CONFLICT OF WATER RESOURCES AND MARGINALIZATION SUBAK: CASE STUDIES IN TABANAN BALI

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ABSTRACT

This research aims to examine the economic politics and injustice water resources access and its impact on subak institution which serves as one of the main pillar of development in Bali. Using qualitative method, this research found that: the politics of water economy was very dynamic, involving various local, national, and global actors with different interest and ideology: the priority of mass tourism in Bali had led to a battle over access to water resources with both immaterial and material conflicts; growth-oriented agricultural development had systematically reduced the socio-capital of subak; and the politics of development and the products of the state power had systematically weakened the products of subak community power, so that the existence of subak as an irrigation organization that became the basis of strength for supporting food security was increasingly pressured.

Key word: subak, mass tourism, water resources, Bali

1. INTRODUCTION

Water is a driver source with strategic position in rice field agriculture (Pasandaran, 2006; Sumaryanto, 2007). For the last two decades, Tabanan-Bali has serious water resources issue in agriculture. Thousand hectares of rice field in Yeh Ho watershed have experienced changing in planting pattern due to water shortage. This condition has the sensitive interrelation to environmental issues either in global scope, regional scope, or local. The high interest of the various parties toward water, is giving a big space for conflicts to occur, surrounds the seizure of water resources.

The rate of reduction in the availability of water for agriculture is estimated to occur more rapidly than the rate of reduction in the availability of land. Reduction is not only in terms of quantity of water, but is closely related to the water gap and optimization functions of water. From the supply side, the reduction in the availability of water in the form of environmental degradation occurs in the form of the narrowing of the water catchment area, decreased uptake of water in the soil, no protection of water sources, water disposal without optimal utilization, and degradation of water quality as a result of a variety of development and economic activity which did not consider environmental sustainability. On the demand side, the availability of water is influenced by population growth and economic activity that requires a variety of water as the primary and fundamental elements. Rosegrant and Hazell (2000) in Pasandaran (2005) mentions that a direct consequence of the position of water supply and demand is the availability of agricultural water crisis.

Another thing which role can not be ignored in determining the availability of water for agriculture is a problem of distribution. The agricultural sector has a very high dependency on the water. The availability of water resources with the distribution gap caused inequities in access, a great opportunity to create a conflict that potentially threaten social integration (Homer-Dixon, 1994). Strategic position of the
water causes on the distribution of water resources is closely related to the political economy of water (Bond, 2010).

Subak is one organization that is born from farmers and water management organizations which typically develops in Bali. Subak has been firmly entrenched in the local Hindu culture with systems that assist farmers in sharing water equitably. Water distribution is based on the principles of proportional, fair, and transparent with egalitarian irrigation systems (Lorenzen, 2011). This institution referenced many irrigation developments, agriculture, and even in rural economy. Technically John S. Ambler called Subak as one of the most advanced water user organizations in the world (Disbudpar, 2011). Subak is also known as an institution which has a highly proven of social resilience with age of more than a millennium and still able to maintain the social cultural values (Suradisastra et al, 2009).

The rapid urban development, expansion of the tourist areas, the growth of the industry, the development of public infrastructure, and population growth has led to the conversion of large-scale farms in all districts / cities in Bali. At the same time, a variety of people with the different knowledge and different regime entered the politics of water, fighting for access to water management and the use of water, urging the availability of water for agricultural irrigation and threatens the existence of institutional of Subak. When Subak is being threatened, it is a threat to agricultural production and sustainability of the rice farming that resulting directly on food security threat.

In addition from the irrigation agency, Subak has a variety of functions, among others, as a cultural operational institution of Balinese agriculture, and laboratory of irrigation education and environment, one of the cultural richness of Balinese tourism which becoming the main attraction, a way to inherit cultural values of farming from generation to generation, and becoming one of the most important factors determining the availability and food security (Wiguna and Surata, 2008; Pasandaran, 2006). Subak is also one of the main pillars sustaining the fame of Bali.

The rapid development of tourism in Bali accelerates the pace of land conversion, at the same time increasing the utilization of water resources. Various actors are present in Yeh Ho tried to gain access to the water, to increase the economic value of water for wider interest. The presence of stakeholders, who have variety of interests on water, is a threat to cause water scarcity for the local agricultural irrigation. This paper aims to analyze the competition of access to water resources occur in Yeh Ho, their impact on institutional irrigation of subak and agricultural crops farming, and an effort to water resources management.

