Journal of Economics and Sustainable Development
ISSN 2222-1700 (Paper) ISSN 2222-2855 (Online)
Vol.5, No.12, 2014

The Institutional Coordination of Brantas Watershed Management

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Abstract

This research aims to figure out how the Institutional Coordination of Brantas Watershed Management is done. By using descriptive analysis method, the research shows that the Institutional Coordination of Brantas Watershed Management consists of operator, developer, regulator, and user. Those four institutional elements are coordinated together in Tim Koordinasi Pengelolaan Sumber Daya Air (TKPSDA) Brantas (The Coordination Team of the Management of Brantas Water Resource). TKPSDA Brantas has an authority in discussing proposed water allocation plans from each water resource in the area of Brantas River and deciding those allocation plans named Pola Operasi Waduk and Alokasi Air/ POWAA (The Pattern of Dam Operation and Water Allocation). Since POWAA is a guideline of water arrangement for dam operation and water allocation on each withdrawal gate in Brantas River in order to fulfill any necessities agreed by water users and water suppliers such as irrigation, industry, raw material of mineral water, and power generator, POWAA becomes the important output of the coordination in order to achieve Integrated Water Resource Management (IWRM).

Keywords: coordination, institutional, and Brantas Watershed Management

1. Introduction

Nowadays, planning and management of water resource based on Watershed Management are highly concerned especially to develop productivity in agriculture sector (Kurian, 2004). In natural resource management, an exploitation of Watershed Management has a strategic position. It is considered as a real effort to achieve sustainable national development. According to Kerr (2007), watershed development is an important part in developing rural area and managing natural resource in many countries. Yet, Watershed Management is not easy to be applied since it faces some problems and challenges both technically and non-technically. The number of serious watersheds in Indonesia, therefore, increases from time to time. Nugroho (2003) states that there were 22 watersheds that were damaged seriously and super seriously in 1984. Next, in 1992, the number of damaged watersheds increased. There were 29 watersheds. In 1994, meanwhile, there were 39 watersheds. It became 42 damaged watersheds in 1998, 58 watersheds in 2000, and 60 watersheds in 2002. All of watersheds were in serious and very serious conditions. Lately, it is even predicted that 13% of 458 watersheds in Indonesia are in a serious condition. In addition, the number of environment damages is increasing. There are flood, landslide, and drought caused by the bad watershed management in Indonesia. As an ecosystem, the decrease of watershed function is the main factor in causing natural disasters related water. For further analysis, it can be seen that they are not only problems in physically aspect such as erosion, sediment, etc. but also problems in non-physically aspect such as social, economic, law, and institutional aspects faced in managing watershed. Based on Nugroho (2003: 139), the main problem in managing watershed in Indonesia is that difficulty in combining the importance of each sector and institution participating in managing watershed affected by the various functions of watershed utilization. In doing their duty, each institution uses their own approach, method, or term based on their own importance so that they more concern their own ego and importance and have duplicated activities and programs that could be understood by other sectors. In Indonesia, most of water resource conflicts are caused by excessive exploitation done by a certain sector. That the implementation of regional autonomy also contributes in solving natural disasters especially concerning the management of watershed is undeniable. Act No. 32 of 2004 and Government Regulation No. 25 of 2000 related to authority in managing natural resource including natural resource in watershed for provinces, regencies, or cities lead each area more concern their own ego in managing their natural resource which can bring negative effect towards natural resource maintenance, especially forest resource. Earlier, the management of forest resource was applied based on forest administration with watershed as foundation in managing forest management, but, nowadays, forest management's foundation is shared on authority of the Government, provinces, regencies, and cities. Therefore, forest management is done

fragmentally and each regency/ city has their own policy in managing forest that can lead their own ego so that it prevents integration of watershed management. Those phenomena, furthermore, make some people pessimist and skeptic towards the implementation of regional autonomy.

2. Integrated Water Resource Management

Integrated Water Resource Management (IWRM) is simply defined as a coordinated process done to control the development and utilization of water resources like river, lake, sea, etc. That concept is a response towards the pattern of water resource management that tends to be applied fragmentally so that it brings some problems mentioned above. In order to support the sustainable development, IWRM needs coordination between parties and other resources as well as it is stated in the following statement.

