

# The Community and Beneficiaries' Participation in Comprehensive Water Resource Management

—A Case of the Brantas River Basin's Comprehensive Water Resource Management in Indonesia—

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## **Abstract:**

This study analyzes the community and beneficiaries' participation approaches in comprehensive water resource management in the Brantas river basin in Indonesia. The Brantas river basin is the second largest river in Java Island. The Brantas river basin was began in 1961 and a series of Master Plan had been formulated by Japan, World Bank and other international development agencies to overcome the problems in the basin. In Indonesia, about 80 to 90 percent of water is used for irrigation purposes. Irrigation is the single largest use of water in the Brantas river basin, because this sector consumes approximately 84 percent of all available water in the basin. 'In Indonesia, the problems after the project had been completed were a lack of institutions responsible for managing the structures, lack of qualified staff and lack of budget to manage the structures. Budget allocation from the government was very limited and less than the standard requirement, causing a decrease of function of the structures.'<sup>1</sup> The government usually follows the 'top-down' administrative approach in development programs and its natural resources management systems. The view of community and beneficiaries' participation is still narrow within development programs. In recent days, the government of Indonesia has been putting emphasis on equity through wider participation in the government's development programs for reducing poverty. NGOs (Non-Governmental Organizations) are encouraged to participate in development activities. There are many organizations in the Brantas river basin which work together with beneficiaries' participation to improve the socioeconomic condition of the people.

**Keywords: Community and Beneficiaries Participation, Water Resources Management**

## **1. Definition of Community and Beneficiaries' Participation**

Community and beneficiaries' participation in the management system means beneficiaries' involvement in the process of management activities which includes decision-making, implementation, monitoring, evaluation and management of the programs. The participation of the beneficiaries is necessary, because the beneficiaries are the key element to authentic analysis of the reality of their actual demand, problems and the means of solving them.

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<sup>1</sup> A.Rusfandi Usman, 'Comprehensive Development of the Brantas river basin of the Republic of Indonesia' (Yearly Program of Corporation) Perum Jasa Tirta, 2001, p. 4

Community and beneficiaries' participation is a process that improves the socioeconomic, cultural and political situation of the people.

## **2. Necessity of Participation in Water Resources Management**

The Beneficiaries' participation is necessary in water resources management for the sustainability of management system. In the participatory management the beneficiaries can take part in all stages of the management system, such as decision-making, implementation, monitoring, conducive to learning to the requirements of the program and performance evaluation of the management activities. Many governments have now begun to recognize this reality; irrigation policies both in Nepal and Sri Lanka, for example, cite farmers' participation as the foundation stone of irrigation development. In Laos, financial, institutional and equipment constraints have convinced the government of the necessity of developing small scale irrigation schemes with the participation of local farmers. Beneficiaries' participation in management systems will undoubtedly provide a new model in the Brantas river basin.

The willingness of the beneficiaries' participation with financial contribution or physical labor is necessary for a sustainable management system of a water resources management system to make it happen. Needless to say, in the future water demand of different beneficiaries groups of the Brantas river basin will be increased. Under these circumstances, it is necessary to set up a goal to secure sufficient quantity of water with good quality for the people in the basin area. However, the cost for better management systems including operation and management of water service facilities for achieving this goal would be enormous, unless there is no community and beneficiaries contribution in the management activities of the basin.

## **3. Purpose of the Participation in Water Resources Management Activities**

The community and beneficiaries' participation in the water resources management activities' initial aim is ensuring that all beneficiaries have to access to participate in the Brantas river basin management activities. The main purpose of the community and beneficiaries' participation is to secure sufficient quantity of water with good quality for the domestic, industrial, irrigation and fishery (fresh and brackish water) water users. In the community and beneficiaries' participation process it is necessary to taking into consideration of these following three vital points. They should be focused on in all program/projects design (i) the financial needs for the basin's overall management activities, (ii) efficient use and saving of water and (iii) water users' benefits in the basin area. In achieving all these goals of Water Supply Authority PJT (Perum Jasa Tirta) should play a key role as a coordinating agency and execute the programs in cooperation with other provincial water related agencies.

Water is a limited natural resource which is indispensable for the people's life and well-being. 'According to Indonesian Constitution 1945 Section 33 Article (2), (3) and (4), the natural resources, including water, should be

managed by the state and optimally used for the prosperity of people. Consequently, water is owned communally by all citizens and no individual ownership can be claimed over water<sup>2</sup>. The future of water demand in the Brantas river basin will increase. Under these circumstances, it is necessary to secure sufficient quantity of water with good quality for the *irrigation, fishery, and domestic and industrial water users*. For this purpose, three vital factors which need to be taking into consideration i.e. financial needs, water saving needs and users' benefit. 'For the active participation of the intended beneficiaries the project needs to involve relevant government institutions, NGOs, people's organizations, church-related development agencies. The inclusions of selected NGOs is of course important as they have usually more confidence of the people, are less hierarchic and bureaucratic and provide services more expediently and timely.'<sup>3</sup> These three factors are explained below.

