sub-Branch Committee of Chinese Communist Party, are appointed by the Chinese Communist Party Branch Committee of Wangdong Township.

The rules should be agreed on by the township government, and accord with state law.

Some projects (for instance, tap water systems) are arranged and advised by the township government.

Adjusted and monitored by township government through examination and work checking.

The township government gives the wage and the award for the committee leaders.

So in this stage, the accountability has a more complex character than before. On the one hand, the community is an autonomous unit held by local people themselves through downward accountability. On the other hand, the community committee is the local agent of the government and is controlled by high-level government through upward accountability.

**5. Conclusions and Recommendations**

There are several findings to be made from this study. First, Zengchong village is not a static, but a dynamic community continually changed from the clan stage to the household stage. Hence, we cannot meet a traditional community which exist statically, as advocated by some CBNRM scholars. During this dynamic process, local institution wasn't destroyed at all. Institutional sustainability can be achieved by local reconstruction. Second, local institutional change was based on local power structure. Third, accountability can be found four models in this study. In the clan stage, accountability was downward. In the class stage, it was internally between power holders, the landowner themselves. In the collective stage, it was upward. In household stage, it is mixed, both upward and downward.

In China, conventional thinking depicts the local community as always opposed to environmental protection, over-utilizing resources or lacking the capacity to control resource management. Hence, the community is always designed out of environmental protection and resource management in role mapping carried out by state policy makers. Right now, since decentralization is extending in China through community capacity building projects supported by the "Community Democratic Construction Law", community participation in poverty alleviation, and a deepening of the market economy. Community management of local resource is also being tentatively implemented in water

resource management. This case of Dong people's water resource management can help understanding of how local institutions have carried out water management. It should be able to achieve meaningful support for community management of local water resources.

The decentralization process gives a space or niche for the local community to construct their own institutions of water resource management. Through this process, the legitimacy of the local community's capacity and power can be improved by their institutional practices. For instance, through rule making and performance, local leadership can be given structure and stabilized. This support is important not only for local resource management, but it also strengthens local social development. Local organizations and institutions can grow and become mature through the decentralization process.

Downward accountability will be achieved and strengthened through further decentralization. It connects local leadership with local constituencies and adjusts local institutional arrangements to suit. It has an important role in the local legitimation process. In today's water institution of Dong, there is a mixed accountability. Through downward accountability, local villagers, who are water users, can select and adjust their leaders, participate in rule making, monitor rule performance by their leaders, and have power to know about the affairs of their village. All these institutional arrangements can obtain their consent for carrying out water-related institutions, and also give the water management power to them.

Also upward accountability will be strengthened in the future. This accountability gets the high-level government support for the local community in terms of budget, administration, state laws and so on. This can be demonstrated in this case and also was found by Shashi Kolavali and John Kerr (2002) and Wai (1996a). In some villages, maybe the local capacity for rules making, rules performance, and also building the water resource facilities is low. In these cases, high-level government support is quite important. Decentralization does not mean putting the local community outside of government systems. Instead it means constructing suitable relations between them (Li, 2002). For the building and strengthening of local institutions, the government has an important role in giving enough space to local institutions but it also has a responsibility to support building of the local community's capacity by enforcing upward accountability. Especially in China, through the implementation of government management systems for a long time, local community and institution may have been destroyed or weakened which is indicated by individualism, confrontationalism and other bad tendencies in local management. Hence, government support for building a good working organizations and institutions is badly needed.

In the rural society of China today, land reform policy has constructed a strong base for equality between local people. In local water resource management, they have constructed a fair power structure for local interactions. This will stabilize water institutions in the future. In terms of social justice, this policy will be a strong support for the implementation of decentralization of local resource management. Otherwise, decentralization will only get empowerment for the powerful figures in the local area,

like the case of landowners in the class stage.

So in the future, the Chinese government will function in local resource management as: on the one hand, decentralizing its power to the local community by construction of downward accountability, and supporting building of the local community's capacity through strengthening upward accountability. On the other hand, continuing the stabilized land policy implementation is important in constructing an equal local social structure.