> "The Integrated Water Resource Management is a process that more concerns development and management of other related resources coordinately in order to maximize equitably resultant of economy and social welfare without sacrificing sustainability of vital ecosystem." (Helmi, 2003)

Besides, based on Cap-Net (2006), the integrated water resource management needs allocation and supervision of water implementation in contexts of social, economic, and environment objectives. It is also in line with Act No. 7 of 2004 concerning Water Resource and stating that water function domains consist of 3 parts; social function, living environment function, and economic function. Water resource management should be applied in harmony and balance towards the 3 function domains. The main objective of the implementation of IWRM concept is to apply irrigation system by using holistic manner. IWRM was firstly applied to solve some problems occurring in watershed. Those problems happened because there was no coordination in using water properly and there was increase in phenomena of scarcity of water resource faced by some countries throughout the world. Considering its main objective, IWRM should be a process of empowerment for those who have no access towards either management or utilization of water resource. By having the access, they have a bigger influence towards water resource management and even other vital natural resources in supporting their lives. Thus, IWRM needs to be applied corporately in an integrated unity that cannot be separated with a master plan of One River, One Plan, One Integrated in order to optimize the water functions (social, living environment, and economic functions). IWRM consists of all water utilizations and activities related to water utilization without considering political, administrative, economic, or any functional limits (Pribadi, 2007). Global Water Partnership Committee (2005) states that change area and IWRM concept implementation consist of 3 parts that are enabling environment, institutional roles, and management instruments. There are 3 components promoting in realizing supporting environment that are policy, legislative framework, and structure of funding and incentive in the first part. The 3 elements in the first part work together to promote to realize supporting environment. Meanwhile, the second part, institutional roles, is formed by 2 elements having a big role and a big influence for the second part. The 2 elements are the creation of organizational frame work and the development of institutional capacity. The last part is different from the 2 other parts. The third part contains some elements like assessment towards water resource, plans concerning IWRM, demand management, social change instrument, conflict solving, regulation instruments, economic instruments, information management and exchange. Regarding Indonesian commitment towards the implementation of the integrated water resource management, Sugiyanto (2010) explains that the fundamental implementation of IWRM is law regulations concerning water resource stating that the vision, mission, and principles of water resource management in Indonesia is a foundation to the implementation of IWRM. The vision of water resource management is "Water resource is managed comprehensively and integrally by using environment concept in order to obtain the utility of water resource that is sustainable for the optimal welfare of society. Furthermore, water resource is managed comprehensively and integrally by using environment concept in order to obtain the utility of water resource that is sustainable for the optimal welfare of society, data improvement, and information availability, and transparency. In order to achieve the mission, water resource is managed in some principles of harmony, equality, society welfare, integration and agreement, justice, autonomy, transparency, and accountability. Some points that can be a concept related to the importance of integration in managing watershed are:

First, since water is a common pool resource having characteristics that it cannot be applied non-excludable principle and it is rivalrous in its usage, it needs a mechanism which is able to either manage or utilize water resource. Without a good arrangement of the management and utilization of water resource, there is no guarantee of good water both in the present time and in the future as it is explained in the tragedy of the commons. Opposition between the maximum of short-term individual satisfaction and the maximum of long-term individual satisfaction leads the tragedy. Moreover, water urgency and vitality important for human's life tend to lead the increase of water demand. If there is no a good mechanism of arrangement, the increase of water demand can lead a conflict between users of water, whereas the availability of water is decreasing.

Second, as it is mentioned above that water resource is one of natural resources flowing, dynamic, interacting with other resources so that a system is formed, water resource management affects other resources. It, therefore, needs an integrated management guideline between institutionals and between areas in order to obtain the optimal utility of water resource management for society. The integrated management guideline is in the form of the pattern of integrated water resource management. The management should be done through coordination by integrating the importance of any sectors, areas, and parties having importance in the field of water resource, field resource, and other resources. Since there are other resources participating in the water resource management based on watershed, it needs a strong mechanism of coordination especially in arranging the pattern and plan of water resource management. Considering that concept, an analysis concerning the procedure of the Institutional Coordination of Brantas Watershed Management is needed. Furthermore, the urgency of Brantas River in supporting any economy strategic sectors and the width of administrative area flowed by Brantas River become main argument in analyzing the Management of Brantas Watershed.