### **3.1 Financial Needs**

The government of Indonesia cannot afford the extensive costs of the water resources development, operation and management costs. Therefore, being an implementing agency of the Brantas river basin, the PJT needs financial contributions from the beneficiaries for water resources development, operation and management activities. The beneficiaries of the basin should recognize that water is not a "free good" but a commodity and an "economic good". The community and beneficiaries should participate in the management activities with an appropriate contribution for the water services they receive.

### **3.2 Water Saving Needs**

The community and beneficiaries should realize and participate in the efficient use of water. Since water is a unitary source, therefore, saving this limited resource through proper utilization and wider participation in efficient use of water is an essential factor. Basin wide public campaigns for enlightenment of saving water among the water service beneficiaries is also necessary.

### **3.3 Water Users' Benefits**

The beneficiaries of the Brantas river basin such as PLN (Electric Power Company), PDAMs (Regional Water Supply Enterprises), and industrial, irrigation and fishery water users need to participate in the water resources management activities of the PJT for their own benefit. Because the beneficiaries know their actual demand for water, its problems and their solutions. Therefore, the community and beneficiaries' active participation in the water resources management activities enable it to meet the proper water management of this unitary source and users' benefits.

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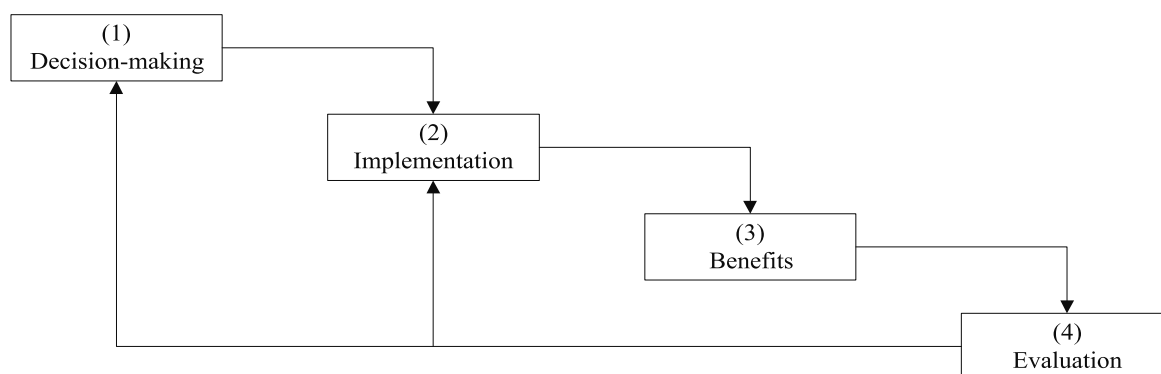
<sup>2</sup> *Ismu Rini.Dwi Ari, Kenshiro Ogi, Kakuya Matsushima and Kiyoshi Kobayashi, 'Community Participation on Water Management; Case Singosari District, Malang Regency' SciVerse ScienceDirect, 2012, p.806*

<sup>3</sup> *Benard Van Heck, 'Participatory Development: Guidelines on Beneficiary Participation in Agriculture and Rural Development' FAO, 2003, p.32*

Planning for water resources management in the basin, therefore, requires intensive cooperation among the different beneficiaries groups, and objectives and priorities should be set jointly with the beneficiaries representative at all levels. Participation implies that beneficiaries need to work for common problems with the basin management authority and should voice their demands and work together toward solutions.

#### 4. Four Kinds of Beneficiaries' Participation

There are four kinds of beneficiary's participation in development activities at the community level which is illustrated and explained below.



- 1) **Decision-making** is the initiative stage of any program. In this early stage, many things are discussed regarding a programs' vision, mission and goals. Here, beneficiaries' participation is an important factor because the beneficiaries can play a vital role through their practical experiences in finding the authentic problems of their known community.
- 2) **Participation in implementation** can play an important role by putting the beneficiaries first. Their active involvement ensures a good start and tends to stimulate the program. Since the beneficiaries are the ones who have a better knowledge of their own societies, there is a greater possibility of steering the program in the right direction to solving the problems.
- 3) **Participation in benefits** is an important factor among four separate kinds of participation. Because, benefits are the sole criterion for the target people of the program. Once beneficiaries start receiving benefits from the project/programs activities, their participation in the activities becomes much stronger.
- 4) **Participation in evaluation** is the last stage of the program. It has a direct relationship with the other three stages, particularly decision-making. In this final stage, the beneficiaries' participation in evaluation is to improve the services for delivering them, and to link the evaluation process closely to decision-making. Each discipline has its own ideas for conceptualizing participation. Participation of the beneficiaries in the program

is a dynamic approach because beneficiaries experience leads to greater understanding to increased capacity and awareness building. These experiences later help them to discover their own problem-solving capabilities.