2. APPROACH TO POLITICAL ECOLOGY OF WATER RESOURCES

This study uses the approach of political ecology, ecological and political collaboration and political economy that serves to reveal the aspects of socio-political to environmental management (Blaikie and Brookfield 1987). It is assumed that environmental changes are not neutral, but rather a form of politized environment that involves many figures with an interest in the economy, locally, regionally, and globally. Political dynamics surrounding material and discursive in unequal power relations is prevalent in third world countries (Bryant, 1998). Analyzing the sources, conditions, and political implications of environmental change, look at the relationship of mutual dependence (interdependence) between political units and interconnections (inter - relationship) between political units with their environment, especially with regard to the political consequences of environmental change (Bryant and Bailey 1997; Hempel 1996: 150). This study looks at the complex relationship between economic development through the analysis of access to and control of water resources and its implications for Subak institutional water management on food security and sustainability.

The study combines policy analysis and empirical data in the field by limiting the narrative aspects of the conflict of water resources due to ecological changes that lead to economic and political marginalization or endangerment of Subak institutions, also institutions that had been functioning as a social identity and the spearhead (main character) of
the provision of food in Bali. The concept of power and knowledge from Foucault (1980) and the theory access of Ribot and Peluso (2003) is used as a tool of analysis to show how the power and knowledge has the role in power of relations of water resources, and has led to the access quarrel between actors with an interest and a conflict in material and immaterial realm.

3. METHOD

The study was conducted in community of rice crop farmers and rice-based crops where water is the main source of agrarian. By taking the case in the Subak Agung Yeh Ho Tabanan, by setting two single subak intensively explored as a representation of the Great Subak Yeh Ho, which is Subak Aya III, located in the upper stream of the river and subak Aseman IV which is located downstream of the river. Data mining is done through observation, document tracking, and in-depth interviews with various stakeholders including government officials (Bappeda, Sedahan Agung, Department of Agriculture, Department of Tourism, Department of Public Works which is considered to represent the state figures, private sector, farmers of Subak, pekaseh) and figures that have relevance to the topic.

Steps of studies refers to the hypothesis that guides on differences in regimes of knowledge between actors having interests in water resources led to a difference in power and gain access to the benefits of water which causes conflict occurs. Directional hypothesis is not the truth as to be tested or verified, but guidelines that guide the course of the study.

This qualitative study is more of a descriptive-explanatory that uses critical theory to perceive reality observed a pseudo reality formed through historical processes by the process of social, economic, political, and cultural (Lincoln and Guba, 2000). Extracting data, observations, and the object is a unity of subjective and is a blend of interaction between researchers and informants. Dialectical interaction is mediated by specific values. In its methodology the research prioritize comprehensive analysis, contextual, and specific in each to each structure of social reality. Social transformation between researchers and informants aims to reconstruct reality observed through participant observation study conducted following the rules of the critical paradigm.

Qualitative data were analyzed based on the words that are arranged in the form of expanded text (Miles and Huberman, 1992). Notes contain data field observations, interviews, and the results of the participation experience interpreted based on the relationship between information and interaction that occurs. Analysis of literature, review policies at various levels, and sharpening of theory collaborated with empirical data. Note the research associated with the theory, selected, simplified, abstracted, and then proceed with the manufacture of the basic framework of the presentation of the data. Data is categorized, reduced and classified to be presented with the formulation and conclusions.

The focus of this research by studying institution of Subak irrigation, digging, and analyze interactions and social relations between actors in the rivalry of the access to water sources developed, and its impact on the subak irrigation regimes as institutions supporting food security.

4. POTENTIAL ACCESS TO WATER RESOURCES AND INJUSTICE

Tabanan is known as a rich area in quality water resources since colonial era. In 1927, the area has had water supply facilities for southern Bali tourism area. In 1932, a water service system was built from water source in Riang Gede village. Furthermore, the colonial government built tourism facilities, such as restaurant, shopping center, tourism object and road to the tourism object and phone network. In addition, they renovated Benoa port and Pabean in Singaraja and built Tuban airport.