3. Institution of Brantas Watershed Management

Institutional elements in managing Brantas Watershed consist of regulator, developer, operator, user, and coordination forum. Each institutional element has its own main task and function that have been regulated clearly. It is important to regulate the main task, function, and authority in managing water resource since the management of water resource (in term of watershed) is cross sector and cross administrative area. By confirming the main task and function of each stakeholder, conflict of interest in utilizing water resource can be reduced. An image below shows the relation of 5 institutional elements.

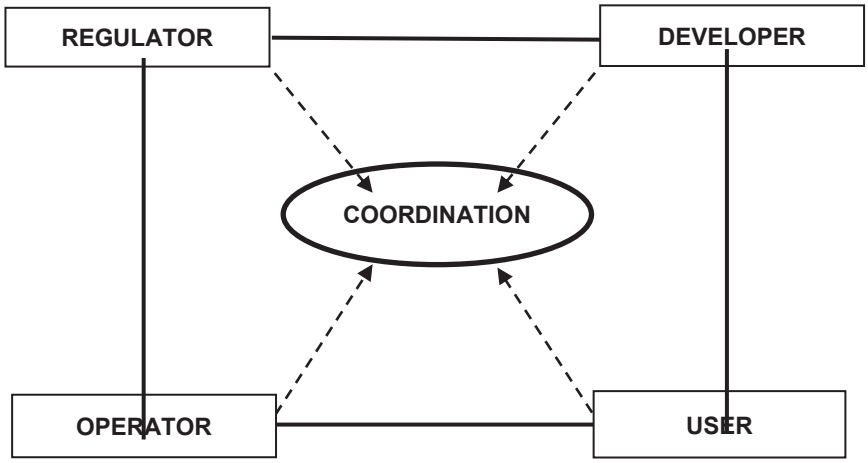

Image 1. The Institutional Elements of Brantas Watershed Management

Following is the description of main task and function owned by each institutional element in managing Brantas Watershed.

3.1 Regulator (The Government)

The first institutional element is regulator (The Government). Regulator is an institution having an authority to regulate policy including decision-making done by government official such as governor, regent/ mayor, and heads of related office/ board that are its sub-ordinate. In managing Brantas Watershed, the element of regulator consists of legislation and executive, both the Central and Local Government. The Central Government participates in managing Brantas Watershed because Brantas River is a national strategic river. Based on Regulation of the Minister of Public Works No. 11A/PRT/M/2006 concerning determination of watershed, Brantas River is regulated as a national strategic river. Therefore, the Central Government has a complete authority in managing water resource in Brantas Watershed. Moreover, the authority arrangement of the Central and Local Government is regulated in Act No. 7 of 2004 concerning Water Resource, and it shows in the following table.

Table 1. Authority Arrangement towards Watershed Status

The Central Government	The Province Government	The Regency/ City Government
Water resource management in watershed of cross province, watershed of cross country, and watershed of national strategic.	Water resource management in water resource in watershed of cross regency/ city	Water resource in watershed in Regency/ City.

Source: Act No 7/2004 concerning Water Resource

The determination of national strategic watershed which is the authority of the Central Government is done based on some criterion as follows: (a). the potential of water resource in watershed, (b). the number of sectors and inhabitants, (c). the big social, environment, and economic impacts towards national development, (d). the big negative impacts caused by water damaging potential towards economic growth. In addition, there are at least 16 sectors related to water resource in the watershed, and there are at least 30% of province inhabitants living in the watershed. Brantas Watershed, in fact, has a big role in supporting economy of East Java Province for it is a national food barn.