## 5. The Activities Needs for the Participation

Many activities are needed for the basin wide the community and beneficiaries' participation approach in water resources management of the Brantas river basin. There is a need of community and beneficiaries' contribution in terms of both financial and physical labors for water services and active participation in the basin's management activities. Government of Indonesia's strategy for the new comprehensive Kampung Improvement Program (KIP). It has also been given more emphasis to community participation in the planning and management activities.

The Participation in water resources management activities needs to have the effective linking of both *technical* (hardware) and *social* (software) aspects. These two aspects can facilitate a wide range of community and beneficiaries' participation and cooperation for overall management activities, and thus ensure higher effectiveness and coordination of the program. 'These two aspects are essential prerequisites to ensure community and beneficiaries' participation support in every stage for sustainability and implementation of the participatory approach.'<sup>4</sup> The *technical aspect* mainly focuses on training and technical skills improvement. The central function of the *social aspect* is awareness building of the participants through motivation and formal and non-formal education and training.

### 5.1 Technical Aspect

For the participation of the different beneficiary groups in water resources management activities. It is necessary to improve participants' knowledge and technical skills through training program. Under the technical aspects following activities are proposed;

- 1) Technical training in operation and management, and rehabilitation of the irrigation canals
- 2) Community/social groups' training in plantation and its follow-up
- 3) Training for farmers to improve knowledge and professional skills
- 4) Beneficiaries training in water quality control and on environmental issues

### 5.2 Social Aspect

Main criterion of social aspect is to increase awareness of the people through public campaigns and offer formal and non-formal education.

- 1) Improve awareness through public campaigns on water resources management
- 2) Public motivation and campaign activities for efficient and effective use of water

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<sup>4</sup> Nippon Koei, 'The Study on Comprehensive Management Plan for The Water Resources of Brantas River Basin, in the Republic of Indonesia' 1998, p.175

- 3) Increase awareness of the people on critical land and watershed management
- 4) Public campaigns and education on water quality and environmental issues

## **6. Mechanism of Participation to PJT's Management Activities**

In the Perum Jasa Tirta (PJT)'s overall management activities an innovative approach is necessary to involved its different beneficiaries groups in the comprehensive management plan for the water resources of the Brantas river basin. This approach should emphasized put the beneficiaries at the center of the program. PJT should develop the attitude of working with the beneficiaries as a partnership rather than working for the beneficiaries.

### **6.1 Perum Jasa Tirta's Task**

Being an implementing agency, the PJT has the overall responsibility for the water resources development, distribution and overall management of the Brantas river basin. It needs to prepare a total annual operations program on watershed management, flood control, water quality and supply, river environment and river maintenance. Once the detailed design of the basin is completed by the PJT, the next stage is to tell the public and respective beneficiaries about the programs and let them know the about problems and benefits of its annual programs. Through public hearing the beneficiaries consent should be accounted for the programs before the decision-making and implementation of the overall management of PJT's annual programs for the operation.