The Dutch political ethic in building tourism in Bali was followed up by New Order Government. It was a leverage point for economic growth in the area. The natural beauty, cultural arts, religious rituals, friendliness, historical buildings and originality of Bali are the attraction for tourist. Along with the tourism development, exploitation on energy, forest, land and water resources are conducted to support and spoiled the tourists. Tabanan’s agricultural base experienced a strong pull from tourism sector. Terraced rice field, irrigation technique and agricultural rituals have attracted investors to
build lodging, water tourism facilities and drinking water refill or water bottled. The attractiveness of regional income (PAD) makes the control on policy is loosened. Various laws such as UU No. 32, 2009 on environment, UU No. 41, 2009 on the protection of sustainable food agricultural land, UU No. 7, 2004 on water resources and spatial plan is comptarmentalized and unsynergized.

In the early 1990s, government and local water company “PDAM” took over 65 percent of Gembrong water for tourism purpose in Denpasar, Badung and southern Tabanan. Furthermore, dozens of springs were shifted the function into commercial commodity traded through PDAM, village government or corporation whereas previously they were used as water supply for Yeh Ho water or utilized by farmers and local society. The policy and non-dialogue action have caused farmers in down streams areas to have insufficient water. Subak farmers as the manager, caretaker and user of Gembrong water became panic and confuse. They saw the shift as a momentum for agricultural water problem in Yeh Ho.

Water scarcity is fragmentally occurred after the shifted use of Gembrong water with capacity of 116.75/second. Subak in upstream and middle stream areas are able to apply planting pattern of rice-rice-crops with productivity of rice of 5-7 ton per ha. Subak in downstream area, however, should change their planting pattern from rice-rice-crops and rice-rice-fallow land into rice-crops-fallow land. Rice planting in the second season experienced decrease in production to 0.4-1 ton per ha. Around 2000s ha fields in downstream areas experience water scarcity during dry season. Borrowing water system and the application of nyorong system are intensified to overcome water limit. The water limit has increased conflict for water among farmers or subaks.

For the last five years, water conflict between subak farmers and PDAM and private investor is increasing. In several places, springs that supply Yeh Ho has received business license from the government even though subak society has strongly rejected it. Open conflict in Riang, Penebel, Jegu and Telaga Tanjung are arena for farmers to fight for water sovereignty. Opportunity to dialogue is shut down by economic fees gave by investors to elites in the villages and subak. Water, which was common resources, has turned into expensive economic resources. At present, Societies in Yeh Ho must pay certain money to fulfill their water consumption, either to village government, PDAM or private sectors who try to return the water to their home. Societies in downstream areas have to compete with their livestock to use the water for shower, especially during dry season and they have to buy water for consumption. The ministry of environment gives reminder that in 2015, Bali will lack of water of 27.6 billion m3/year (Suardana, 2009). JICA (2006) and WALHI in Cole (2012) estimate that if the government does not give priority to water management, Bali will have a very serious water crisis in 2025.

Post-independence, the Bali tourism did not experience significant development until the declaration of Mass Tourism by the provincial government of Bali, with strong support by the central government. Policy in the New Order is implemented consistently over time, from program to program, and from policy to policy supporting facilities for each investment, programs or activities that support the development of tourism in Bali. Infrastructure, permits investors to invest in building hotels and restaurants, tourist rides, shopping, arts and crafts markets, as well as other forms of other tourism services is facilitated. Mass tourism development policies that lead to productive agricultural land conversion is occurring rapidly throughout the district and the city. Geothermal development in Buleleng, the use of the river for water tourism in Tabanan, as well as the construction of hotels and restaurants on a rice field as in Tabanan, Ubud, shows reality which has no synergy among related laws such as the sustainable protection of agricultural land (UU no. 41 of 2009), environmental law (UU no. 32 of 2009), spatial law and even neighborhood laws (rtw) which has been compiled.

In the 1990s the take over of Gembrong springs occurred unilaterally by the Government’s Water Company (PDAM). The taken over springs located upstream of Yeh Ho is part of an effort to support the water needs of urban communities and existing hotels in Tabanan, Badung and Denpasar. Gembrong springs supplying more than 60 percent from the river water supply, Ho
river which subsequently received water from several small streams and springs, and has another function to irrigate 6000 ha of farmer's rice paddies collected in 45 single subaks, 6 Subak gde and under the coordination of the Subak Agung Yeh Ho.