3.2 Operator

Operator is the second institutional element. It is an institution established to run daily operation or management, water resource, and infrastructure in a certain watershed. Operator can be in the form of Balai Pengelolaan Sumber Daya Air/ BPSDA (Water Resource Management Office) or other corporations. Generally, the institution is established to run the regulator's decision concerning water resource service for society. For Brantas Watershed, the operator is Perusahaan Umum (Perum) Jasa Tirta I. It is one of State-Owned Enterprises given task and authority to conduct exploitation and maintenance of irrigation infrastructure, exploitation of water and water resource, and other activities related to water. The business characteristics of Perum Jasa Tirta I are providing some services for public benefit and collecting benefit based on enterprise management principles. The establishment of Perum Jasa Tirta I is to conduct public benefit of water and water resources that are qualified and sufficient to fulfill society's needs and to conduct certain tasks given by the Government in managing watershed consisting of protection, development, and use of river and/ or water resources including information giving, recommendation, counseling, and guidance. In short, the main tasks of Perum Jasa Tirta I are conducting operation and maintenance of irrigation infrastructure, exploitation of water and water resource, management of watershed containing protection, development, and use of water and water resources, and rehabilitation of irrigation infrastructure.

3.3 Developer

The third institutional element, developer, is an institution having a function in conducting the development of infrastructure and facility of irrigation either from governmental elements such as Badan Pelaksana Proyek (Project Executive Body), BUMN (State-Owned Enterprise), and BUMD (Regional-Owned Enterprise) or from non-governmental institutions such as investor. The developer is needed when water demand or need is unbalanced with ability of water supply. For example, dam building, flooding control infrastructure building, or irrigation network. For Brantas Watershed, the developer is Balai Besar Wilayah Sungai (BBWS) Brantas (Watershed Big Office of Brantas). BBWS conducts some functions such as conducting technical recommendation preparation in giving license of supply, allotment, use, and exploitation of water resource in watershed. Actually, the function of BBWS is similar to the function of Perum Jasa Tirta I that is the operator of Brantas Watershed. Therefore, it needs confirmation and arrangement concerning authority of each institution in order to prevent overlap in conducting their authority.

3.4 User

Next, the fourth institutional element is user including all society both individual and group obtaining direct or indirect utilities from water resource service. As it is explained above, there are some various water utilizations along Brantas River such as for rice field irrigation, basic water of PDAM, basic water of industry, and water supply for electricity need. Sanim (2011: 117) says that water resource user is divided into two that are users needing water resource as public goods (agriculture sector) and users needing water resource as economic goods (non-agriculture and urban sectors). In Brantas Watershed, there are two terms named commercial utilization and non-commercial utilization. Commercial utilization uses watershed to support its business activities either as raw material of production or as its business media with a compulsory requirement stating that it gets a license of water resource exploitation from the Government/ Local Government based on its authority. Meanwhile, non-

commercial utilization consists of social utilization in order to fulfill daily basic needs for individual and for society agriculture, and it does not need a license from the Government/ Local Government (Act No. 7/2004 article 8 clause 1) and public utilization getting utilization from the result of flood and water pollution control. All in all, the explanation before is displayed in the following table.

Table 2. Distribution of Portion and Application of Principle for Funding

	Social Utilization	**Semi-commercial Utilization**	**Commercial Utilization**
Specific Utilization: 1. Law Body, Social Body, Individual 2. Licensed 3. Bound with an agreement of service	The Government's obligation E.g.: house of worship and hospital	Paying utilization + The Government's obligation E.g.: farmer and traditional fisherman of embankment	Paying utilization E.g.: PLN, PDAM, and industry (including plantation)
Non-specific/ public utilization 1. Common people 2. No license 3. Not able to be bound with an agreement of service		The Government's obligation E.g.: flood control, management of rain-capture area, river environment control, etc.	

Source: Perum Jasa Tirta I, 2004

3.5 Coordination Forum

The last intuitional element is coordination forum which is the merger of the other four institutional elements (regulator, operator, developer and user). Coordination forum has functions to accept, absorb, and distribute aspirations and complaints from stakeholders. The forum is a representation having tasks in transferring opinions to the regulator and preparing solutions and recommendations of problem solving concerning water resource. In addition, the forum must be able to provide and give information as wide as it can to those who need it. Based on Act No. 7 of 2004 concerning Water Resource, in applying water resource management, society has a right to get information related to water resource management. Society, moreover, has the same opportunity in participating in the process of planning, conducting, and monitoring of water resource management. Regulation of the Minister of Public Works No.04/PRT/M/2008 concerning The Establishment Guideline of Coordination Forum of Water Resource Management in the Level of Province, Regency/ City, and Watershed regulates the establishment of coordination forum of water resource management in the level of province, regency/ city, and watershed. There are 4 levels of coordination forum in managing watershed that are national, province, city/ regency including watershed as known as Tim Koordinasi Pengelolaan Sumber Daya Air/ TKPSDA (The Coordination Team of the Management of Water Resource). The relation of those coordination forums is consultative and coordinative so that it is expected that they can integrate each other. In short, the coordination forum can be seen in the following scheme.