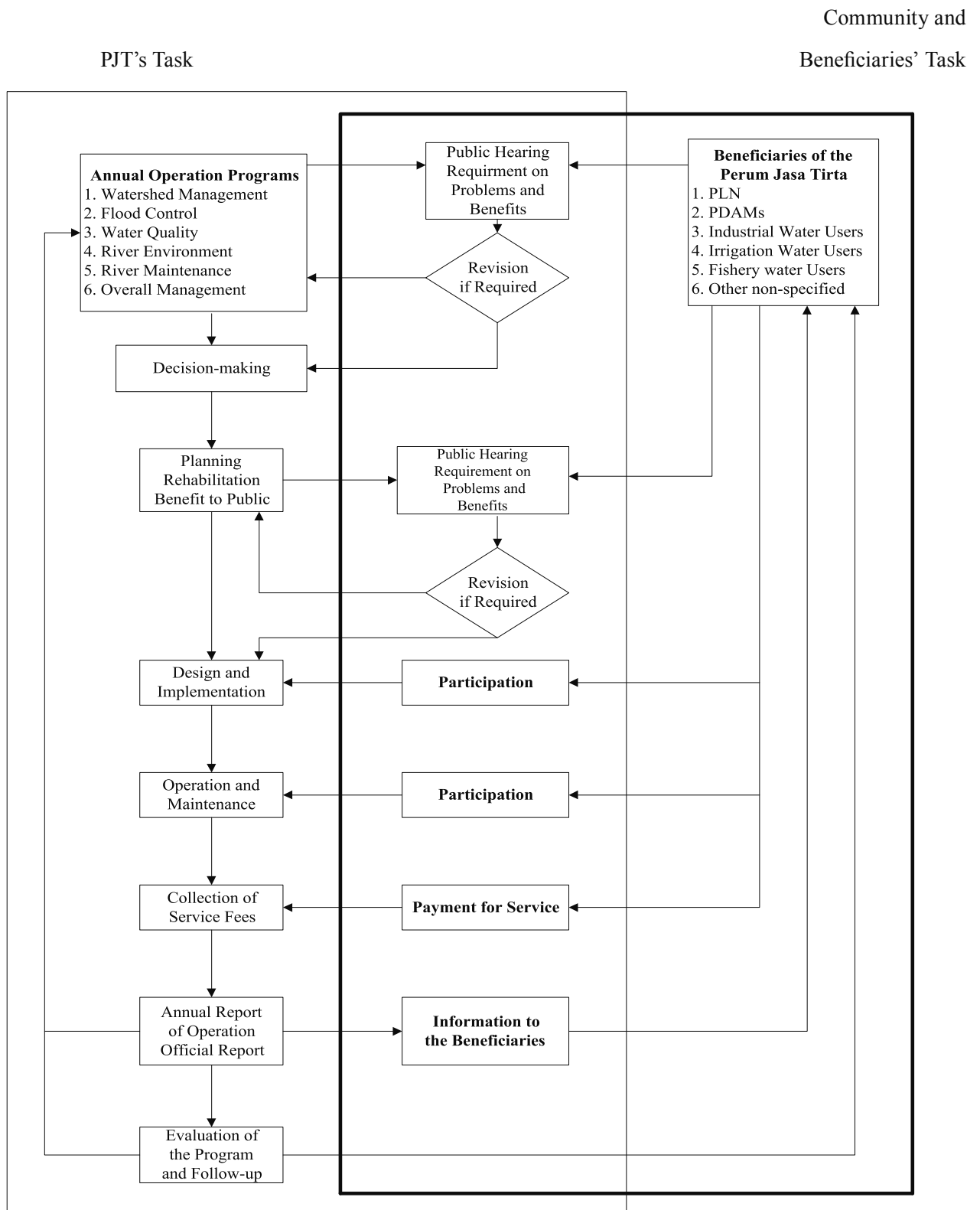
### **6.2 Beneficiaries Task**

Respective communities and beneficiaries also have to take part in every stage of the overall management activities of annual programs of the PJT, such as decision-making, planning, implementation and evaluation and an appropriate payment for their water services. Involving beneficiaries in the management activities would help to build a sustainable water resources management systems in the basin. At the end of the year the PJT has to publish an official report on annual operation programs to the public and its respective beneficiaries. PJT also need to taking into account an evaluation and follow-up of the annual operation and overall management programs for the next year annual programs.

### **6.3 PJT and Beneficiaries' Task**

In the next page (flow chart) explains the relation, how the PJT and the beneficiaries can work together in a participatory process in the comprehensive management plan of the water resources. It is a necessary to merge 'top-down' and 'bottom-up' approaches, between the implementing agency and the service recipients of the Brantas river basin. 'A participatory process implies that in achieving these relatively limited tasks, that people would acquire greater technical expertise, building on their own knowledge and an associated scientific awareness of their economic, political and physical environment. At the same time, the achievement of specific objectives for improving their resource position through collective effort would impart greater confidence and community

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consciousness.<sup>5</sup> For the sustainable water resources management systems of the Brantas river basin only participation is meaningless, unless the community and beneficiaries are contributing for the water resources management activities of the basin. ‘In this approach, the beneficiaries should be placed at the program and they might have access to participate in every stage of the programs. The executing authorities should go the community/beneficiary groups rather the community/beneficiaries approaching the executing agencies/authorities.’<sup>6</sup>

#### **6.4 Organizational Structure of PJT for the Beneficiaries’ Participation**

The beneficiaries’ participation in comprehensive management plan for the water resources of the Brantas river basin, an innovative approach is necessary in the organizational structure of Perum Jasa Tirta (PJT). PJT should have a Community and Beneficiaries Section under the Bureau of Public Relations of its management systems. The section for community and beneficiaries’ participation should work as a bridge through monthly meeting between the PJT and concerned beneficiaries groups, i.e. PLN, PDAMs, Industrial Water Users’ Association/Representative, East Java Irrigation Service and East Java Fishery Service. Under the community and beneficiaries Section, This section would consist of two units, namely Education & Training Unit and Institution Building Unit.

#### **6.5 Staffing for the Community and Beneficiaries’ Participation Section**

- Section Chief
- Water Resources Engineer
- Community Development Specialist

#### **6.6 Education & Training Unit**

The education and training unit should have the following responsibilities;

- Basin wide public campaigns on water resources and its scarcity
- Education and training program for operation and maintenance of the irrigation canals, especially for the farmers and fishpond owners/tenants.
- Training for efficient use of water at all levels.