Currently, 80 percent of Bali's economy depends on tourism, and tourism is highly dependent on the supply of clean water, either for the consumers' need, industrial needs, swimming pool, or other water tourism arena needs which intended to spoil the tourists. In 2012, Cole (2012) estimates that about 65 percent of water used in Bali used for the tourism sector. The water requirement for this sector applies throughout the seasons, especially in the dry season or summer which correlated with high tourist season (Eurostat, 2000, in Cole, 2012), on the other hand, simultaneously the agricultural sector also needs water essentially.

After the enactment of mass tourism policy, a massive water supply for the benefit of the tourism industry is coloring water management practices in Bali. According to Walhi Bali, in 2009 the water to the region, especially South Kuta Bali Tourism Development Center (BTDC) Nusa Dua reaches 1300-3000 m3/day. Supply is inversely proportional to the water consumption of households spent an average of only 1 m 3 / day. This means that the consumption of clean water of BTDC equals to the consumption of 1,300 households.

Population growth, industrial development and tourism led to the demand for water to increase rapidly. Rural residents, who previously get clean water freely, are now beginning to pay some amount to meet the water needs primarily. In the dry season, the people who are in the lower reaches of the river have to compete with domestic livestock in the use of a water bath. Ministry of Environment warned that the water deficit in Bali has been seen since 1995 as much as 1.5 billion m3/year. The deficit continued to increase to 7.5 billion m3/year in 2000 and expected that in 2015 Bali will have a shortage of water as much as 27.6 billion m3/year (Suardana, 2009).

The development of tourism in Tabanan district is not as fast as Badung and Denpasar, though at a rate that is smaller but increase consistently. The main base of Tabanan economy relies on agriculture. But the insistence of tourism development in both districts neighbors, creating an impact on farming water availability in Tabanan. Since 65 percent of the water from the Gembong springs are taken over by PDAM, water discharge in Yeh Ho shrinks. Subak Aya located upstream of the weir door, first after the merger Gembrong water and Gunung Sari, obtain a relatively small impact. Farmers do not get to change cropping patterns because they can produce as much as before. However, the share of agricultural water withdrawal causes 1500-2000 ha Subak farmers who are in the middle and downstream (Subak Gde Gadungan Lambuk, including Asem Subak IV) Yeh Ho experiencing water shortages, especially during the dry season. As a result, farmers who originally farming by following the cropping pattern of rice - paddy crops, rice is now tend having rice type II failure and crop failure. Water and loan system and application of nyorog intensified to anticipate the limitations of water, but the results are not significant in addressing water shortages in the dry season.

The strong role of the government in taking over the Gembrong spring utilization in order to support the non-agricultural sector in urban areas, followed by widespread access to resources of other springs around Yeh Ho can be regarded as important political decisions and also the water management sector unjust, in region, as well as community or groups. Akpabio and Ekanem (2009) mentions a system like this are common in developing countries. His research in Akwa Ibom, South-East part of Nigeria finds a high incidence of injustice and load access for the vulnerable. Exploitation of water resources by the private sector showed weakness of the government, giving rise to uncertainty of farming which is very dependent on water as well as the life of future generations.

In the last two decades, water scarcity for agricultural needs and the strong tourism attraction, leads to an increase of sales transactions of wetlands. The increase of shrinking agricultural land rent compared to non-agricultural land rent makes many farmers tempted to sell the land and carry out the transformation of business or employment. We can see clearly most cases happen, such as land grabbing and land conversion along the watershed.
area of Yeh Ho River, especially in Soka region and Beraban Beach. Constructions of villas upstream, directly adjacent to the rice fields or even directly on wetland rice fields view to utilize the attraction factor of lodging services sales. This reality resulted in a decrease in ground water level and quality of land and water, or damaged by the construction of irrigation canals and sewage from villas. Often the cause of water contamination is dangerous for people who still use the water for consumption purposes and bath. These harmful cases have hit the rivers in various countries such as Sweden (Sustain Partnership, 2011) or Ontario (Ferre yra et al, 2008).

4.1. Competition for Water Resources Access In Yeh Ho

Empirically, the development of irrigation agriculture in Tabanan faces the challenges from the pace of development in other sectors which took allotment of agricultural water availability. Progress of tourism sector attracts capital resources, human, and natural resources, including water and land on a large scale. Policies that encourage mass tourism which giving spirit to ethical colonial political ideas to build Bali as tourism center has successfully positioned Bali as one of the major tourist destinations and excitements in the world. One of the tourist attraction of Bali is the Subak traditions and Bali’s rice farming systems in Jatiluwih which has been recognized as one of the UNESCO world cultural heritage (Windia and Wiguna, 2012; Lorenzen, 2011). Using a more critical point of view, the rapid advancement and unbridled growth of tourism have pressured water and land availability, two factors that cause the threat for Subak. The extinction of Subak eventually reduces the appeal of Bali which is threatening the tourism sector and in the long run lead to the destruction of the ecological and economic condition of Bali.