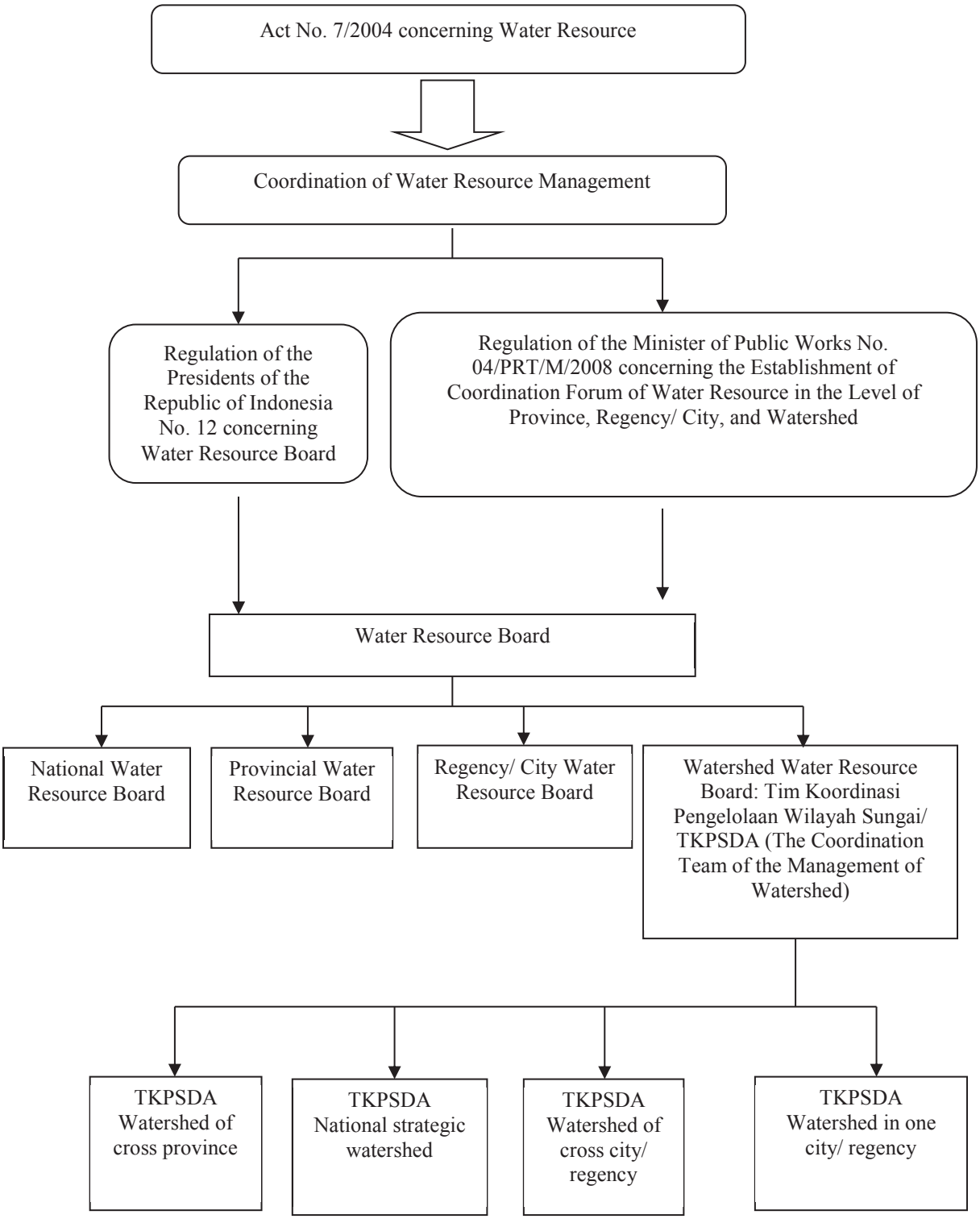

Image 2 Coordination Forum in Managing Water Resource
Source: digested from some sources (2013)