#### **6.7 Institution Building Unit**

The institutional building unit should have the following responsibilities;

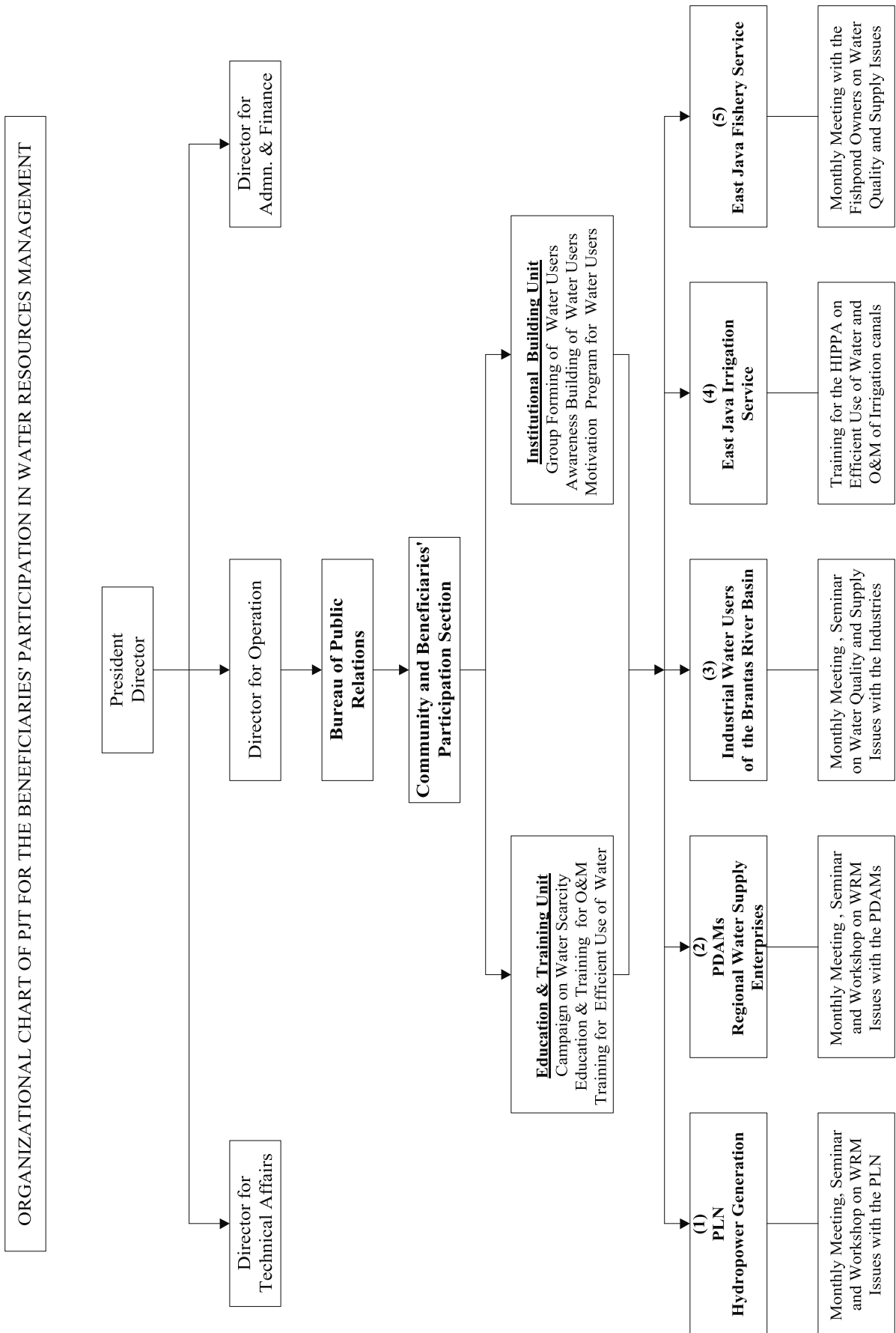
- Group forming of water users, especially farmers and fishpond owners/tenants.
- Awareness building of the different beneficiaries of the Brantas river basin.
- Basin wide motivation program for the communities and beneficiaries.

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<sup>5</sup> Ponna Wignaraj, ‘Towards and Participatory Development’ in *Participatory Development: Learning South Asia*, United Nations University, Tokyo, 1991.p.200

<sup>6</sup> Jamadar Naseer, ‘People’s Participation in Development at the Grassroots Level’ 武蔵野女子大学現代社会学部紀要、2002年、p.54





## 7. Problems in Formulating of Community and Beneficiaries' Participation

The Japan International Cooperation Agency (JICA) Study team's questionnaire survey results shows in table 1, that in some areas the intention of farmers to attend the water users' associations (HIPPA) meeting has been very low. Although there is HIPPA in the Brantas river basin at almost every village level. It was observed that many farmers in the Brantas river basin were not aware about water resources nor use water efficiently. It may be said that free or very low-cost and availability of water has encouraged them to overuse, it reduces the incentive to cooperate and participate in water users' associations. None of the fish farmers make any payment for the water they use for fish farming. Most of the fish farmers see not to realize that water is becoming a limited resource and to its development and management costs, and therefore, there is no need to pay for it nor the water supply service. The survey results indicated that the following points are the major problems in formulating of the community and beneficiaries' participation in the comprehensive management plan for the water resources of the Brantas river basin. They are as follows.

