

CHAPTER 5

FORMULATION AND VERIFICATION OF COUNTERMEASURES

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The initial task under Phase II was the formulation of hypotheses for countermeasures based on the Categorized Problems. The intention was that the countermeasures would be checked for applicability in the field by detailed surveys at 25 irrigation schemes (4 to 7 per province), selected to represent the various categories of WUA development (Work Items 【23】 ~ 【26】).

5.1 Problem and Objective Analysis

5.1.1 Problem Analysis

As part of the PCM activity, problem analysis was carried out during Phase I, and problems were categorized as follows;

- Government role and support, laws and regulations;
- WUA management, institutional aspects;
- Irrigation O&M, water management;
- Agriculture, economics and finance.

Their results are discussed and summarized in Section 4.2.6.

5.1.2 Object Analysis and PDM of PCM

At the beginning of Phase II, objective analysis of the PCM method was carried out based on the previous problem analysis. These were then converted into the Project Design Matrix (PDM) form. The “countermeasures” are equivalent of “activities” in the PDM.

As a result of the object analysis, the countermeasures to solve the problems can be mainly divided into two categories (ref. Fig. 5.3.1):

- to achieve sustainable irrigation management,
- to achieve sustainable irrigated agriculture.

5.1.3 Formulation of Countermeasures to Solve Problems

The countermeasures were prepared in the format of PDM as ‘Activities’, and three PDM were prepared covering:

- Irrigation and WUA management (Table 5.1.1);
- Irrigated Agriculture, one for farmers and one for Government assistance (Tables 5.1.2 and 5.1.3);
- Social preparation to support the above two aspects (Table 5.1.4).

Those countermeasures were examined and discussed with respective officers of KIMPRASWIL and MOA on March 1, and March 28, 2001, respectively.

5.2 Definitions

As stated in INPRES No.3/1999, the definition of the role of central, provincial and kabupaten government in the management of water resources is one of the most urgent steps under the regional autonomy and decentralization. In formulating the Action Plan for the improvement of irrigation management and empowerment of WUAs for the enhancement of irrigation management turnover program, terms and institutions of irrigation management have been clarified in the following section.

5.2.1 Water Users' Association (WUA)

(1) Membership

WUA is an organization whose members are as follows:

“The members of a WUA are the democratically identified beneficiaries, i.e. Water Users, inclusive of irrigation users, fish ponds (*kolam ikan*), domestic, industrial and any other users that extract water from the tertiary canals within the boundaries of a tertiary block/unit of an irrigation system or within the boundaries of a village irrigation system.”

Under the current irrigation reform policy of, “one irrigation system – one management”, WUAF and primary WUA (*Induk WUA – IWUA*) have been formulated to manage the O&M of the secondary and primary canal infrastructure of irrigation systems. These have been established to replace the Government management of main system irrigation infrastructure, i.e. the secondary and primary canals and structures. The members of a WUAF and/or IWUA are, therefore, as follows:

- The members of a WUAF are the democratically formulated beneficiaries i.e. the individual WUA at the tertiary or village level, inclusive of industry, domestic and other water user enterprises that extract water from one secondary canal of an irrigation system.
- The members of the WUA or IWUA are the democratically formulated beneficiaries, i.e. the individual WUAF of the secondary canals (including the members of tertiary unit or village based WUA), inclusive of industry, domestic and other water user enterprises that extract water from the primary canal of an irrigation system.

The WUAF or IWUA committee or boards must be democratically elected or appointed by and from representatives of the individual WUA (tertiary and village) or individual WUAF (in the case of IWUA), industry, domestic and other water user enterprises that extract water from the irrigation canals of the irrigation area.

(2) Institutional Management

A WUA is usually managed by a committee of water users who, in theory, are democratically elected by all the water users within the boundaries of the irrigation scheme/area. A committee is required, as per previous Government regulations/guidelines, to comprise a president, secretary, treasurer and water foreman (*Ulu-ulu*). The structure of the committee should reflect the command area of the irrigation scheme, and, for example, it might be considered unnecessary to have a full committee for a tertiary unit of less than 50 ha, which could be managed by a president/water foreman (*presiden/Ulu-ulu*) and a number of quaternary block heads (*Ili-ili*). It is important that farmers are assisted in the formation of committees which are appropriate to the size and complexity of their command areas.

Since INPRES No.3/1999, the institutional management of irrigation systems has changed. This INPRES impacts on WUA and their management responsibilities where it specifies that “the regulation of irrigation management should be turned over in stages, selectively and democratically to the WUA on the principle of: ‘one irrigation system for one management unit’, and for irrigation systems not yet turned over to the WUA, their management and financing shall be conducted jointly by the Government and the WUA, through joint management, until the irrigation system can be fully turned over to the WUA”. This implies that the water users (farmers, fish producers, domestic and industrial consumers) will now be administratively, physically and financially responsible for the irrigation management from the head-works, the supply off-take structure, to the quaternary canal at farm level.

Those WUA/WUAF/IWUA which are sufficiently empowered to a level of self management for continued sustainable development, will be fully responsible for irrigation management of an irrigation system that should be, or has already been, turned over to the respective WUA. The water users, through their WUA, must be prepared to accept the responsibility for irrigation management. It is expected that although some WUA are willing to be responsible, Government technical assistance and financial assistance will be needed for some years to support WUA development.

(3) Management of Maintenance Works

The WUA committee must implement irrigation management activities, i.e. institutional, administration, financial and O&M management both transparently and democratically on behalf of all the WUA members. Maintenance works can include both long-term rehabilitation and the yearly maintenance program of the irrigation infrastructure. Planned maintenance programs are a prerequisite of delayed rehabilitation.

Maintenance works are an important part of the O&M aspect of irrigation management. Effective O&M is described as follows. The operation of an irrigation system must be implemented so that all water users, irrespective of their location within an irrigation system, receive a fair and equitable water allocation as is their right, as needed within the confines of a water distribution plan relative to seasonal and supply variations. The maintenance of an irrigation system is such that through a planned program of works, the irrigation infrastructure is maintained at, or returned to or as near to the as-built condition, so that irrigation water can be delivered in a fair and equitable manner. The application of maintenance work programs that achieve anything less than optimum will influence the delivery of water and this will have an impact on the willingness of water users to pay their O&M fee.

As there are three possible levels of WUA structure but under one management unit, be that WUA/WUAF or IWUA, the maintenance management varies at each level of WUA. Management of the maintenance of irrigation infrastructure, including the drainage infrastructure, must be through the implementation of a yearly maintenance program that includes routine, periodic, seasonal and annual works.

The tertiary unit or village based WUA have the responsibility of carrying out the maintenance program for the tertiary and quaternary system infrastructure. Routine and periodic maintenance includes activities such as removal of sediment from canal bottoms, cutting of vegetation along canal banks, small canal and structure repairs, etc. These activities are normally done by mutual self-help (*gotong-royong*) at the start of the cropping seasons. However, field visits have shown that the effectiveness of *gotong-royong* in terms of achieving efficient maintenance of tertiary and village works appears to be decreasing because insufficient effort is applied. The ineffectiveness of *gotong-royong* may in the future be overcome by the application of contract labour gangs to the tertiary unit and village systems for which the beneficiaries pay through their O&M fee.

As described previously, WUAF are responsible for the O&M of the secondary irrigation infrastructure, while the IWUA is responsible for the primary irrigation infrastructure. It would also be expected that management responsibilities would flow, both up and down within the three-tiered system. Within the management structure and based on the "one management unit" principle, it would be expected that the IWUA, as the senior management unit, would be responsible for the overall O&M management program for the whole irrigation system, i.e. head-works to quaternary unit. On an 'as

needed' basis, as per the routine, periodic, seasonal and yearly requirements, individual WUA would be expected to co-operate with other WUA within the irrigation scheme to assist the WUAF at secondary level. Individual WUA and their respective WUAF would be expected to co-operate and assist the IWUA at the primary level. This type of management and co-operation is necessary because any weakness in the O&M program at the individual WUA level would weaken the sustainability of the WUAF and/or IWUA. It is therefore necessary that a WUAF or IWUA must have management responsibility over each and every WUA within the irrigation scheme.

Prior to 1999 and within the Government irrigation department (PU *Pengairan*), policies and training programs introduced two concepts to assist and improve the application of maintenance budgets and program of works. These were; 1) the application of the follow up activities of the *PTGA* program, i.e. Irrigation System Walk-Through and Follow Up Activities, and 2) the implementation of the system of reporting and budgeting for O&M, i.e. the Needs Based Budget. Each of these program policies never realized their full potential of success because of insufficient Government funding.

It is recommended, under the new irrigation policy reform, to continue the application of walk-through and needs based budget programs as these have the capacity to be very successful concepts to achieve efficient O&M. Government and WUA co-operation in the application, through facilitation, learning and implementation, is essential.

(4) Financial Management

Under the MOHA according to the regulations, WUA members are obliged to pay an irrigation service fee (ISF) to the WUA. The irrigation service fee was implemented through a project launched in the late 1980's. Due to a number of factors, the main one being financial mismanagement by the Government and farmer non-acceptance of funds collected not being returned to respective irrigation systems, the ISF concept failed.

The ISF concept was reintroduced through the 1990's and renamed the *IPAIR*, but farmers viewed the *IPAIR* as an additional tax. In those irrigation areas where *IPAIR* collection rates were successful, progress towards sustainable O&M is progressing, although these instances are few. The new reform policy allows WUA to collect and financially manage the funds collected, within their own irrigation area.

In addition to the ISF, farmers have in general paid an administrative fee to the WUA Committee for their services and also a payment, called *iuran*, is to the gatekeepers for the delivery of water. Sometimes these payments have discouraged farmers from providing *gotong-royong* for the maintenance of canals and drains, because they feel that having paid the WUA committee and the *gate keepers*, they do not need to work for canal cleaning and maintenance.

To improve financial management, it would be advisable that all of the above payments be included in a single payment, with water users paying seasonally. The funds collected (in kind or in cash) should be held in a WUA savings account, and used for WUA activities and the financing of maintenance works, within the routine, periodic or yearly programs. It is important that the funds collected are sufficient to match the total requirements of the WUA. Previous values set for individual water user ISF payments have rarely been realistic in terms of the true cost of O&M. For efficient O&M to be achieved, water users must be prepared to pay a realistic amount.

The financial management of WUA activities must be responsible and transparent with WUA committee members being accountable to the WUA members. The WUA, therefore, is required to open a bank account, and keep accounts of revenue and expenses. For the purpose of transparency and accountability, any honorarium paid to WUA committee members and any service fees paid to gatekeepers should be democratically agreed through a meeting of WUA members.

(5) Distribution of Irrigation Water

The distribution of water within the irrigation area is the responsibility of the WUA committee and WUA water foreman with a water distribution plan only being implemented following agreement between all water users. WUA responsibility is to:

- Formulate the water distribution plan according to the requirements of the proposed cropping plan;
- Implement the necessary co-ordination for water distribution, i.e. rotation (*giliran*) in all seasons, particularly during the latter stages of the second season and the third (dry) season, respecting the traditional rules;
- Coordinate with other WUA, WUAF within the irrigation scheme and co-ordinate with the local government (*Kabupaten*) Irrigation Committee (*Panitia Irigasi*), or an equivalent *Kabupaten* Co-ordination WUA Support Group, in the planning of water allocation and distribution between WUAF, WUA and individual water users;
- Give priority to paddy, *palawija*, and other crops (cash crop/high value crops) as per the cropping plan; and
- Deliver water to the water users as per an agreed water distribution plan, adopting a manner of gate operation by the WUA water foremen (*Ulu-ulu*) that ensures all water users, irrespective of location of farm land within the network of irrigation canals, receive their water allocation fairly, equitably and timely, as per the agreed distribution plan.