Politically, competitive access to water resources can be traced from the Dublin Conference in Ireland in 1992 which discusses the water crisis as a result of environmental damage. This meeting is a new milestone in the field of water. Discourse changing views of the water content is legalized in one declaration states that "water has an economic value in all its competing uses and should be recognized as an economic good". This declaration stimulates international institutions and bilateral development agencies such as the World Bank and USAID policy realignment and encourages private sector participation (IFI, 2003, in KRuHA, 2011). Power struggles between the experts of the global water level, is a battle arena that gave birth to the idea of political and ideological discourse (Foucault, 1980). Water as an economic discourse into a tactical element operates in the arena of power relations between states or actors that have the knowledge, capital, and technology (developed country) with states or actors that have a raw material or resource (development country). The national and regional power struggle on knowledge of water as an economic good, producing power in the form of laws and policies that subsequently became a multipurpose card that is valid in the decisions relating to the management of water as an economic commodity. This occurs in the process of the birth of constitutinal law (UU) No. 7 of 2004 on Water Resources. Government in implementing policies often do not articulate formal law with the local laws so that the national interest is promoted by formal law neglecting local interests promoted by local law (Saptono , 2006). Water becomes economically valuable goods that can be accessed and used by those who are oriented to formal law and have a balanced economic exchange. Global level of this battle of ideas had a significant impact at the local level. Subak case in Tabanan indicated the strong corporate and the reduced availability of water for agriculture.

Since the law of UU No.7 of 2004 about Water Resources which opened the room for many parties to run and use water sources is fully enforced in Tabanan, this law product strengthen the mission of building mass tourism as well as to invite investors to participate in planting their money in Tabanan. Water springs, hilly areas, and terraced rice paddies, cool air, and the agricultural culture and the significant Subak has become an strong appealing factor. The local governments, who have the control to the access of natural resources on their territory, are trapped in the condition to increase their area’s income higher by using their natural resources (PAD). This is done by using their natural resources, through knowledge, capital, and technology of the corporations. After the case of “Gembrong”, in the year of 2010 there was the company of PT
The government effort to solve water deficit since the “Gembrong case” is done by building a dam of Telaga Tunjung in the middle area of Yeh Ho. The dam which has the size of 17 ha operated in the early 2006, this dam doesn’t give too much solution for the farming located on the river bank since the dam which has to be shared with PDAM in the capacity of 20 liters per second. During the drought almost all the rice paddies in the downstream are left unused since there was no water left for farming. Previously, some parts still can be planted by corps, eventhough it does not have optimum result. The dam can only fulfill the need of water from Subak Gde Melliling (the middle area of Yeh Ho) and the need of PDAM which has steady result all year.

The reality on the field is showing several springs in Aya (riverbank), Jegu (middle), and Timpag (middle) which becoming the supplier of Yeh Ho river in the process of licencing to be used by the investors. The access of Yeh Ho water by many actors and with different ways and purposes actually has the similar ideology about water. The resource is used in the purpose of water marketing. The access and the use of resource from farmers and agriculture field toward corporations from tourism industry and city community is considered beneficial for the government in the tax factor, local income, and economic growth compared to if the access is used for subak and farming.

The thinking of global actors in the ecological politics of water has economical and political needs. Knowledge, technology, financial strength, and information about the benefit and profits which can be gained from water resources, is becoming the capital to gain access. The elements mentioned are the basic capital and the great tool to build power networking (Ribot and Peluso, 2003). The decision in global levels has direct impact on regional level and affecting the access and control of water on local level.