### 7.1 The Farmers are Less Attendance in the HIPPA Meetings

In the Brantas river basin, HIPPA is working as Water Users' Associations (WUA), this HIPPA was established in 1993. Presently, there are 3,030 HIPPA in 2,718 villages in the Brantas river basin, almost every village level. Unfortunately, in some irrigation areas the HIPPA members are not attending the meetings regularly in the Brantas river basin. Reasons for not actively attending the HIPPA meeting vary considerably between areas. In the Blobo irrigation area, the main reason is simply because of doing other more important things. The same reason was also encountered in Lodoyo irrigation area. In Warujayeng, Widas and Turi Tunggorono, an absence in attendance at HIPPA meeting is likely due to no interest, or because of not being invited. In the Brantas Delta irrigation area, the absence of farmers at HIPPA meeting may result in a number of reasons i.e. no direct benefit and doing something in the city area to earn cash money.

Irrigation Area	Table 1, Reasons for Not to Attend the HIPPA Meeting				
	Have no interest	Not invited	No effect to Attend	Others	Total
Blobo	2%	2%	-	6%	10%
Lodoyo	-	2%	2%	4%	8%
Warujayeng	12%	8%	6%	-	26%
Widas	7%	8%	-	9%	24%
Turi Tunggorono	17%	9%	5%	1%	32%
B. Delta	11%	3%	9%	12%	36%

### 7.2 There is no Fishery Water Users' Association in the Brantas River Basin.

It was observed that there is no organization like HIPPA for the fishery water users. The brackish water fish farmers are presently consuming a considerable amount of water, which is mainly derived from the Brantas river basin. Insufficient amount of water available at a reasonable quality is a problem for the fish farming. Presently,

there is no Fishery Water Users' Association in the Brantas river basin. Some of the fish farmers seems to be less interested in to establishing of a fishery water users' association. Possible explanation is that they are still not sure whether such an association will be helpful since their experience with the existing formal agencies do not function as they are expect them to. The most serious problems encountered are associated with water shortage in the dry season. The water problems and issues are dealt individually or discussed in a small group of fish farmers. It is identified that there is need for better water resources management system for the fishery water.

### 7.3 Lack of Awareness and Education of the Irrigation Water Users

The water taken by the farmers' from the irrigation canals are not efficiently utilized in the Brantas river basin. Inefficient and ineffective use of irrigation water by the farmers in the basin is an acute problem for the irrigation water supply systems. The main reason is the farmers are taking water more water than their actual needs from the irrigation canal in the dry season, surplus water is spilled out from their paddy fields to the drainage canal. Most of the irrigation area in the Brantas river basin the farmers do not have a clear idea about how much water they are taking for paddy or other crops. Again, most of them do not know how much water actually they need in different seasons/crops for per hectare. The problems most probably lie on the lack of awareness and the education level of most of farmers in the Brantas river basin is relatively low (elementary school).

### 7.4 Problems in Implementation of Beneficiary - Pay Concept

There has never been any specific and rationale charge imposed for irrigation and fishery water in the Brantas river basin area. Therefore, most of the irrigation and fishery water users' still keep the old perception that the charge of water used is included in the tax they pay and it is the duty of the government to supply the water.

<b>Perception to the concept</b>	<b>Blobo</b>	<b>Lodoyo</b>	<b>Warujayeng</b>	<b>Widas</b>	<b>Turi Tunggorono</b>	<b>B. Delta</b>
Reasonable	60%	64%	100%	94%	60%	78%
Not reasonable	8%	14%	0%	0%	3%	2%
Cannot reply	32%	22%	0%	6%	37%	20%
Total	100%	100%	100%	100%	100%	100%

As shown in table 2, the number of farmers who do not understand the concept in Blobo, Lodoyo and Turi Tunggorono irrigation area is relatively high (about 40% farmers). At a lesser extent it is also observed in the Brantas delta irrigation area. The survey results reveals that the concept has been understood to some extent by the irrigation water users. Because almost 80% of irrigation water users are paying irrigation service fees for the rehabilitation and operation and maintenance of the irrigation canals. However, the fish farmers in the Brantas river basin area are not used to paying for the fishery water they used for the fish farming. The failure to understand the beneficiary-pay concept may result that, the water users' decades old perception that the water is not a commodity rather a free natural resource and gift from the God.