Water distribution at the tertiary unit, is normally controlled by the traditional village water official. Some farmers make informal payments (*IURAN*) to these water foreman/officials to ensure that water is supplied to their fields.

All WUA along a secondary canal and between secondary canals, i.e. WUAF, need to co-ordinate over the distribution of water during all planting seasons, particularly during the dry season. WUA should have the right to receive equitable amounts of water. Water requirements should be determined according to the crop type/s and planting pattern/plan within each individual tertiary unit, and a total requirement per irrigation area calculated. If water is in short supply, rotation between irrigation units needs to be practiced.

Even in irrigation scheme where farmers and fish farmers are the only WUA members, disputes can still occur. Very few tertiary unit off-takes have effective measuring mechanisms, and gates are generally operated as either fully open or fully closed. In addition, the majority of irrigation systems are operated on a continuous flow basis, i.e. gates are opened fully and water delivered to the total area. At times of rotation of delivery, the areas receiving water are operated in a similar manner, with the total time of delivery to an area being the controlling influence. This system of operation usually results in the upstream landholdings receiving excess water and the downstream farmers receiving insufficient water, thus creating inequalities, disputes and a reluctance to pay the irrigation management fee (ISF).

Similar inequalities occur during the wet season in some irrigation areas due to poor drainage, where gates are not controlled and drainage canals are not maintained to discharge water and flooding occurs.

Hence downstream areas become flooded, production is reduced and again this promotes a reluctance to pay management fees. Water distribution (water delivery and water removal/drainage) must be controlled in an operational plan that benefits all users. A reluctance to address this issue, i.e. the rehabilitation cost of an irrigation system to install structures or devices for water measurement may influence the development and empowerment of WUA.

(6) Official Unit WUA and their WUAF

A group of WUA along a secondary canal is known as a Water User Association Federation (WUAF). The main responsibilities of the WUAF are:

- The distribution of water to the individual WUA along the secondary canal;
- The coordinated management of maintenance programs within the irrigated command area of the secondary canal;
- To resolve problems between individual WUA within the command area; and
- To co-operate with other WUAF and WUA regarding the irrigation management responsibilities of the Primary Water User Association (IWUA).

The definitions of both the unit WUA and the WUAF are given above. The responsibilities of each are similar except that the WUAF operates over a larger irrigated area and has a controlling influence over the unit WUAs. The structure of unit WUA committees and the structure of the WUAF need to consider:

- the size of irrigated area of responsibility;
- that the more persons involved in management, the higher the cost of honorarium that must be included in the water users' annual irrigation management fee; and
- that there is no need to have a full committee representation if the irrigation area of responsibility and farmer numbers only requires one, two or three persons to efficiently and effectively administer the WUA/WUAF irrigation management responsibilities.

The structure of the WUA needs be investigated, and either accepted by farmers in its present form or modified in accordance with the wishes of the majority of farmers before consideration is given to the formation of a WUAF. If the unit WUA, is weak then the structure of the WUAF will be weak and sustainability will be difficult to attain.

Farmer acceptance is the core of empowerment and to achieve farmer and community acceptance requires an extensive input by Government through a community awareness campaign directed to the requirements and responsibilities of unit WUA and WUAF. The empowerment requires water user participation, not specific farmer leader participation, but participation by water users at all levels, i.e. upstream, midstream and downstream irrigators, fish farmers, industrial users and others. Government needs to facilitate the community and the water users through well planned and executed community awareness by learning to work with the community and learning to accept and consider farmer and community needs, cultures and social aspirations.

(7) Water Allocation Among Water User Stakeholders

On irrigation schemes located near to water sources such as springs, and on large-scale schemes near to urban centers, water may be abstracted for other uses -- for instance withdrawals from springs or main canals for public domestic water supplies or industries. There should be a license for such abstractions, issued by the Irrigation Department (*Dinas Pengairan*) or River Basin Committee (PPTPA – *Panitia Pelaksana Tata Pengaturan Air*), and water rights between different water users need to be specified. Generally the quantities of water abstracted for domestic and industrial supplies

are very small in comparison to irrigation supplies but these industries should also pay for the water used. The monitoring and control of domestic and industrial abstractions is relatively easily implemented as water measurement devices (meters) can be installed with these users paying per volume (liter or m³) used.

Water rights need to be addressed and there is a need for legislation to be enacted to regulate the application of water rights. Within an irrigation system, it is difficult, and often almost impossible, to measure an individual farmer's water use. It is not impossible to install accurate measuring devices at the gated off-take structures within a irrigation scheme. It seems more realistic to introduce a way of area based cost sharing, because of population of farmers. This method has been functioned in Japan and Taiwan without serious troubles.

Farmers within a irrigation scheme and particularly within a tertiary unit are entitled to receive their water in a fair, timely and equitable manner as per their predetermined allocation. This entitlement is independent of location, be that upstream, midstream or downstream. The water right of a unit WUA at the tertiary unit or a unit village WUA is the same as it is for each water user, only that the water allocated to a tertiary unit is the total allocation of all farmers within the tertiary unit. This applies progressively upwards to the WUAF and the IWUA. The water right of the IWUA is with respect to all other IWUA plus domestic and industrial users who take water from the same source.

Naturally any allocation must be relative to the volume of supply, the source. In times of low flow, drought and dry seasonal flows, allocations must be adjusted to suit all users, and through the IWUA it will be necessary to implement a rotational delivery system of water, to all users. Of concern is the allocation to domestic and industrial users. Generally, domestic supplies cannot be rationed particularly with regard to the supply of drinking water. Also, industrial users may well need the same supply during both dry and wet season to cater for their production or industrial processes. Therefore these users often take precedence over irrigation users who must use whatever the available water remain in a rotational management system.

Rotational management can influence crop production so there is a need for the water users to discuss the method of rotation. This is of particular importance within the irrigation area, with all the irrigators receiving water via a rotational system or the irrigators being divided into sections based on location along the main canal and water delivered to a different section on a yearly dry season basis.

There must be a system of fair water allocation and this can only be achieved through water rights' legislation. With water rights' legislation must come the mechanisms to measure river flows and canal flows and delivery flows to the users. If this is not done then IWUA, WUAF, unit WUA and irrigators do not know if they are receiving their correct allocation. Without measurement, the control of upstream IWUA will be difficult. Industrial and domestic users can be regulated but currently the majority of irrigation systems cannot be regulated and controlled. If this is not addressed, water rights and water allocation have little meaning.

5.2.2 Operation, Maintenance, Repair and Rehabilitation

(1) Operation and Maintenance (O&M)

1) Irrigation System Operation

In irrigation projects where the management has control over the cropping pattern, a good method is

the use of an approval form for individual farmers. When the management has no authority over the crop selection, the rules sharing water deficits should be well defined, for example:

- extending the interval between irrigation – consideration of the individual user, WUA & WUAF water right is paramount
- decrease the amount of water given to irrigation – YES, as long as correct agricultural advice is given with respect to the alternative cropping requirements.
- allocation of water to preferential crops – does this infringe water right and who determines the “preferential” crops.

Water sources and storages: for efficient supply the hydrology of the water source must be known in order to plan distribution.

Distribution of Water: the distribution of water has to be based on the “water right” but in accordance with the volume of supply from the source. Water cannot be distributed efficiently with respect to water right unless hydrological measurement of river flows is carried out in order to determine yearly or seasonal supply.

System scheduling, indenting ordering: requires a technical input from office of regional public work service and a participatory input from the farmers/WUA. It also requires consensus amongst farmers, WUA & WUAF on how the scheduling or rotation will be implemented. The ordering of water must also be in line with a cropping plan/pattern and in accordance with the *Ili-ili & Ulu-ulu* reports.

Operation of the canal system

- system start-up and close-down – the supply of water in the canal must be closed down or shut off between seasons to allow routine and periodic maintenance work programs to be implemented. If the cropping pattern is studied with respect to three seasons, then in reality there is only 1 month per year for carrying out maintenance. Difficult to carry out effective and efficient maintenance.
- range of discharges in each canal – A system of flow measurement is paramount to the successful operation of irrigation systems. An acceptable method of measurement must be installed at all off-take structures from head-works, primary, secondary and tertiary structures.
- authorized rate of charge of discharge – only where measurement is possible
- water level fluctuations at critical points of each canal – gate operators should know the actual height or level of water that must be controlled by the check gate to deliver the correct irrigation demand/supply.
operating of all water control structures – control/check structures must be operated efficiently to ensure the correct command water levels are maintained or controlled in order to deliver the design volume of water to either the secondary or tertiary block.

On farm water management (OFWM) requires cooperation and the active participation of farmers is essential for efficient use of water. These require organization, skill and discipline. PPLs have no understanding of OFWM and their general response is to leave the method of flow and delivery of water within the rice fields to the traditional operations and methods of the farmers themselves. The flow of water from paddy field to paddy field or by small delivery canal is at times inefficient and subject to abuse by many farmers. The existing farmer methods of taking water from the tertiary canal are again not conducive to high water use efficiency. Open cuts in the bank and the non-use of piped outlets and no control of command water level in canals lead to inefficiencies both in wastage and inequality of individual farmer supply. – agricultural and irrigation agencies need to address their shortcomings with respect to the level of expertise for OFWM within their organizations. The organization and responsibility of each farmers’ organization for irrigation (Water Users’ Association - WUA) and their rights and obligations of each member, should be clearly defined in a separate document

(AD/ART for the individual WUA or traditional WUA formation).

The distribution of water by the WUA is dependent on the supply of water in the main canal, lateral and sub-lateral being operated by the irrigation agency. It is therefore necessary for the agencies have to take responsibility for, and an active interest in, activating the farmers within the WUA.

2) Maintenance

Maintenance work programs can be divided into two main categories, routine and periodic maintenance. Periodic maintenance is inclusive of programs that are designed to be done seasonally or yearly or when deemed necessary, i.e. depending on the manufacturer's warranty or design life of the system component.

The works and objectives for routine and periodic maintenance works are shown in the table of section 3.3.1 (3). This terminology should be used and followed but the implementation of such work demarcation requires an experienced O&M engineer or technician experienced in evaluating the extent and necessity of the repair or maintenance works.

For example, the routine and periodic items are not vastly different. The difference is the severity and affect of the damage on the operation. In general, works that can be given a time frame, for example the removal of sediment, grass cutting, greasing of gates, trash removal and minor bank repair are classified as routine and can be given a time frame of implementation, i.e. every week, two weeks or monthly.

Periodic maintenance can include the above items but are more extensive in the required works. In general, they require a large work contract force to complete, such as large scale sediment removal, structural and gate damage, large-scale earth bank repair and canal lining repair and preventative maintenance. Preventative maintenance, particularly with regard to earth canals, may also be part of routine maintenance budget where repairs can be performed during irrigation flow and operation.

Farmers take care of or maintain irrigation facilities by themselves for those aspects listed in the Minor or Daily Routine Works column. By gathering together groups of farmers, mainly at the quaternary level, most farmers can handle these tasks on their own alongside their other tasks of water distribution and management. Most farmers manage these activities, whether or not a WUA exists or operates. Government has generally been responsible for those works listed in the Major or Periodical Works column.