The country has responded the politics of lending from financial institutions and the agents of international development (WB, IMF, USID, and ADB) as a chance. The political offer is giving many rules as a way to teach the students to become more independent, efficient, and economical. The countries in an estafet way create the view and capitalist ideology of the foundation, nationally or locally. The example is the Urban Water Supply Sector Policy Framework (UWSPF) who changed PDAM as an autonomical service industry, Financial Recovery Action Plan (FRAP) which make the PDAM to reduce operational cost and do not give devidents to local government (Kruha, 2011). This policy encourage PDAM to develop their business by spreading network and increasing water sources to increase the business scale of drinking water sales, as a consequence, the subak farmers becoming the part who are victimized through their lack of knowledge and due to political power of other parties. The technical knowledge of water saving, the tactical ways to deal with water limitations, the system of farming in limited areas and other things is being introduced by the country to farmers. The government is directing farmers to adapt and accept the available situations without trying to understand the knowledge, attitude, psychological sides, and farming ideology of the farming which already formed from such a long history.

When farmers face water shortage, the irrigation sector policy in the form of turnover management, irrigation service fee, and efficient operational maintenance, charged irrigation water use to the water user instead. Policy action in the form of establishment of farmer water user associations (P3A) using a top down approach to a lot of obstacles in their operations. Law legal products of UU No. 7 of 2004 on Water Resources and PP No. 20 of 2006 on Irrigation synergizing in pressing Subak farmers' access to water, both in terms of availability and utilization of the load.
4.2. Marginalization of Subak

The water availability for farming, which becomes more and more limited especially during dry season, is a threat for Subak. The pressure of space limitation which has goes on and on is also a threat of the basic characterization of Subak. Subak was born based on the need of water. The local government is trying to get high and fast local income (PAD) by making the licensing for investors to exploit water resources. Based on economical laws with calculations which does not calculate the sustainability of environment and economical lives and social lives of farming community as a big group of the society of Tabanan, it causes threat of Subak as well. The politics which involving and discriminating in the implementation of laws and policies related to natural resources, has caused injustice in water use for farmers and the adaptations in farming culture. This condition is very different compared to the experience of China in developing their villages. They build their farming by optimizing the access of farmers toward spaces and water sources (Jamal, 2008). In Bali the implementation of a law is often overlapping or ignoring other laws which contain discrimination toward actors and ideology which believed. The example of this case is, the fact that the government pushes mass tourism by ignoring the laws of UU No. 41 year 2009 about the Sustainable Protection of Agricultural Food Farming, UU No. 32 year 2009 about the Protection and Management of Environment, the design of space management (zoning) which is already implemented.

Tabanan is a district based on agriculture with rice paddies as big as 27.44 percent from the whole Balinese rice fields (BPS, 2012). The river areas of Yeh Ho are the basic location for staple food of Tabanan which giving water to five from 10 sub districts. This location is a central of rice production which supports food self-supporting (swasembada) during the New Order era as well as the food sustainability today. The take over of 65 percent in Gembrong which has water amount of 117, 65 litres per second, causes the lack of water in the middle and end area of Yeh Ho, especially during dry season. This condition causing various reactions and adaptations of farmers in producing the corps such as changes in farming pattern, schedule of planting, commodities planted and so on. This also increases water borrowing levels between Subaks, as well a increasing panting in turns system. Thousand hectares of land which already own its irrigation in Subak Gde Gadungan Lambuk are suffering water deficit so that they operate as water bank. The farmland can only be planted during rainy seasons. The rice which was planted during second season mostly getting the failure to be cropped. During third seasons, the farmlands which previously planted with corps are now left unplanted.

Based on the knowledge, experience, and the trust of Balinese farmers, the water limitation is the form of government injustice toward their people. Subak farmers claiming their rights to access the water which they already manage, used and kept for generations, one way to decide access according to Pasandaran et al (2010), however the right is given to other parties through the power of central government, and the risks are taken by the farmers.

Theoretically, the restructuring of water sources and water privatization is another form of taking care of the water scarcity by calculating the cost of water with value of water toward its environment rationally. However, the added value of PDAM and corporations doesn’t have positive correlations toward the sustainable maintainance since the almost none profits coming from industry was allocated to pay for environmental services. Water sources, water pipes or line, forest which preserve water, even the outskirts and river bodies are preserved voluntarily by subak farmers through working hand in hand, and also through religious rituals which believed to keep the nature from causing disaster. The access given by the government toward corporations has the functions to surpress the access and marginalized Subak. Agressivity of business owners with their capital and relations has forced the costs up, and the user of water resources were enjoyed by other actors unfairly. This reality is in the same pace as the research of Bryant and Bailey (1997) about the ecological politics in developing countries in general.