## **8. Necessity of Cooperation of Related Agencies**

Being an implementing agency of the Brantas river basin, the PJT needs to manage the water resources development, operation and maintenance and overall management of the basin. For this to be successful a favorable support and cooperation is required from the provincial/local government's related agencies, non-governmental organizations, academic institutions, social groups and community participation in PJT's overall management activities. It is necessary for PJT to formulate project/programs based on community and beneficiaries' participation in water resources management of the Brantas river basin. In the Brantas river basin's water resources management activities, a holistic approach is required, which will cover PJT's concerned areas as well as its all beneficiary groups.' For the implementation of projects/programs on irrigation and fishery water, watershed and water quality management of the Brantas river basin, PJT needs the cooperation and close coordination with the related agencies/organizations.

## **9. Social Considerations for Introduction of Beneficiary- Pay Concept**

Social consideration are required when an implementation of a program may bring about any negative socioeconomic impact to the community and respective beneficiaries. The purpose of the social considerations lies in emphasizing sustainability of the program benefits and minimizing the negative impact as far as possible. Consideration is necessary for the vulnerable groups in a community including low income groups. When the beneficiaries- pay concept is implemented in irrigation and fishery water supply system, then a new contribution to irrigation and fishery water supply system would be needed. This new beneficiary-pay concept would be an additional financial burden for the irrigation and fishery water users' of the Brantas river basin.

### **9.1 Considerations for the Irrigation Water Users**

The low income is related to shortage of water, in respects to total income, Widas, Turi Tunggorono and Warujayeng are included in the lowest income group and these three areas correspond to the areas suffered most from water shortage. The considerations for income disparity among areas would be necessary for introduction of the beneficiaries-pay concept. For social considerations for the irrigation water users in the beneficiary- pay concept the following items should be considered:

- 1) Cheaper water tariff for the low income and disadvantaged people
- 2) Physical labor for the operation and maintenance of the irrigation canals may be introduced instead of water service fee.
- 3) Free water service for the poorest of the poor and disadvantaged women.

## 9.2 Considerations for the Fishery Water Users

For social considerations for the fishery water users' in the beneficiary-pay concept the following items should be considered:

- 1) One of the key social considerations is the lack of education among the fishpond owners and tenants. The educational skills needs to be developed for them to become involved in the modern agro-business.
- 2) More than 70% of the fish farmers are tenants, incentives must be provided for them to achieve ownership of the fishpond.
- 3) The fishery water users' association should be organized like HIPPA, so that it can play an organized and effective role to overcome their water shortage problem.
- 4) A complete mapping of the fishponds and channels will be required before doing a needs assessment of social issues implementing the fishpond enterprise.
- 5) It has been observed by the study team that almost all brackish water fishponds in the Brantas delta are extensive fishponds. These are operated in a traditional way which has not changed for the last 50 years. The fishery enterprise need to be modernized as agro-business.

## 10. Recommendation to Overcome the Problems in Water Resources Management

To formulate the community and beneficiaries' participation in the comprehensive management plan for the water resources of the Brantas river basin. A systematic and continuous participatory process should be implemented in the basin area. This process should be based on the community and beneficiaries' participation in the water resources management activities. The PJT has been playing an important role through its periodical public campaign activities in water resources and increase public awareness on the environmental issues in cooperation with related agencies. 'A JICA Study team's questionnaire survey also found that the water users' have an intention to participate in the management activities of the Brantas river basin.'<sup>7</sup> The following projects/ programs are proposed for recommendations for PJT's participatory approach in the water resources management activities. The proposed projects/programs are explained below.

### 1) *Irrigation Water Supply*

The irrigation is the single largest water user among the water users in the Brantas river basin. In almost the basin

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<sup>7</sup> JICA Study, 'Development of The Brantas River Basin' JICA, 1998, p.249

area and consumes more than 80 percent of all available water in the basin. There are 3,030 irrigation water users' associations in 2,718 villages in the Brantas river basin.

#### 2) *Fishery Water Supply*

Presently, about 15,790 hectares of land is used for fish farming in the Brantas river basin. But there is no reliable statistics on how many fishponds or how much water these fishponds are consuming from the Brantas river basin. There is no fishery water users' association, the water problems and issues are dealt individually or discussed in a small group of fish farmers.

#### 3) *Watershed Management Activities*

Most of the sedimentation and soil erosion in the middle and downstream of the Brantas river basin as well as into the dams comes from the mountainous and critical land areas. The objective of the watershed management is to protect settlements and infrastructures in downstream areas by mitigating the effects of flooding and drought, sedimentation and river channel instability.

#### 4) *Water Quality Management Activities*

The source of pollutants in the Brantas river basin from industrial effluents, domestic garbage, human's activities and fertilizer and pesticides from agricultural activities. In many areas of the basin becoming to function as a waste disposal, which also the cause of river environment's destruction.