(2) Rehabilitation

Rehabilitation of an irrigation system is a component of an effective irrigation management program. For an irrigation system, large-scale rehabilitation should only occur at a time that equates to or is near to the expected design life, of the irrigation infrastructure. It is at this time that the irrigation system needs to be redesigned, reconstructed or modernized. Rehabilitation at the time of expiration of the "design life", can only apply to irrigation systems that have been managed in accordance with the certain engineering parameters. Such schemes would need to have been designed efficiently and correctly; constructed as per the design and field requirements; subjected to quality control criteria and subjected to a yearly maintenance program of routine and periodic works. Based on the above criteria and assuming that a design has been based on a 25 year working life, it would be expected that most rehabilitation would not be required for at least 25 years and should most likely be nearer to 25 years.

5.2.3 Irrigation Management Turnover

(1) Lessons Learned

INPRES No.2/1984 on “Guidance to Water Users’ Associations” and the consequent No.42/PRT/1989, “System of Turnover of Small Scale Irrigation and Management Authority to Water Users’ Association”, are the basic regulations effecting the establishment of WUA and their function in accepting the turnover of management authority of small scale schemes (less 500 ha) from Government to WUA. The Irrigation Operation and Maintenance Policy (IOMP) of 1987 states that, “for smaller systems with an area of less than 500 ha located within one village, the responsibility for O&M may be entrusted to the WUA for that particular village. In this way, the responsibility assumed by the community can be further developed, while reducing the number of schemes managed by the Government, and more attention can be paid to large and medium scale systems that cannot be managed by the community”.¹ Government policy regarding the turnover program was to:

- Turnover schemes of 500 ha or less to WUA,
- Improve (rehabilitate) the systems before turnover, and
- Give responsibility to the Government for those activities beyond the capability of the WUA.

Apart from the turnover of small-scale schemes under 500 ha, numbers of tertiary unit (TU) systems from within large-scale technical and semi-technical systems have also been turned over to WUA. The purpose of the turnover program was to reduce the demands on Government resources (financial and manpower) and to generate a degree of responsibility within the farming community for irrigation system investment. The criteria for “turnover” were based on the following aspects of irrigation system and WUA;

- The usage of the irrigation water,
- The physical condition of the irrigation system – the irrigation system must be classified in good condition,
- The institutional condition of the WUA,
- The WUA must be registered by the Bupati, and
- The WUA must be organizationally, technically and financially qualified to take on the duties and obligations.

The procedures were developed by Government, their application was cumbersome and time consuming and there was a lack of real WUA/farmer participation in the process. Furthermore, the Government irrigation department lacked the “political will” to process scheme turnover but was interested in the provision of budgets for rehabilitation of irrigation systems. The criteria, in general, disqualified many schemes and WUA from the turnover program.² Some favorable outcomes were achieved through the turnover program, such as improvements in O&M, increased cropping intensity, more equitable water distribution from upstream to downstream.³ The assessment of these initial favorable outcomes is difficult to make at this stage, as there are few indications of the benefits being sustained.

In 1996, a new project, IDTO, a component of the JIWP (Loan 3762-IND) was established to promote the use of participatory methodology in preparing WUA and WUAF to accept responsibility and management for irrigation schemes. The project has met with some success but there is still some

¹ “Assessment of Options for Sustainable Irrigation Development in Indonesia”, Final Report, ADB 1998.

² DGWRD, *Bina Program, PPS*, 1997

³ Reported by researchers [Bruns, Helmi & Soenarno] 1996, World Bank, 1996 and ADB, 1998

fear that the methodology used closely parallels that previously used in the “top down” approach applied during the PIK (*Proyek Irigasi Kecil*) turnover program.

Given the speed with which the project has achieved the formation of WUAF, there are some reservations as to the depth of the participatory approach and extent to which community has been made aware. The time taken to form the WUAF appears to be too short to have allowed the project to have achieved a satisfactory completion of a program of facilitation of farmers from upstream, midstream and downstream areas of an irrigation area and the facilitation of the community through the application of community awareness and participatory programs.

IBRD has noted that, apart from the limited reference of PRA (*PPKP*) at the block level, there appears to be very few differences between past and present methodologies. The method involves a “top-down” Government approach, expensive design, little real participatory involvement of farmers, little apparent regard for the new policy of Local Government (*Kabupaten*) autonomy and little or no involvement by MOA.

IBRD (1999) reported that the turnover program had achieved only one-third of the designated target. They questioned the success and efficacy of the WUA that had accepted turnover irrigation schemes because of Government’s neglect for WUA development programs and the lack of Government applied post-turnover support programs for WUA. It has been reported that there was very little farmer participation in the turnover program, that some farmers did not know about turnover and some WUA were not consulted. Instead of developing a sense of farmer ownership, independence and empowerment, the turnover concept was used by the construction and project arms of DGWRD, to justify more Government funding for irrigation scheme rehabilitation.

(2) Redefinition of Turnover

There is a need to rethink the definition of turnover, i.e. the criteria, the practice of application and the methodologies to achieve a successful outcome. Whilst the basic philosophy of the turnover program is sound, the area of concern is the ‘rehabilitation before turnover policy’. To facilitate farmer participation this needs to be changed to one of ‘turnover before rehabilitation’.

The goals and objectives of the program are in line with the overall principles laid down in INPRES No.3/1999, i.e. farmer based development and self-reliance for farmers and WUA. Participation of farmers during the design and construction phase of the system rehabilitation and maintenance stages of the turnover program will give farmers a sense of ownership and hence the turnover program could be the catalyst by which sustainable irrigation management is achieved. When farmers accept turnover before rehabilitation, they then assume responsibility to participate in the design and construction phase and Government officers need to work with farmers and community in a participatory manner.

The policy of ‘one irrigation scheme – one management unit’ will require major Government inputs in terms of WUA development programs and post-turnover support programs for WUA. The community awareness and farmer participatory (PRA) programs will need to be implemented to facilitate farmers and WUA within the larger irrigation schemes as farmer agreement and farmer participation is sought at the field level, the unit WUA level and at the WUAF level.

(3) Transfer of Irrigation Infrastructure and Assets

Current Government policy states that the assets of the irrigation system, i.e. the canals, drains and

structures, remain the property of Government but the responsibility for the implementation of and the financial aspects of O&M are to be handed over to the unit WUA, WUAF and/or IWUA. This policy may deter some farming communities from accepting turnover responsibilities where there is no transfer of asset ownership. Farmers and WUA may not be willing to accept the financial implications of O&M and the responsibility for an asset which they do not own.

To successfully obtain farmer co-operation with regard to the empowerment of WUA, the handing over of the irrigation infrastructure assets to the farmers (WUA, WUAF & IWUA), either in full or in joint ownership with Government may need to be considered. Consideration is important with respect to the current condition of the majority of irrigation schemes, as major financial inputs are required for scheme rehabilitation. Farmers may well be willing to accept responsibility for the yearly financial costs of O&M and they are capable of affording these costs, but in the majority of cases large scale rehabilitation costs are beyond their capability. And as per INPRES No.3/1999, joint financial management with Government will be needed for rehabilitation, it could be at this juncture that consideration should be given to the joint ownership of assets. Such action may facilitate and hasten the senses of belonging and ownership amongst the farmers.

Turnover policy should redefine the turnover of assets to: “the turnover of irrigation infrastructure assets, canals, drains, structures, roads, etc in joint ownership with Government”.

(4) Transfer of Irrigation Maintenance Responsibility

Under the turnover policy, farmers and WUA are to accept the responsibility for O&M of the irrigation scheme, inclusive of routine, periodic, seasonal and yearly programs. In the past this has been applicable to tertiary unit systems and small irrigation schemes of less than 500 ha. Present irrigation management turnover policy can be defined as follows:

“Turnover of the responsibilities of O&M (the delivery of water and the maintenance and repair of the irrigation infrastructure) to the WUA or WUAF or IWUA, i.e. the planning, the financing and the implementation of such activities and works that return the irrigation system to or as near to the “as built” condition to achieve sustainable irrigated agriculture”.

It should also be borne in mind that the acceptance of the responsibility for O&M also includes the responsibility for any future rehabilitation of the irrigation system. This aspect will place a large administrative and financial responsibility on WUA, as funds for rehabilitation can only accrue through long time financial planning.

With the new irrigation policy reform, WUA are being requested to accept responsibility, through turnover, for the O&M of large-scale semi-technical and technical schemes. In most instances WUA do not have the administrative, financial and technical capabilities to assume responsibility immediately following turnover without Government support in the form of continued WUA development programs and post-turnover support programs for WUA.

INPRES No.3/1999 states that those WUA not capable of receiving turnover are to be assisted technically and financially by Government. A conceptual aspect discussed by WATSAL, but not yet implemented, concerns those instances where WUA are lacking in irrigation management capability, and where a joint management role between Government and the WUA should be applied. Joint management is a necessary requirement both before and after turnover; the lack of government

post-turnover support programs was one reason for poor WUA performance following turnover.

Post turnover support is paramount to the success of WUA empowerment. Therefore, any turnover agreement between WUA and Government should be inclusive of Government agreements to provide joint management assistance in the form of reciprocal financial and technical assistance.

(5) Transfer of Water Rights

It is expected that the accepted owner of the water resource is the Government. The Government, therefore, at no time should transfer to any water user the legal water right for ownership of the water resource be it farmer, WUA, domestic or industrial water user. Government should remain the controller of the resource.

Each individual farmer or other water user (domestic, industrial, fish farmer etc.) should have a legal right to receive his equitable water allocation with respect to crop and area but only in relationship to the seasonal supply of water. That is, a water user has an agreed allocation but the quantity received can be varied according to cropping plans, seasonal fluctuations of the water source and agreed water user rotational operational procedures. There is, therefore, no need to transfer the water right. But, policy must be agreed and formally legalized, i.e. farmers, unit WUA, WUAF and IWUA are entitled to receive their correct and equitable water allocation in accordance with the agreed cropping plan and seasonal variations in the source of the supply.

5.2.4 Irrigation Joint Management

(1) Irrigation Reform and Joint Management

Under previous WUA regulations, WUA were responsible for the irrigation management of the tertiary unit system (typically 50 to 150 ha) and the village irrigation system while the Government irrigation department was responsible for the irrigation management of the main system (secondary and primary canals and structures and intakes such as head-works). INPRES No.3/1999 has proposed the “*one irrigation system, one management*” concept within irrigation reform. WATSAL recommendations, for the application of the one management principle, propose that individual WUAs continue to manage the tertiary unit and village irrigation system, and WUA Federations (WUAF) should act as coordinating management units for the WUAs of all the tertiary units served by a secondary canal. Through this coordination, it would be responsible for the irrigation management of the secondary canal system. Future development is directed at the management of the primary irrigation system and head-works through an IWUA, with responsibility for coordinating the O&M management of the WUAF of all the secondary canals.

(2) Joint Management

However for the foreseeable future, WATSAL has seen a need for the joint sharing of responsibilities for the irrigation management of the primary irrigation system and head-works between WUAF and the Government irrigation department, until such time as an IWUA is formed to manage the whole system. Also, as previously mentioned, INPRES No.3, 1999 states that for those irrigation systems not yet turned over to the WUA, their management and financing shall be conducted jointly by the Government and the WUA, through joint management, until the irrigation system can be turned over to the WUA.