4. Institutional Coordination Through TKPSDA Brantas

The establishment of coordination forum of water resource management in the level of province has been regulated in Regulation of the Minister of Public Works No.04/PRT/M2008 concerning The Establishment

Guideline of Coordination Forum of Water Resource Management in the Level of Province, Regency/ City, and Watershed. Decree Letter of the Minister of Public Works No.248/KPTS/M2009 concerning The Establishment of the Coordination Team of Water Resource of Brantas Watershed is legalized by the Minister of Public Works to regulate water resource management in the watershed of Brantas River, East Java. On other words, the Decree Letter legalized by the Minister of Public Works establishes Tim Koordinasi Pengelolaan Sumber Daya Air Wilayah Sungai Brantas/ TKPSDA-WS Brantas (The Coordination Team of Water Resource of Brantas Watershed) helping the Minister in conducting the water resource management in Brantas Watershed. the functions of TKPSDA are:

a. Consulting with related parties TKPSDA needs to obtain the integration of water resource management in Brantas Watershed and to obtain the same view between sectors, between areas, and between stakeholders.
b. Integrating and coordinating importance between sectors, between areas, and between stakeholders in managing water resource in Brantas Watershed.
c. Monitoring and evaluating program implementation and activity plan of water resource management in Brantas Watershed.

The session of TKPSDA-WS Brantas is conducted regularly with session intensity of four times a year containing plenary session (four times a year), emergency session (twice a year), commission session (optional), and work visit (optional). A flow chart showing the process of the session of TKPSDA Brantas is:

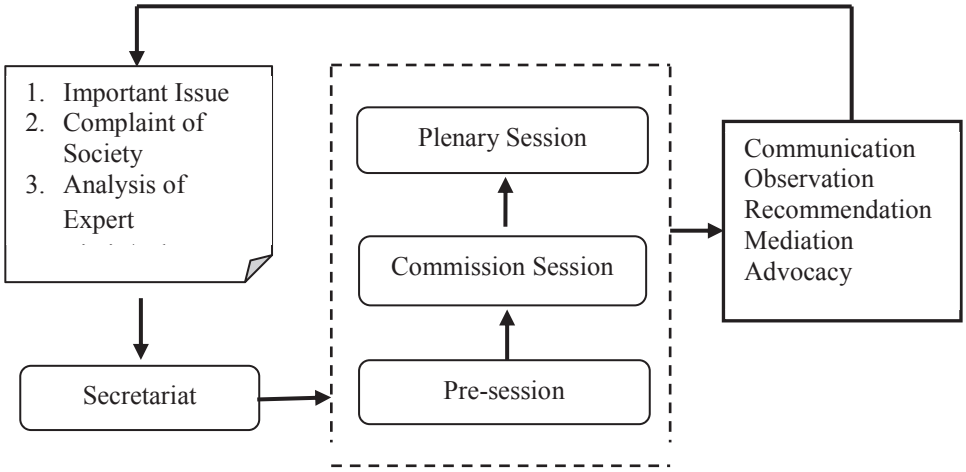

Image 2 The Process of TKPSDA Brantas Session

Source: Presentation Material

Note:

1. Pre-session of TKPSDA is a secretariat's activity in order to collect new aspirations/ issues by brain storming and inviting informants
2. Secretariat prepares and provides the materials/ agenda of the session

First, the process of TKPSDA Brantas session begins with collection of aspirations or current issues related to water resource from society's complaints or expert's analysis. The issues contain environment issues, economic social issues, and institutional issues. Secretariat is the one that conducts and provides the collection of aspirations. The secretariat is a technical organizer conducting the tasks and functions of TKSPDA Brantas. After the aspirations are collected systematically, it is the time for pre-session in which the collected aspirations become the input of the session. Next is commission session consisting of commission of conservation and environment, commission of empowerment, commission of water damage capacity control, commission of water resource information system, and commission of institution. In naming all commissions, it is based on five important aspects of water resource as it is mention by Act No. 7 of 2004 concerning Water Resource. By conducting commission session, each commission can discuss specific aspirations or issues based on their field. Fourth, it is conducted plenary session. Plenary session is the last session discussing the result of commission

session done before. Then the result of plenary session will be the recommendation of TKPSDA Brantas which is reported to the Minister of Public Works afterwards. The summary of the recommendation of session result that has been conducted by TKPSDA Brantas from 2009 until 2012 is:

Recommendation Table of Session Result of TKPSDA Brantas 2009-2012

Recommendation of Session Result of TKPSDA Brantas 2009
− The Pattern of Dam Operation and Water Allocation of Brantas Watershed in Dry Season 2009 − The Pattern of Dam Operation and Water Allocation of Brantas Watershed in Rainy Season 2009/ 2010
Recommendation of Session Result of TKPSDA Brantas 2010
− The Pattern of Dam Operation and Water Allocation of Brantas Watershed in Dry Season 2010 − The Pattern of Dam Operation and Water Allocation of Brantas Watershed in Rainy Season 2010/2011 − The Closing Down of Illegal Sand Exploitation in Brantas River and The Shift of Illegal Sand Exploitation in the Lava Pouch of Kelud Mountain − The Change of TKPSDA WS Brantas Logogram
Recommendation of Session Result of TKPSDA Brantas 2011
− The Pattern of Dam Operation and Water Allocation of Brantas Watershed in Dry Season 2011 − The Pattern of Dam Operation and Water Allocation of Brantas Watershed in Rainy Season 2011/2012
Recommendation of Session Result of TKPSDA Brantas 2012
− The Pattern of Dam Operation and Water Allocation of Brantas Watershed in Dry Season 2012 − The Pattern Review of Dam Operation and Water Allocation of Brantas Watershed in Dry Season 2012 − The Pattern of Dam Operation and Water Allocation of Brantas Watershed in Rainy Season 2012/2013 − The Implementation of SIH3 − The Revision of the Regulation of the Minister of Public Works 04/PRT/M/2009 Concerning the Guideline of TKPSDA WS Establishment

Source: TKPSDA Brantas (2013)

Considering the table above, there is always The Pattern of Dam Operation and Water Allocation (Pola Operasi Waduk dan Alokasi Air/ POWAA) in the agenda of the session. It is based on one of authorities owned by YKPSDA Brantas that is discussing proposed allocation plan from each water resource in Brantas Watershed in order to arrange consideration material in deciding water allocation plan. Besides discussing POWAA, discussing activities in conserving the environment of Brantas Watershed is included in the agenda of the session done by TKPSDA Brantas. The activities are conducted optimally by the assistance of each commission in TKSPDA Brantas. Furthermore, the membership of TKPSDA is a point needed to be considered besides the result of the session and the activities. Based on Act No. 7/2004 concerning Water Resource, the membership of coordination forum consists of governmental element and non-governmental element. Both the governmental element and the non-governmental one have the same number of members based on the basic principle of representation. The principle of representation is that representing the importance of the related elements such as sectors, areas, stakeholders, and water resource entrepreneurs. Meanwhile, experts, association of professions, and communal organization are considered as informants.

5. Conclusion

The biggest challenge in managing watershed is that the difficulty in coordinating importance between sectors and between areas since each sector/ area tends to more concern their own ego that leads conflicts of importance in managing water resource. Therefore, institutional coordination is the basic thing in managing watershed. The Institutional Coordination of Brantas Watershed Management is conducted through a coordination forum as kwon as Tim Koordinasi Pengelolaan Sumber Daya Air/ TKPSDA (The Coordination Team of the Management of Brantas Water Resource). That formal institution has tasks in reporting suggestions to the regulator and preparing resolutions and recommendations of problem solving related water resource. The composition of membership is based on the principle of representation in which the number of governmental element members is equal to the number of non-governmental element members. Any important decision is obtained in that coordination mechanism such as Pola Operasi Waduk dan Alokasi Air/ POWAA (The Pattern of Dam Operation and Water Allocation) that is the guideline of water arrangement to operate dam in Brantas River in order to fulfill some necessities like irrigation, industry, raw material of mineral water, and power generator. POWAA is an important part in managing Brantas Watershed because proper allocation management is one of efforts to solve the conflicts of importance in managing water source. In addition, the institutional coordination is one of

efforts to prevent the overlap of authority between an institution and another institution since the watershed management is generally involved some institutions or offices.

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