### **11. Implementation of Beneficiaries' Participation in Water Resources Management**

To achieve the final goal of the basin wide participatory activities in the comprehensive management plan for the water resources of the Brantas river basin should be implemented. The PJT should taking into consideration few stages consider after judging the awareness level of the community and beneficiaries. Because there is a wide variation of the consciousness and lack of adequate knowledge about water resources among the water users' in the Brantas river basin. For a successful project implementation program in the water resources management. To begin the participatory activities, concerned participants need to understand that there are three stages (i.e. awareness, involvement and participation) involved in effectively mobilizing community support for participatory activities. Each stage is a step towards bringing the participants closer to attainment of community based participatory project. The PJT should focused on the following three stages for the implementation of participatory project.

#### 1) *Community Awareness*

It is observed in some area that degree of awareness of water users' in the Brantas river basin is inadequate. Therefore, it is necessary to improve the following water users' awareness and knowledge about water resources and management.

### 2) *Community Involvement*

The second stage is community involvement wherein the PJT can seek the participants' opinions about ways of solving problems and involve them in its annual operational programs including water resources management activities.

### 3) *Community Participation*

The most important stage is community participation, if the awareness and involvement already achieved at a certain level among the water users' then PJT should implement the community based participatory project.

## **12. Action Plan for Beneficiaries' Participation in Water Resources Management**

The works items recommended in this study to overcome the constraints and problems for the community and beneficiaries' participation herein are as follows;

- 1) To improve the farmers' regular attendance in the HIPPA meetings
- 2) To increase the awareness and knowledge of the water users' participation in water resources management through motivation and public campaign activities.
- 3) To improve the involvement of irrigation and fishery water users' in water resources management through their participatory activities.
- 4) Establishment of fishery water users' association.
- 5) Introduction of "beneficiary-pay concept" in water resources management plan.

## **13. Users' Benefits from Participatory Water Resources Management**

The beneficiaries can more benefits if they directly participate in all stages of the management system, such as decision-making, implementation, monitoring, conducive to learning to the requirements (technical and social aspects) of the program and performance evaluation of the water resources management activities. Participation ensures reduction in operation cost, optimizing of resources for construction and maintenance in water resources management. Following are examples of the users' benefits from participatory water resources management.

- 1) Better water management improves the adequacy, reliability and predictability of water deliveries, and leads to better control of water. Better control on water also induces the farmer to go in for increased inputs, high yielding varieties etc. resulting in higher yields.

- 2) Equity relates to both allocation and actual supply of water. Equity can be considered as between head and tail farmers and as between rich and poor farmers etc. Because of group psychology the weaker sections can get a better treatment.
- 3) Conflict reduction: In a participatory system the water belongs to the group. There is a sense of ownership of water and wastage is watched by thousand eyes. Conflicts are therefore reduced and resolved collectively.
- 4) Sustained improved performance: Because of the atmosphere of trust performance of the system is sustained.<sup>8</sup>

### 13.1 Benefits of the Water Users'

#### 1) *Benefit of the Farmers*

The irrigation water users' can get many benefits (i.e. social, technical and economic) from the participatory projects. The farmers would be able to ensure the sufficient irrigation water in time for their agricultural activities. In addition, they would be also able to make an improvement of their technical skills in the irrigation water management.

#### 2) *Benefits of the Fisheries*

Since there is no fishery water users' association in the Brantas river basin, assuming that the fishery water users' would be highly benefited from the participatory projects. Through participation they can solve their problems of water quality and shortage.

#### 3) *Benefits of the Community*

The community get better bio-physical environment for cultivation e.g. in water quantity, quality and timing. Increased forest land also helped prevent natural environmental hazards.

#### 4) *Benefits of the Ecology*

In order to decrease of pollutants from the rivers, the communities would be able to improve their hygienic and sanitary conditions. The good quality of water would be an important factor to fulfill the requirement of human dignity and to preserve the ecological balance of the Brantas river basin.

## 14. Concluding Remarks

Developing countries have been emphasizing to improve their citizens' overall socioeconomic condition through multifaceted development activities. Unfortunately, due to economic constraints and lack of manpower government

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<sup>8</sup> Pratibha Deshpande, Nandkumar N. Naik, & G.D. Deshpande, 'Participatory Water Management' ADB, 2005, p. 5



cannot reach the goal. So Community and beneficiaries' participation is a new paradigm. Many governments have now begun to recognize this reality; Community and beneficiaries' participation in water resources management both in Nepal and Sri Lanka, for example, cite farmers' participation as the foundation stone of irrigation development. In Laos, financial, institutional and equipment constraints have convinced the government of the necessity of developing small scale irrigation schemes with the participation of local farmers. Beneficiaries' participation in management systems will undoubtedly provide a new model in the Brantas river basin.

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