Based on the JICA Study Team field surveys and irrigation system inspections, the level of successful

applications of O&M management practices by both WUA and the Government irrigation department is minimal. Additionally, the capability of WUA and WUAF to implement efficient operation and maintenance (EOM) management procedures at either the tertiary unit or the secondary canal level is low and the number of successful applications of EOM by WUA/WUAF is negligible. There are numerous reasons why the irrigation systems have deteriorated to a level that will, in all probability, require extensive maintenance works programs, or complete rehabilitation, and these have been discussed in Chapter 4 of this Report and other sections of this report. Of concern is that the findings of this study in five provinces and 25 irrigation areas, are likely to reflect the findings of any other similar surveys carried out in other provinces.

(3) Sharing Responsibilities

It is expected that for the empowerment of WUA to have achieved self-sustainability, whereby the WUA is capable of the management of irrigation systems from the tertiary unit to the head-works, will require the application of Joint Management for an extended period. It is also expected, there will only be a limited number of WUA, WUAF and irrigation areas where Joint Management and the sharing of responsibilities between Government and WUA will not be needed. The joint sharing of responsibilities needs to be decided on the basis of irrigation system walk-through of each individual irrigation area system and consultations between farmers, water users, WUA and local government, in particular the agriculture and irrigation department officers.

For example, where individual tertiary unit or village based WUA are not self-sustaining, then these WUA will remain responsible for the tertiary irrigation management, but, with guidance and facilitation from Government irrigation and agricultural field officers from the Kabupaten Coordination WUA Support Forum under the auspices of the Joint Management role. In addition, because the WUA through their WUAF are to become responsible for secondary canal system and eventually primary canal system management, responsibilities for these main system areas must be shared so as to create participatory involvement, “on the job” learning and confidence. Government must act as a coordinator, facilitator, trainer and extension medium to create WUA empowerment. Government should only act as an implementer when requested by WUA and following a consultation process and agreement with WUA. Joint Management is a process of delivering good and efficient irrigation management but it must be implemented so that WUA and WUAF become empowered. Joint Management and the sharing of responsibility must be used as a method whereby the WUA is trained and developed to become empowered.

The walk-through and consultation would determine the condition of the irrigation infrastructure, the necessary maintenance and/or rehabilitation program of works needed to return the system to the “as built or equitable operational” condition, the cost of works and prioritization of works. The Government, by means of consultation, must respectively determine the level of capability of the WUA to manage the larger aspects (primary and secondary canals and structures) of the irrigation system. Finally an assessment of the farming community’s socioeconomic condition and their ability to financially manage and administer the application of irrigation management will be required.

If there is doubt that a WUA is ready for complete turnover, then it is in the best interests of WUA empowerment and the achievement of sustainable irrigated agriculture through the achievement of sustainable EOM and irrigation management, that Joint Management of the irrigation system be applied. The determination and agreement to proceed with Joint Management and the allocation of Joint Management responsibilities will require transparency and commitment on behalf of the

Government and the WUA.

(4) Evaluation and Empowerment through Joint Management

Tertiary unit irrigation management has been mentioned within the responsibilities of joint management. Naturally, individual WUA are responsible for the irrigation management of tertiary unit. But, the achievement of WUA empowerment and a sustainable continuation of “one irrigation system, one management” is dependent on the strength of the base component, i.e. the individual village or tertiary unit WUA and the acceptance of farmers for the payment of an O&M fee. If EOM is not successfully applied at the farmer base level of the tertiary unit and farmers do not equitably receive their irrigation water, payment of the O&M fee may possibly cease. Therefore, the ability of the WUA, WUAF and Joint Management agreement to proceed at the secondary and primary irrigation system will be adversely affected. It is imperative that joint management agreements and supervision should extend to cover the individual tertiary unit or village WUA.

(5) Length of Time for the Sharing of Management and Financial Responsibilities

The length of time that Joint Management may need to continue will depend on the capability of the farmers and their willingness to accept their responsibilities and obligations for irrigation management and on the Governments ability to fulfill its responsibilities. Within an evaluation of farmer and WUA capability, consideration must be given to their socioeconomic status and their management capability for the implementation of EOM from the tertiary unit to the head-works. It would be expected that the Government input to Joint Management agreements would decrease and be phased out over time, although Government would need to strengthen and retain its technical capability for continued guidance, extension, survey and design etc. to WUA.

5.3 Countermeasures for Problem Solution

5.3.1 Important Issues

Problem analyses in the Phase I Study were made on the following aspects:

- Role of government,
- Irrigation Management,
- WUA management,
- Agricultural and economic aspects, together with comprehensive problems.

Based on these problem analyses, the object analysis was conducted. As a result of the object analysis, the countermeasures to solve the problems can be mainly divided into two categories,

- to achieve the sustainable irrigation management and
- to achieve the sustainable irrigated agriculture;

Items to be taken for these targets are shown in Fig. 5.3.1. Based on these categorizations, countermeasures or required activities are summarized in the project design matrix (PDM). In addition to the above two categories, the social preparation that support these categorized activities was studied.

5.3.2 Formulation of Countermeasure on Irrigation Issues

Combining the results of problem/object analysis of 1) role of government, 2) irrigation management, and 3) WUA management, the countermeasures for the achievement of sustainable irrigation management are summarized as a WUA development project, as shown in PDM format on Table 5.1.1.

The overall goals of the project as set out are: 1) achievement of sustainable irrigation management by empowered WUAs, and 2) empowered government officers to provide the appropriate assistance to WUAs for the sustainable management of irrigation schemes.

< Outputs I-1 : Democratic WUAs capable of sustainable O&M of irrigation scheme >

Activities	
[I-1.1]	Activate PTGA trainers from previous training program, and use trainers for facilitation and dissemination of WUA and turnover concepts at provincial, kabupaten and kecamatan levels
[I-1.2]	Recruit and train community organisers to facilitate WUA program.
[I-1.3]	Implement public awareness programs for local government and farming communities, particularly on WUA concepts, water rights, responsibilities and IURAN
[I-1.4]	Form and/or reform WUAs and WUA federations in line with farmer needs, traditions and norms using a participatory approach (WUA structure, articles of association/ legal standing, sanctions, administration, etc).
[I-1.5]	Implement on-the-job/ participatory training of WUA officials and members, to include the following aspects
[I-1.6]	Assist WUAs to set ISF levels
[I-1.7]	Assist WUAs with preparing for legal status (AD/ART), and applying for registration
[I-1.8]	Determine and review joint responsibilities for irrigation O&M between WUAs/WUA federations
[I-1.9]	Assist WUAs to prepare proposals for Kabupaten Irrigation Improvement Funds for maintenance and rehabilitation priority programs.

(1) Public Awareness (ref. Table 5.1.4)

[Activity I-1.1]

Phase I problem tree analysis indicates that, after all, the identified constraints and problems of irrigation management, WUA and turnover program are rooted in inadequate perceptions of the related Government Agencies, water users and the concerned parties regarding the importance of self-sustaining irrigation and agriculture development, and their preparedness to put these into action.

The findings indicate, for example, that most farmers do not know the WUA and its AD/ART, and subsequently they do not know of their membership, their rights and obligations, etc., resulting from the past WUA promotion that was evidently sectorial and promoted using a top-down approach.

Farmers are not willing to pay adequate O&M not only because of their low incomes and lack of sense of belonging, but also because of belief that water is a free gift from God. Whilst this may correct in terms of that water source, farmers need to be made aware of the distribution costs including irrigation infrastructure, facilities, operation and maintenance provided by Government; and that to make it sustainable the irrigation management and O&M costs should be recovered, amongst others, by IURAN collected from the water users. Farmers need to pay not for water but for the provision of irrigation construction, facilities and management.

There is also a gap of understanding between *PPL* (agricultural extension officer) and *Juru* (irrigation scheme irrigation officer) at on-farm level as to how and who is responsible to guide farmers in efficient on-farm water management, since the *PPL* thinks he is responsible for agriculture technical know-how while the *Juru* feels responsible for water distribution before it reaches the farm plots. The gap may relate to the prevailing extension work setting amongst the concerned Government Agencies that is evidently sectorial-based, whereas at field level it reflects the evidence of lack of understanding concerning the need for comprehensive extension services.

Different findings of the Phase I Study indicate Government has, as yet, no adequate model to calculate the irrigation O&M cost in Rp./ha/annum as required to ensure State irrigation scheme

sustainability and clearer separation of responsibilities between Government and the farmer.

Unfortunately the collection of IPAIR has not met with much success, so far, mainly because farmers' low incomes. Some improvements have made recently, for instance in the irrigation scheme Yogyakarta Province, by turning over the irrigation scheme management and O&M to the WUAF and providing an injection fund as much as about Rp.250,000/WUAF. But there is no guarantee as to what extent the collected O&M fee from the individual farmers will cover the irrigation management and O&M costs as required to keep irrigation functioning well.

PTGA (Water-use Development Program) was initiated in 1983/84 with the purpose of enhancing agricultural production through the optimization of water use in tertiary, pumped and village irrigation schemes. PTGA offices were established in the participating provinces (which included West Sumatra, West Java, Yogyakarta, East Java and West Nusa Tenggara), and extensive training programs were carried out at different levels of Government. The training was top-down, and limited resources were available for the program at village and WUA level.

PTGA has not been very active in recent years, because of the financial crisis, and the reorganization of ministries from Public Works to Settlements and Regional Infrastructure. However, many central, provincial and kabupaten officials were recipients of the training programs, and many were involved in the 'training of trainers' (TOT); and despite the changes and reorganizations that have taken place, many of these officials must still be 'on post' and could be available to participate in further WUA programs.

It is proposed that the resources of the PTGA offices be used under a future WUA development program to inform relevant Government staff at central, provincial and kabupaten levels of the new strategies and concepts for WUA development. It would concentrate on the bottom-up, participatory approach, Government as facilitator and supporter rather than as implementer or provider and human resources aspects such as transparency, establishing trust with the farmers, etc.

PTGA staff would need some refresher training in the new concepts and ways of thinking. An introductory workshop is envisaged for the central level, but with the main emphasis of the awareness program at provincial and, in particular, at kabupaten levels. It is suggested that a PTGA official be stationed at each target kabupaten to assist with follow-up activities.

[Activity I-1.3]

Public awareness programs are needed to inform the target farming communities and local governments about WUA concepts and the reasons behind a WUA development program.

Water resources development and management, previously undertaken as engineering-led and project-orientated 'supply development/ management' activities, should now be exercised using an 'integrated development/ demand management' approach involving WUAs and other water user stakeholders as participants in the decision-making processes. Important aspects that should be included in the public awareness campaign are:

- benefits of WUAs (better water management, more reliable crop yield, etc);
- developing WUAs according to farmer needs, local traditions and norms, and existing organizations (democratic, participatory means);

- water rights⁴, and WUA responsibilities (management of operation and maintenance of irrigation systems);
- WUA concepts (individual WUA, WUA federations, turnover, etc);
- obligations of WUA members (payment of *Iuran*, etc);
- support from local government (technical advice and guidance, financial assistance, etc).

The dissemination of information through public awareness campaigns is normally done through village meetings and workshops, facilitated by community organizers. Training aides will need to be prepared or adapted from existing material, and could include the following:

- videos⁵ ;
- cartoons/ drawings, shown by overhead projector;
- posters (for later installation at strategic public places in the community);
- pamphlets/ explanatory notes.

Maximum use should be made of audio-visual techniques, since these are considered to be the most effective means of communicating messages to target groups

(2) Community Organizers(COs)

[Activity I-1.2]

Farmers need to be made aware of the Government policies and how the laws and regulations affect the farmer community and their responsibilities. The farmers also need to be informed on their water rights under the new laws and regulations. The empowerment and development of WUAs requires a positive response from the farmers; this will require time and effort spent within the village and the irrigation area. The time and effort must be spent on a public awareness campaign directed at the local community level, i.e. village or villages or irrigation area. This can probably be best achieved through the participation of a Community Organizer (CO) living and working amongst the community.