The marginalization of subak as a watering organization has occurred systematically since the New Order Era, where the country is trying to approach many programs which considered as empowering. The support towards watering in
form of the development of infrastructure and irrigations to water about five million ha of rice fields (period of 1968-1993) using the investments of US$ 10 billion and 70 percent of it came from loans from other countries (KRUHA, 2011). The development contains neo liberalism principals which has its connections with the country donors’ economical politics. So many requirements which are quite strict causing consequences toward subak farmers community such as: (1) In the point of view of production techniques, Subak has successfully selecting, and adapting the green revolution technology which has been introduced by the government to increase productivity of rice from 3-4 ton each hectare ha to become 6-7 ton each hectare. The capacity of foundation can absorp interventions and recovering from outer disturbance without changing function control, either its structure. The knowledge of traditional watering, knowledge on work ethics, and the production goal is still the same (2). The interaction with the ruling regime and the capitalist ideology is affecting the room to explore, lifestyle, and the farmers technology, this will also systematically change, divert, even supress the independency of Subak; (3) Target of autonomization of food and the political economy of growth has burden the pekaseh with extra tasks outside the watering territories (4) The involvment of pekaseh with various missions of aids and government management trough agents of development, and the payment of pekaseh has change the pekaseh’s roles into a government interpreter who are less neutral; (5) The thick policy establishment with the mission of donor countries as the consequence of the dependency from lending politics such as the jointly managed irrigation system, has add the Subak’s burden, and on the contrary also making it’s power lessen.

There are three aspects which cause the weakening of Subak system are production, religion, and leadership. (i) Production aspect. The water limitations cause subak farmers unable to produce optimally either from productivity sides as well from farming index. This factor causes farmers to look for extra alternative for their income by doing business and working in a non agricultural field which lessen the frequency of interaction in Subak; (2) Religion aspect. The more Subak temples are not maintained since the cost of rituals are getting higher and the maintenance of subak which is getting more and more difficult from the income coming from farming, this condition is getting worse by the the less number of farmers who help paying for the ritual costs in a Subak since some of them turn to business and jobs, they sold their land or they change the land’s function to other use from farming; (3) Leadership aspect. The fading function of pekaseh in slowing down the sales and the change of farming land function, this includes land which have water to supply the Yeh Ho stream. The moving of tax revocation duty from pekaseh to the village officer, the shifting of pekaseh’s incentives from the provision of production land to monthly salary from the government, increasing of the pekaseh’s tasks as messenger, and giving the aids from the government are the factors which support the weakening of pekaseh’s leadership.

The next picture in the future shows sketching grim of food agriculture in Bali. This happens as a consequence of the weakening function of water control system, Subak, and also because the gloomy prospects of Subak farmers’ access to water. Political tourism-based on development creates a big change for Subak not only in agriculture, and food availability, but also it pushes agricultural land which becomes Subak spatial region. It also suppress farmers’ access to water. The low agricultural land rent, the high land taxes, agricultural water scarcity, and low incentives for farmers are the threat factors of life and survival of Subak.

5. CONCLUSION

Competition access to water resources in the region of Yeh Ho occurs between actors who are interested in the well water for agriculture (subak farmers) and those who to support the development of political mass tourism (PDAM, businessmen of bottled or packaged water, water refills business, hotels and restaurants, other tourist facilities). Competition strengthened because it has interrelations with environmental politics and economy politics of global level involving international financial institutions and bilateral development agencies such as the World Bank, USAID, and the IMF. Politics in the state loan and grant access injustice has led to the agricultural sector and Subak farmers marginalized economically, socially, and
culturally, and are vulnerable to food security in Bali. Political government quickly fixed the economy and society systematically. It weakened agricultural sector, creating dependency, and downgrades the power of farmers over natural resources. Subak high resilience no longer serves to maintain the resilience of economic, social, and cultural, it is simply a step to slow destruction. The state of political will and policy decisions, give an ample scope for agricultural and environmental sustainability. This step has a dual effect in maintaining and strengthening the culture of Subak and as a way to strengthen of the tourism sector which becoming economical mainstay in Bali.

The continuum of positions of water from resources which are owned together (common pool resources) changed into economic resources, occurs not only influenced by the supply and demand of water that occurs naturally, but also the power of knowledge through the political actors of the global capitalist economy, and ecology of natural resources. The change of power dominance of the ruling of water sources to the business owners caused Subak existence is threatened.

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