The recruitment of the CO has many possible scenarios. The preferred scenario is for a PTGA and/or non-government organization (NGO) person to act as supervisor of a number of COs recruited from the target communities (such as village elders, informal leaders, etc). There are four main points to consider:

- 1) Here needs to be a concerted input by PTGA staff into the facilitation of the public awareness campaign. If the PTGA have the trust of the local community and can effectively work with the local farming community and WUA members, as a facilitator and assistant only, then PTGA staff can act as field officers at the *kabupaten* level. These staff can supervise, guide and monitor the activities of the village Community Organizers.
- 2) If there appears to be a distrust of government officials exhibited by the village community then the solution would be to recruit an NGO who can place a field officer or field officers at the *kabupaten* level. These NGO field officers will be responsible for the supervision, guidance, direction and monitoring of the village Community Officers. The NGO would work independently of the PTGA but would adopt a method of reporting progress on community facilitation and participation. Through a process of joint operation over time, between the NGO and the PTGA, and as trust of the PTGA by the community is developed through cooperative

⁴ Under WATSAL, the water rights of WUAs and WUA federations need to be addressed (proposed changes to Government Regulation [Peraturan Pemerintah - PP] No. 23/1982). Water resources regulation based on a water rights system -- in order to allocate and optimise bulk irrigation water supplies -- will be important issues for the river basin management committees (*Panitia Pelaksana Tata Pengaturan Air - PPTPA*), and other units such as *Balai Pengelolaan Sumber Daya Air (Balai PSDA)* and river basin management corporations (for example, *Perum Jasa Tirta [PJT] Brantas*) depending on location.

⁵ For example, for the Madura Groundwater Irrigation Project in East Java, a series of films was prepared during 1986-1990 on WUA operations, irrigation O&M, agriculture and other aspects, and shown during public awareness and WUA training sessions; copies of the videos were distributed to all relevant *kecamatan* in Madura.

activities, then the PTGA can assume responsibility from the NGO.

- 3) The Community Organizers need to be recruited. Because of varying social, cultural, traditional and ethnical differences between villages, the best person to recruit as a CO is a village representative. A village elder or informal leader or respected community member would have an understanding of the social issues, constraints, problems and community mindset within the village. The recruited village elder would only require a basic level of education, and literacy, but would need to have a level of motivation and initiative for the benefit of the village community and the WUA, for the benefit of the farming community. This person would then receive a basic training with respect to WUA concepts, water rights, the rights of the farmers and the responsibilities of the farmers for O&M etc.
- 4) The application of the public community awareness campaign would best be implemented through a system of application at the village community and at the irrigation farmer community via the downstream, midstream and upstream irrigation area communities. Using this methodology, assistance can be provided to the village CO by the selection of two or three farmers from the three irrigation areas. These assistants would then perform the duties of the CO within the farmer/irrigator community.

In the event that suitable candidates cannot be recruited from the village, then the alternative is to recruit the COs from either an NGO or university. COs recruited from outside the village will add time to the process of developing farmer participation, motivation and willingness because they must first win the trust of the village community.

The training of COs should build on the resources and experience of PGTA, and include the following aspects:

- public awareness methodologies;
- benefits of WUAs (better management of water supplies);
- formation of WUAs and WUA federations, institutional structure (which should be as simple as possible);
- decisions regarding WUA boundaries and areas of operation;
- responsibilities of the WUA;
- legal aspects, AD/ART⁶ (articles of association and operating guidelines);
- WUA member obligations (particularly payment of *IURAN*)
- sanctions for violations over misuse of water or non-payment of *Iuran*

(3) Participatory Formulation/Reformulation of WUA(F)

[Activity I-1.4]

WUAs and WUA federations need to be formed or reformed in line with farmers' needs, traditions and norms using a participatory and democratic approach (WUA structure, articles of association/ legal standing, sanctions, administration, etc). This activity will determine the area of responsibility of the WUA and the structure of the WUA, election of officials, and list the membership and landholdings.

The following options will be open to the farmers:

- continue with the existing WUA setup, with little or no changes;
- reform the existing WUA setup to be more in line with traditional practices⁷;
- integrate/ merge the WUA with existing institutions and organizations such as the kelompok *tani* (*KT*).

⁶ Anggaran dasar/ anggaran rumah tangga.

⁷ WUA development could be based on existing irrigation institutions using traditional village figures such as the *ulu-ulu* (water distribution supervisor). Many farmers are still committed to their *ulu-ulu*, and the traditional practices of irrigation management, including O&M, remain (by using mutual self-help or *gotong royong* for maintenance works, and paying in kind).

Additional points regarding WUA formation are:

- women farmers and tenant farmers should be represented on the WUA management board, and participate in the decision making processes;
- honoraria for WUAs should be approved by the members;
- responsibilities of WUA officials should be clearly defined and approved by the members;
- WUAs should have regular meetings to hear members' aspirations and problems;
- WUA record keeping requirements should be kept as to a minimum, and in as simple a format as possible.

It is important that WUA federations (WUAF) are not formed in haste, but only after that it has been demonstrated that the individual WUAs are sufficiently developed and empowered to support such a federation. And it is important that farmers understand that a federation of WUAs enables them to negotiate water allocations within an irrigation scheme.

Under WATSAL it is proposed for kabupaten irrigation committees to become sub-committees of the river basin water management committees (*Panitia Pelaksana tata Pengaturan Air - PPTPA*), and WUAs of irrigation schemes will be represented on the PPTPA together with other water use stakeholders.

(4) Participatory Training of WUA

[Activity I-1.5]

COs and staff from the local government (particularly the *juru pengairan* and PPL) will need to work together to give training to the WUA officials and farmers/farmer groups, and should take the form of on-the-job training wherever possible. The training should be based on PTGA and the efficient operation and maintenance (EOM) modules developed under the old MOPW (DGWRD) – both modules provide excellent presentations on the technical aspects of irrigation O&M, on-farm water management, crop water requirements, agriculture and WUA administration. The following aspects should be covered:

- development of cropping plans and calendars;
- water distribution scheduling and operational procedures based on the cropping plan and water availability;
- walk-throughs of the irrigation scheme to inspect the physical infrastructure and to determine priorities for maintenance and rehabilitation programs;
- preparation of maintenance and rehabilitation proposals for submission to the *kabupaten* (including cost estimates and WUA contribution/inputs).
- deciding on WUA boundaries and areas of operation;
- responsibilities of the WUA;
- legal aspects, AD/ART (articles of association and operating guidelines);
- decisions concerning water rights and water allocation between upstream and downstream water users (particularly in the dry season);
- management and administration, book-keeping, accounts, budgeting.

As part of the training program, successful WUAs ('success stories') should be used to train other WUAs needing assistance. The main advantage of this approach is that training is done by people with hands-on experience.

For the empowerment of WUA through the application of the activity, "Participatory Training of WUA", the following activities should be applied to enable the countermeasures to be realized

	Expected Activities
Government	<ul style="list-style-type: none"> - It is recommended that Government should reactivate the PTGA activities for WUA training and install officers at the <i>Kabupaten</i> level of government to coordinate these training methodologies. - PTGA activities should be removed from a project orientation of application and officers moved to departmental level, working within the <i>Kabupaten</i> Coordination WUA Support Group so that PTGA officers can coordinate activities amongst the trainers, farmer trainers and WUA. - PTGA should not only act as a training agency but it should accept responsibility as a facilitator of WUA activities, community organizers, socialization activities, training, and WUA to WUA training. - PTGA, under the umbrella of the <i>Kabupaten</i> Coordination WUA Support Group, should also facilitate and coordinate the field activities of Government officers from the departments of agriculture, irrigation and administration as well as coordinate the management of government officer (extension) response to WUA requests for assistance. - Government (Central & <i>Kabupaten</i>) should ensure that adequate funding is made available to the <i>Kabupaten</i> agencies for the implementation of the above field activities and training and to also ensure that sufficient manpower and expertise is available at the <i>Kabupaten</i> level to apply and guide the training methodology. - PTGA facilitators need to apply training that is required by an individual WUA and irrigation area, which is site specific and targeted to the needs of each WUA. - PTGA facilitators need to coordinate the needs and requirements of training for WUA (tertiary & village) to those of WUAF and IWUA. - It is recommended that modules developed by PTGA and EOM during the late 1980s, should to be accessed and used as reference material for training, delivered as per individual needs. Some revision of these modules will be needed, particularly those that deal with law and regulations respectively. - It is recommended that training be implemented via “on the job” and “learn by doing” methods and concepts with the classroom training aspect limited to the methodologies used on the Madura Groundwater Project of Successful WUA training of other WUA and farmers.
WUA/ Farmers	<ul style="list-style-type: none"> - Farmers and WUA should be willing to partake in the participatory training and be willing to apply the training received for the benefit of all the farmers and water users of the irrigation area, i.e. area of WUA responsibility. - Farmers and WUA committee members from successful WUA should be willing to act as trainers (topic masters) in the training of less developed WUA.

(5) ISF coverage

[Activity I-1.6]

In accordance with proposals under WATSAL the estimation of government O&M budgets will no longer be based on a per hectare command area formula. The O&M budget to be made available by a *kabupaten* government for each irrigation scheme will be matched or linked to the total IURAN payments collected by the scheme WUAs. Thus, a direct linkage will be created between *kabupaten* irrigation agency funding and WUA satisfaction with irrigation supply and support services and their consequent willingness to pay IURAN. This linkage will foster irrigation agency accountability for services to WUAs.

In accordance with INPRES No.3/1999, IURAN collections are the sole responsibility of the WUA. Each WUA would collect the *IURAN* from the water user beneficiaries within the designated area of the WUA irrigation scheme, and the collected funds would be allocated for O&M works for that scheme only. (Under the previous top-down WUA model, the ISF program failed because the collected funds were channeled to Regional Revenue Services (*DISPENDA* of MOHA) into general revenue, its use was non-transparent and the funds collected from a particular scheme were not necessarily used to benefit that scheme).

IURAN levels should be decided on the basis of Activity I-1.5 (particularly the walk-through of the irrigation scheme and determination of operation and maintenance priorities), and be as reasonable as

possible. WUAs and farmers should decide whether there should be a separate membership fee for the WUA, or whether this should be included as part of the *IURAN*.

(6) WUA Registration for Expansion of Activities

[Activity I-1.7]

Under WATSAL, the reformation of UU No.11/1974 and PP No.23/1982 on irrigation, and the issuing of a new decree on irrigation management transfer are proposed, in order to provide the legal basis for WUA empowerment.

Related to Activities I-1.4, I-1.5 and I-1.6, this activity is to provide assistance to the WUAs for the preparation of a legal document for registering with the local government. The document will give legal status to the WUA and enable it to open a bank account, receive financial assistance from local government, arrange contracts with third parties, etc. The contents will outline the WUA purpose, area of operations, operating guidelines, *IURAN*, sanctions -- (*anggaran dasar/anggaran rumah tangga - AD/ART*) – and local government support, contact organizations, etc. The document should be tailored to each WUA's particular situation and needs.

WUAs with legal documents will be registered with the *Kabupaten*, and will be eligible to receive financial assistance and support. The registration procedure should be kept as simple as possible.

(7) Joint Management of Irrigation Systems

[Activity I-1.8]

As a general principle, individual WUAs should manage tertiary irrigation units (typically 50-150 ha), and WUAF should act as coordinating units for the WUAs in all the tertiary units served by a secondary canal. However, for the O&M of the headworks and upper part of major irrigation systems, it is envisaged that for the foreseeable future there will need to be a joint sharing of responsibilities with *Dinas Pengairan* (reference WATSAL), until such time as an IWUA is formed to manage the whole system. The joint sharing of responsibilities needs to be decided on the basis of irrigation system walk-throughs and consultations between the WUAs and local government.

The allocation and determination of the joint management responsibilities will require transparency and commitment on behalf of the Government sector. The Government should respectively determine the level of capability of the WUA to manage the larger aspects (primary and secondary canals and structures) of the irrigation system. If there is any doubt that the WUA may be capable, then it is in the best interests of achieving sustainable efficient operation and maintenance (EOM) and irrigated infrastructure that joint management may be necessary for, say, the first couple of years.

Joint Management between WUA and Government during a transitional period, either before turnover or after turnover is an important aspect for the empowerment of WUA and improved irrigation management. Therefore the following activities and recommendations must be implemented to enable the countermeasure to be realized:

	Required Activities
Government	<ul style="list-style-type: none"> - Both Central & <i>Kabupaten</i> Government should ensure the provision of adequate funding to the <i>Kabupaten</i> Coordination WUA Support Group and <i>Kabupaten</i> Irrigation Improvement Fund for the activation of the Joint Management of irrigation systems between Government and WUA(F)/IWUA. - Joint Management responsibilities should encompass financial, administration, technical, training, operation and maintenance of irrigation systems. - Government policy should include the following recommendation: To establish and continue with the Joint Management of irrigation systems, both before and after the turnover of responsibilities to WUA(F)/IWUA until the monitoring and evaluation of WUA(F) capabilities deems that the IWUA and its branches of WUAF and the corresponding branches of WUA are fully empowered to be self supporting and sustainable. - The Joint Management Agreement and the sharing of responsibilities should be implemented in an honest and transparent manner by all concerned parties. The agreement must follow a period of discussion and consultation between all participants. - It is recommended that Government and WUA(F) and/or IWUA include the individual tertiary unit or village system WUA under the umbrella of Joint Management for the purpose of evaluating the individual WUA level of development and sustainability for a follow-up procedure of guidance, strengthening and training towards empowerment in order to strengthen the base for the empowerment of the WUA(F) and IWUA. - Government should strengthen the capability of the <i>Kabupaten</i> level of Government officer through improved expertise and an increased number of officers in the fields of WUA administration and management, on-farm water management, agriculture and operation and maintenance. - Government should restrict its financial assistance to the Joint Management of the irrigation system to a reciprocal input relative to the WUA(F)/IWUA contribution of finance, labour and materials for all sections of the irrigation system, i.e. tertiary and/or village, secondary and primary. - Where WUA, WUA(F) and IWUA are not willing to reciprocate, through mutual self help with the financial and technical O&M management of the irrigation infrastructure, then Government should withdraw from the Joint Management Agreement and forfeit the irrigation system. - Government should be careful in its selection and operation of Joint Management enterprises. Joint Management must only be activated where farmers and WUA are agreed with their responsibilities and obligations of self-help for irrigation management. - Through a process of monitoring and evaluation, inclusive of irrigation management (financial & O&M) and WUA administration capabilities, Government should implement a process of gradual phasing out of the Joint Management Agreement. - The policy of “phasing out” of the Joint Management Agreement with WUA(F)/IWUA should not be set at a fixed time frame but be totally flexible and determined with respect to the capability of each WUA(F) and its degree of development and empowerment. - Government should not assume a dominant role or be seen as the “implementing agency” within the terms of the Joint Management Agreement. Government, although providing financial and technical assistance, should act as a facilitator, a provider of guidance, extension, advice and expertise as well as directing the WUA(F) towards sole management capability.
Water Users/Farmers /Water User Associations	<ul style="list-style-type: none"> - Farmers and WUA(F)/IWUA should enter the partnership of Joint Management for the benefit of assistance towards total empowerment, self-supporting and sustainability of all WUA within the irrigation area, i.e. individual TU/Village WUA, WUAF and IWUA. - WUA and farmers should not enter the Joint Management Agreement on the basis of being granted “wish lists”. - Farmers and WUA should be in agreement of mutual self-help and reciprocal management inputs to that of Government. - Farmers and WUA(F) should develop and facilitate the acceptance of the farmers’ responsibilities and obligations of irrigation management, inclusive of farmer payment of realistic values of <i>IURAN</i>, amongst the farming community. - The acceptance by farmers of the need for and the need to pay an <i>IURAN</i> is paramount to the success of Joint Management Agreements and WUA(F)/IWUA empowerment.

(8) Kabupaten Irrigation Improvement Funds (KIIF)

[Activity I-1.9] & [Activity I-2.3]

There could be many mechanisms whereby irrigation funds could be created at the *Kabupaten* level; no specific system has yet been recommended. Indeed it is unlikely that there will be one nationally standardised system. The recommendation is that, for essential features, there should be unity, but, for

the non-essential features, diversity should be encouraged. If and when the WATSAL team identify a recommended format, there is no reason why this should be used everywhere and why different formats cannot be tested out in some Kabupaten.

In deciding what system should apply, the specific characteristics of the particular Kabupaten need to be considered. In some it might be that for almost all the irrigated areas WUAF or IWUA have been formed and all schemes are ready to move forward towards the turning over of authority, entering into joint management agreements and preparing rehabilitation proposals. In such a case it might be appropriate to have a single fund handling all non-farmer funding covering O&M subsidies, counterpart rehabilitation funds and other funds related directly to irrigation. There is no reason why there should only be a single fund and a number of funds could be established; it might, for example, be decided to have one account for a large single scheme and another account for small schemes. Where WUAF development is roughly at the same stage throughout a Kabupaten, it should be relatively easy to organise a system whereby funds can be allocated rationally and priorities established. In most Kabupaten, however, WUAF development is not homogenous and there are wide differences between the few that are well organised and the majority that are not. In such instances it is necessary to consider the funding requirements of the two groups. It is likely that the well organised would attract priority funding in terms of increased levels of O&M subsidy and rehabilitation funding. The others would probably only be given their normal, inadequate O&M and emergency maintenance support and would, in general, be excluded from receiving rehabilitation support.

The situation, however, can never be a rigid one and it is likely that certain rehabilitation works will need to be undertaken, regardless of whether there is WUAF participation or not. Ideally, all rehabilitation work should be done with WUAF participation, and there is a good case for deferring as much of this type of work as possible, until the WUAF are brought on board. Government is, nevertheless, concerned about keeping its irrigation infrastructure intact, and may well have to act according to the "stitch in time saves nine" principle, even though the farmers are not involved.

It should also be appreciated that although WUAFs may have entered into joint management agreements regarding O&M and rehabilitation of the secondary system, any responsibilities regarding the primary network and the headworks may still remain and, in some instances may always remain, Government responsibility. If it is likely that the primary network will eventually be wholly or partially the farmers' responsibility, then, if possible, any rehabilitation of this network would be delayed until an IWUA has been formed. If, however, the works are needed urgently or if Government will always be responsible, the works would be carried as required. Thus funds, to which no farmer counterpart contribution will be made, will be needed to finance certain activities.

The question then arises whether it is desirable to combine the funds required to finance O&M and rehabilitation of WUAF/IWUA controlled areas with those funds needed to finance similar activities in the non-WUA controlled areas, or if different funds should be established.

It also needs to be decided whether the funds should handle O&M, rehabilitation, new development, start-up assistance and other irrigation sector activities in combination, or if single purpose funds should be established.

With the move towards autonomy, numerous options for the structure of funds are made possible. It has been recommended, for example, that the irrigation fund could be a rolling account, with no

restrictions regarding the carrying over of unused funds from one year to the next. It has also been suggested that the funds could be held and disbursed by a commercial bank, such as BRI, and earn interest on any balance

There is currently some debate as to who would be responsible for deciding how the funds are disbursed; whilst, traditionally, Government has been responsible, this could change as more emphasis is placed on participation. Representatives from the various agencies concerned with the irrigation sector could also be involved, such as those making up the *Komisi Irigasi*. It has been suggested that, at a later stage, the fund could even be controlled by the WUAF/IWUA representatives. Such a step might, however, be considered a little too radical given that most of the funds would be provided by Government, and it is likely that some of these will be used to fund activities which are Government's responsibilities.

It is possible that some funds could be lent to WUAFs/IWUAs to finance start-up assistance or to supplement their contribution towards rehabilitation works. It might, for example, be that farmers agree to finance 40% of the cost of rehabilitation, of which half they might provide in the form of labour and an initial cash payment, and half they pay for with a loan which would be repaid over an agreed period, say five years. In this case the appropriate fund would be designed to handle loans and repayments.

The establishment of the Kabupaten irrigation fund or funds will require considerable care and effort, and it is anticipated that most of the important issues which will need to be considered will emerge from WATSAL, over the coming months. Having created its format and identified its functions it will be necessary to obtain approval and legal recognition from the appropriate local bodies and make the whole issue public. The key watchwords are transparency and accountability.

Considerable technical support will be required to train those handling the funds to understand its workings, to sharpen their decision making skills, to ensure that audits and checks are properly executed and to promote an approach where integrity is applied and is seen to be applied.

<Output I-2: Local governments (*Kabupaten*) capable of providing the necessary support to WUAs to enable the WUAs to practice sustainable O&M >

Activities	
[I-2.1]	Establish Kabupaten Coordinated WUA Support Group (decree from <i>bupati</i> , funding, staffing, logistics, etc).
[I-2.2]	Establish and develop guidelines and criteria for the provision of start-up financial assistance (subsidy, credit, loan options) for O&M to WUA.
[I-2.3]	Establish and develop procedures and guidelines for the application and disbursement of Kabupaten Irrigation Improvement Funds.
[I-2.4]	Implement introductory/ refresher training for Kabupaten Coordinated WUA Support Group and other relevant agencies.
[I-2.5]	Establish and develop coordinated extension procedures and scheduling (continued extension service or WUA 'as-requested' service).

(9) Coordination of WUA Support Groups

[Activity I-2.1]

This activity concerns the establishment of a full-time coordinated WUA support group at *kabupaten* level drawing on the resources of *Dinas Pengairan*⁸, *Dinas Pertanian* and other agencies, which would be accessible to the WUAs at any time to enable them to request practical advice on technical,

⁸ Now known as *Dinas Pengelolaan Sumber Daya Air* in some provinces.

management, legal and administrative matters⁹ (such a coordinating body is a requirement under WATSAL). Such a support group could be built into the existing *Balai Informasi Penyuluhan Pertanian*, as long as the unit delivers coordinated extension advice concerning all aspects of WUA and irrigated agriculture. Important steps will involve preparing and issuing a decree from the *bupati* (*surat keputusan – SK*), preparing budgets and funding, staffing, organizing logistics, etc.

Key personnel to support such a body will be the *juru pengairan* (irrigation officers) and agricultural extension officers (*penyuluhan pertanian lapangan – PPL*). Adequate funding will be needed for the Support Group activities. It is envisaged that the WUA Support Groups will need some logistical strengthening such as transport, reference library, communication facilities, access to information.

[Activity I-2.5]

Visits to the field should be a joint effort between the *juru pengairan*, *PPL* and the WUA so that WUAs receive coordinated guidelines and advice. There should be a regular program of field visits to the WUAs. It is important that trust is built up with the WUAs and farmers through transparency and by listening to what the farmers have to say. The extension visits could follow a regular schedule or carried out as a WUA ‘as-requested’ service.

(10) Start-up Financial Assistance

[Activity I-2.2]

This activity concerns the provision of financial assistance for WUA start-up operations to cover O&M costs, say for the first two years, in order for WUAs to accumulate a cash fund (from ISF collections) to enable operations to proceed with a positive cash balance after the financial assistance has been removed. The financial assistance could take the form of a subsidy, loan or credit.

(11) Capacity Building of Government Officers and Farmers

[Activity I-2.4]

Training for *juru pengairan*, *PPL* and other relevant staff at *kabupaten* level will be needed to empower them to fully provide the support needed by WUAs. This could be based on PTGA and the efficient operation and maintenance (EOM) modules developed under the old Ministry of Public Works – both modules provide excellent presentations on the technical aspects of irrigation O&M, on-farm water management, crop water requirements, agriculture and WUA administration. There is no need to prepare new modules, but some updating will be needed to take into account recent policies and laws.

Training topics should include the following:

- cropping plans, and crop water requirements;
- decisions concerning water rights and water allocation between upstream and downstream users, particularly in the dry season;
- on-farm water management, the equitable distribution of water, rotation scheduling (particularly for the PPL);
- O&M requirements, funding
- repair and rehabilitation of irrigation infrastructure and preparation of cost estimates,
- arrangements for execution of civil works, quality control;
- post-harvest technology, crop storage, pests/ pest attack;
- market forecasts, price intelligence data.

⁹ This support group differs from the *kabupaten* level PPKP facilitator teams being proposed under WATSAL, whose main duty will be carrying out surveys of irrigation schemes (*daerah irigasi*) to prepare socio-economic, technical and institutional profiles (PSETK).

The empowerment of WUA requires a working together of both Government officers and the farmers through their WUA. To improve their capability to achieve successful empowerment requires the application of a capacity building program, through training, extension and “on the job” mechanisms. To apply the capacity building, certain activities, as listed below, are required to ensure that the capacity building countermeasure achieves sustainable results:

	Required Activities
Government	<ul style="list-style-type: none"> - The Government should have the “political willingness” to ensure that the achievement of a sustainable irrigated agriculture industry is a priority within Government policy. - In this context, Government should address the issue of efficient and effective budgets to address the application of community awareness campaigns and the implementation of capacity building programs for government officers and farmers. - The process of community awareness should be implemented and funded by Government. - Capacity building programs for Government officers, farmers and WUA should be implemented and funded by Government. - Government officers should learn to become facilitators, trainers, extension officers and guide and direct WUA empowerment. - Capacity building should commence at the local government (<i>Kabupaten</i>) level and be directed to those officers within the <i>Kabupaten</i> Coordination WUA Support Group. - Capacity building should make use of those Government officers previously trained under the <i>PTGA</i> system of WUA development. - Government should direct the capacity building for farmers in the form of “on the job” training for the benefit of farmer acceptance. - Government through capacity building should ensure that the basic requirements for assistance to WUA and the working together with WUA under joint management are on hand. That is; adequate staff numbers, staff possessing the technical expertise, adequate funding allowing staff to address and implement field activities, knowledge and expertise that can be disseminated to the farmer/WUA. - In addition Government staff should be able to accept the role of facilitators and advisors to farmers and accept that they are no longer the implementers.
Water Users/Farmers/Water Users’ Associations	<ul style="list-style-type: none"> - Farmers should be willing to accept their responsibility for irrigation management. - Farmers should have the desire and the willingness to participate. - Farmers, both WUA Committee members and gate foremen (<i>Ulu-ulu</i>) should be willing to partake in “on the job” training and “learn by doing” in administration, financial and technical training activities. - Strengthened WUA and capable farmers should be willing to participate as trainers and facilitators of other area WUA and farmers. - Farmers should be willing to accept the extension methodologies of Government – a combination of planned program field visits and farmer requested assistance and advice.

(12) M&E of Turned over Schemes

<Output I-3: Turnover of O&M responsibility for irrigation schemes from Government to WUAs >

Activities	
[I-3.1]	Review turnover criteria, and assist the implementation of the turnover program (criteria to encompass both Government and WUA needs).
[I-3.2]	Implement monitoring and evaluation of turned over schemes to determine WUA progress and O&M sustainability (carried out by an independent body in consultation with local government and WUAs).

[Activity 3.1]

The turnover program mainly concerns semi-technical and technical irrigation schemes, where the benefits to reduce the Government’s burden for O&M will be most felt. As a general principle, individual WUAs should manage tertiary irrigation units and WUAF should coordinate WUA activities in areas served by a secondary canal. According to Government Regulation PP No.25/2000, *kabupaten* have the authority to empower WUA federations to manage secondary canals. Turnover of O&M responsibilities could be done on WUA formation, or once the WUAs/WUAF are operational and able to carry out their respective responsibilities for irrigation management and O&M; it should not depend on the state of repair or rehabilitation requirements of the irrigation scheme.

Once an irrigation scheme has been turned over to the WUAs/ WUAF for O&M, the WUAs need to accept responsibility for organizing rehabilitation. Turnover criteria should encompass both local government and WUA needs. The turnover program should proceed in phases, starting from the smallest and simplest schemes and working upwards. In the initial stages it is suggested that turnover to WUA federations be restricted to secondary canal command areas of less than 1,000 ha.

[Activity I-3.2]

The purpose of this activity is to determine WUA progress and O&M sustainability, and should ideally be carried out by an independent body in consultation with Regional Government and WUAs. Objectively verifiable indicators would be assessed such as WUA records, Iuran collection rate, bank balance, accounts, rehabilitation proposals, repayment of financial assistance, etc.

The methodology of M&E needs to be implemented through the aspect of joint cooperation between the WUA and local government (kabupaten). Seasonal and yearly “walk-throughs” of the irrigation system should present an audit of the irrigation infrastructure and the level of O&M sustainability being achieved by the WUA. This can be achieved without the involvement of a third party, and can be implemented as a participatory method of M&E through joint cooperation -- but, the format must be simple and should avoid excessive data recording.

M&E of WUA progress will firstly be assessed through the level of O&M sustainability achieved. But, in terms of its other activities, i.e. administration, cropping plan calendar, WUA capabilities, etc, monitoring needs to be in accordance to the Government guidelines and criteria – such as the simple method as developed under the Irrigation Development and Turnover (IDTO) component of the Java Irrigation Improvement and Water Resources Management Project. Some alterations to the M&E questionnaire of IDTO have been made, and it is proposed that this revised edition be used.

It is also recommended that a third party – be it a government representative from the bupati’s administration office or an NGO – should supervise and implement the M&E program jointly with the WUA and government extension officers (PPL, *juru pengairan* or other personnel from local government). Such a system presents transparency and honesty. From a Government aspect, the internal application through the bupati’s office is possibly the desired approach.

The empowerment of WUA to become a developed, autonomous and sustainable organization is a progression of steps over time and it is not an instantaneous action. For a WUA to be successful, there are a number of responsibilities that the WUA and its’ members must accept with respect to irrigation management. As the majority of WUA will need assistance and that assistance, in the foreseeable future is assumed as Government, then the activities of the WUA and Government need to be monitored and the progress towards an empowered WUA need to be evaluated. For M&E to be an active countermeasure, then Government and WUA need to realize the activities and hypothesis required for success:

Required Activities	
Government	<ul style="list-style-type: none"> - Funding for M&E has to be instigated by Government, or where WUA and farming communities are able to partially fund, then a joint financial arrangement between WUA & Government needs to be established. - Government should, where financially possible, entrust the development, application and analysis of M&E to a third party, i.e. an NGO or University. - Government officers should be involved in the M&E as data collectors and questionnaire presenters in

	<p>association with a representative of the third party and the WUA.</p> <ul style="list-style-type: none"> - M&E should be facilitated through the <i>Kabupaten</i> Coordinated WUA Support Group. - M&E should rate the WUA and/or Government with respect to the items that each can control and not with respect to items that are influenced other parties. - M&E should be instigated truthfully, efficiently and regularly. - Before M&E is instigated, the village community or irrigation area should have been appraised using the following methods: <ul style="list-style-type: none"> * A Rapid Rural Appraisal (RRA) to ascertain the socio-economic, agricultural, productive and demographic status etc. This provides the baseline data for any M&E evaluation. * A Participatory Rural Appraisal (PRA) to evaluate the irrigation management, WUA status, farmer WUA membership, condition of irrigation infrastructure, WUA/farmer perceived problems with irrigation management, Government perceived problems with irrigation management etc. This provides baseline data for WUA empowerment. - Government should ensure that the <i>Kabupaten</i> local government has the necessary staff and expertise to implement M&E programs. - M&E programs should be developed and researched with respect to local issues and requirements and should be kept simple for ease of implementation.
WUA/Farmers	<ul style="list-style-type: none"> - Farmers and WUA Committee members and the village community should be prepared to partake and give time for the implementation of RRA and PRA assessments, as discussed above. - WUA representatives should be prepared to act in cooperation with Government and/or a third party for the implementation of M&E programs. - WUA and farmers should progressively move towards WUA empowerment without the continued thought of Government handouts, as this will reflect in M&E evaluations. Such attitudes may necessitate the removal of Government joint Management until the farming community is prepared to work towards sustainable autonomy. - WUA and water users/farmers should ensure that their direction is towards irrigation management as this is the target outcome of WUA empowerment – efficient and effective O&M application. - M&E must also be directed through the farming community – upstream, mid-stream and downstream irrigators and landowners.

5.3.3 Formulation of Countermeasures for Agricultural Issues

In order to formulate countermeasures, PDM has been presented based on the problem analysis and objective analysis made in Phase I study. All considerations have been taken in accordance with PCM procedures. The countermeasures are formulated from the Activities in PDM.

The problem analysis has revealed that farmers in irrigated area are most seriously concerned about low returns from farming. The following issues are identified as the critical causes of low returns.

- Low returns from rice
- Low levels of crop diversification
- Small-sized holdings

From the above considerations, the study team defines that “increase in agricultural income” must be the ultimate purpose of countermeasures on agriculture (Project Purpose in PDM), while the following could be the objectives to be realized by the countermeasures to achieve the objective.

- Appropriate return from farming, especially from rice
- Crop diversification to generate additional income
- Well organized farmer groups/cooperative
- Accessible and reliable farm credit
- Improved and secured farmers’ rights to farming
- Resolute national food security policy

In the meantime, the study team recognized that the most serious issues are too complicated to be solved in the short term and involve issues far beyond farmers themselves. Therefore, the study team has arranged each PDM intended for farmers and for Government including local administrations. The

countermeasures for Government involve activities that are required to fulfill the requirements needed to initiate farmers' activities (Preconditions in PDM).

(1) Countermeasures for farmers (in irrigated areas)

<Output AF-1: Farmers receive appropriate returns from farming, especially from rice>

Activities	
[AF-1.1]	Adopt cropping plans based on the availability of water and look for income generation
[AF-1.2]	Introduce high quality rice varieties (depending on the natural conditions)
[AF-1.3]	Organize periodic group meetings to exchange and/or share advanced technology on farming to increase production and reduce production costs
[AF-1.4]	Organize joint procurement of agricultural inputs to reduce procurement costs
[AF-1.5]	Organize rice harvesting teams among farmers
[AF-1.6]	Organize joint marketing of paddy and/or rice milling for increasing bargaining power

[Activity AF-1.1]

Beginning with the main cropping season, farmers prepare a cropping plan (types of crop and cropping schedule) based on the availability of water and to look for income generation, in consultation with extension workers (*PPL* or others). From time to time, the plan is reviewed in periodic group meetings described in AF-1.3.

[Activity AF-1.2]

To increase income, farmers jointly try to introduce high quality and value varieties. If the area is already renowned for its high quality rice, farmers would have a bargaining advantage. Post-harvest processing and marketing might be easier, if they will start to market jointly.

[Activity AF-1.3]

The time has past when standardized farming systems are appropriate for increasing rice production, especially in Java. Individual farmers should develop their original farming system in a manner, which is most appropriate to their particular situation. Farmers organize meetings to exchange their experience and opinions about farming to get ideas to develop their original system. The meetings are not aimed at reaching a consensus. Leaders are trained for to create an atmosphere which promotes free talking among members. *PPL* does not need to attend every meeting.

[Activity AF-1.4]

A group (or groups) consisting voluntary members jointly procure(s) agricultural inputs. It is not necessary that all members of a farmer group participate in the procurement. To avoid getting farmers becoming involved in management problems, the procurement would start with a few members (This activity would not considered if farmers are enjoying the existing joint procurement organized by *KT*, *KUD* or others).

[Activity AF-1.5]

The traditional harvesting system (*Bawon*) still prevails in many parts of Indonesia. Even though many farmers consider that the cost for *Bawon* is high, they have to accept the traditional system. If farmers organize themselves into a rice harvesting team, they could reduce harvesting cost. The team could be a barrier to outside people wanting to join in with the harvesting. A scheduled harvesting by the harvesting team, maybe with threshers, could be organized, if farmers prepare their cropping plan properly.

[Activity AF-1.6]

This activity is closely related to activities AF-1.1, 1.2 and 1.5. This activity also starts with a few members and with joint marketing of paddy at the beginning, to avoid farmers running into problems associated with complicated management. A matured farmer group experienced in joint marketing could be the nucleus of a rice milling business (This activity is not considered, if farmers are enjoying the existing joint marketing of paddy organized by *KT*, *KUD* or others.).

<Output AF-2: Farmers diversify their crops for additional income>

Activities	
[AF-2.1]	Promote contract farming with private companies and/or joint marketing
[AF-2.2]	Promote “one village one product policy”
[AF-2.3]	Organize training in how to grow and market new products including post-harvest technology in combination with activity AF-1.3 (call on <i>PPL</i> and/or private traders)

[Activity AF-2.1]

A group (or groups) consisting of voluntary members would try(s) to find a partner to reduce marketing risks and to receive technical/financial support for new crop production, through contract farming. Joint marketing of some crops, like the activity AF-1.6, should also be considered as a preliminary activity of contract farming.

[Activity AF-2.2]

Rural community (could be village level) will strategically develop a specialty product based on the specific characteristics of a particular location, in cooperation with local Government or the private sector. Farmers are expected to find a candidate product(s) for the specialty, by themselves. The specialty could generate new employment and income for the local community.

[Activity AF-2.3]

Farmers actively organize training in combination with activity 1.3 get information and technology on new products including post-harvest technology and marketing. Private traders and sometimes *PPL* are invited to the trainings, because most farmers are not familiar with new products. The activities AF-2.1 and 2.2 are closely related to this activity.

<Output AF-3: Farmers recognize necessity of cooperative works>

Activities	
[AF-3.1]	Discuss the advantages/necessity of joint activities among farmers
[AF-3.2]	Select capable leaders of farmer groups democratically
[AF-3.3]	Build up transparent management framework of farmer group

[Activity AF-3.1]

Some form of joint activity (cooperative movement) is indispensable if farmers in Indonesia really want to increase their income and to protect their rights. However, they are skeptical about joint activities because of their bad experience with *KUD* and other organizations promoted by Government. Also, they are not really aware of how the joint activities are important/necessary for them. Farmers, on their own incentive, should spend much time discussing the advantage/necessity of joint activities before starting, maybe in consultation with *PPL*.

[Activity AF-3.2]

Leaders control the success of farmer group. They should be selected democratically without collusive consultation and third party intervention, if farmers decide to organize a farmer group through activity

AF-3.1.

[Activity AF-3.3]

A farmer group should be a self-governing body. The members should build up their own management framework with their interests. Every member has to understand the framework. Though Government prepares guidelines to define basic concepts and to show samples of the articles for some kinds of farmer groups such as *KT*, *KUD*, *WUA*, etc., farmers are free from the guidelines unless the framework conflicts with laws or regulations. Farmers will decide whether the organized group will be a formal organization designated by Government.

<Output AF-4: Farmers can access reliable and easy credit>

Activities	
[AF-4.1]	Formulate credit groups among members, if possible, inject formal credit fund into the credit groups (WUA or farmer group try to reach to formal credit system)

[Activity AF-4.1]

Basically, Government should be responsible for formulating a new farm credit system. However, WUA or other farmer groups having juridical status should try to reach the existing credit systems even before the formulation of the new system. Farmers also would enhance the activity of traditional informal credit groups to prepare them to handle formal micro-credit systems.

(2) Countermeasures for Government, including Local Administrations

<Output AG-1: National food security policy, especially for rice is well clarified>

Activities	
[AG-1.1]	Establish a reliable and transparent food monitoring system
[AG-1.2]	Rebuild the existing rice price policy including the strategic reserve policy

[Activity AG-1.1]

Food Affairs Security Agency has been established in the Ministry of Agriculture and Forestry. The agency should have a reliable and transparent food monitoring system to avoid confusing or misleading food (rice) policies. There are many discrepancies between data on food security from one source and another at present. A comprehensive review must be made of the data collection system in food production and consumption, especially for rice.

<Expected concerned agency>: Food Affairs Security Agency, Ministry of Agriculture and Forestry

[Activity AG-1.2]

Government has an existing rice price policy to stabilize rice supply and prices (farm gate price and consumer price). However, it does not function well. The rice crisis in 1998 is indeed proof of its malfunction. The whole policy should be reviewed and reestablished based on the national food security policy. Special attention should be paid to reforming market structure to make it more favorable to farmers.

<Expected concerned agency>: Ministry of Agriculture and Forestry, BULOG, State Ministry of Cooperatives, Small and Medium Enterprises

<Output AG-2: Farmers receive appropriate returns from farming, especially from rice>

Activities	
[AG-2.1]	Promote more flexible marketing of agricultural inputs, especially in off-Java provinces
[AG-2.2]	Reduce the monopoly structure on fertilizer production and trade
[AG-2.3]	Promote hand-tractor hiring business
[AG-2.4]	Promoting rice-milling business by farmer group

[Activity AG-2.1]

Marketing of agricultural inputs has been liberalized gradually. However, many farmers, especially in off-Java provinces, have difficulties to reach reliable inputs supply services. Government should promote private sector participation in marketing by providing incentives, such as tax exemptions and/or subsidies in an initial stage, and encouraging cost reductions through greater competition. At this moment, limited state fertilizer companies still dominate inter-provincial marketing. (Note: Private sector includes KUD, farmer cooperatives and any other farmer groups, which have a status of juridical person)

<Expected concerned agency> Directorate General of Agricultural Facilities, Ministry of Agriculture and Forestry, Ministry of Trade and Industry

[Activity AG-2.2]

Fertilizers are the most important inputs for farming and their high price is a matter of considerable concern to farmers. However, the price loses flexibility due to the monopoly structure of fertilizer production. Government should reduce the monopoly structure and promote more liberalized international trade.

<Expected concerned agency> Directorate General of Agricultural Facilities, Ministry of Agriculture and Forestry, Ministry of Trade and Industry

[Activity AG-2.3]

As in AG-2.1, the Government should promote private sector including individuals participation in the business by providing incentives, such as tax exemption and/or subsidies at the initial stage, and encouraging cost reductions through greater competition. This program does not consider providing hand-tractor itself.

<Expected concerned agency> Directorate General of Agricultural Facilities, Ministry of Agriculture and Forestry

[Activity AG-2.4]

Rice milling is still profitable business, although the total national milling capacity seems to be more than sufficient to meet demand. If farmers (farmer group) start the business by themselves, they could generate certain profits. Basically, *KUD* is mandated to run such business as farmer organizations by the Government. In most cases, *KUD* has failed to run the business properly, even though the Government has provided incentives to *KUD*. Government should review to present incentives to promote rice-milling business with *KUD* and should establish a new policy to promote business with a real farmer organization.

<Expected concerned agency> State Ministry of Cooperatives, Small and Medium Enterprises, Directorate General of Agricultural Facilities of MOA, Directorate General of Agro-Processing and Marketing of MOA

<Output AG-3: Farmers diversify their crops for additional income>

Activities	
[AG-3.1]	Reinforce research works for vegetables, fruits, ornamental plants, freshwater fishes, etc
[AG-3.2]	Train <i>PPLs</i> /farmers on how to grow and market vegetables, fruits, ornamental plants, etc
[AG-3.3]	Establish a market information network system to connect local markets
[AG-3.4]	Promoting rice-milling business by farmer group

[Activity AG-3.1]

Research works for adoptable technology for vegetables, fruits, ornamental plants, freshwater fishes, etc. should be reinforced. Careful attention should be paid to post-harvest technologies, because most horticultural crops are more perishable than rice and *Palawija* crops.

<Expected concerned agency> Agricultural Research and Development Agency of MOA, Directorate General of Horticulture Production of MOA, Provincial Agricultural Research Institutes and Universities

[Activity AG-3.2]

As many farmers are already familiar with basic technology on intensified rice cultivation, agricultural extension works should give higher priority to diversification of agricultural production. The existing training curriculum for PPLs/farmers should be reviewed and revised. Also the outputs of the research works should be incorporated into the curriculum.

<Expected concerned agency> Human Resources Development Agency, Agricultural Research and Development Agency, Directorate General of Horticulture Production, MOA

[Activity AG-3.3]

A market information system should be gradually established for local markets. The information collected should be available for everyone who is willing to access.

Stage	Description
<Stage I>	Establish a market information office in a representative market at <i>Kabupaten</i> level with following functions. The market management body should be obliged to set up and to operate the office on its own account by law or regulation. However, some support from the Government might be considered . <ol style="list-style-type: none"> a. To collect and process daily market price information for designated agricultural commodities from major traders in the market b. To send the daily price information to <i>Kabupaten</i> and/or Provincial agriculture office (<i>Dinas</i>) for public announcement (by radio, TV, newspapers, etc.) c. To integrate the daily price information and compile monthly and annual information d. To provide all information by all possible means to everyone who is willing to access
<Stage II> shall be implemented when Stage I comes to function successfully	Establish a National Market Information Center in the Ministry of Agriculture or the Ministry of Trade and Industry (if possible, establish joint venture company with private sector) to manage market information system to connect every <i>Kabupaten</i> level market information office by computer network. The basic functions of the center are as follows. <ol style="list-style-type: none"> a. To integrate the daily price information from every <i>Kabupaten</i> market information office for further processing and analysis (daily analysis and periodical analysis) b. To collect related information from various sources such as international traders, super market chains, research institutes, etc. c. To feedback all information to every <i>Kabupaten</i> market information office d. To provide all information by all possible means including computer networks to everyone is who are willing to access

<Expected concerned agency> Directorate General of Agro-Processing and Marketing of MOA, Ministry of Trade and Industry

[Activity AG-3.4]

An office to promote *Kemitraan* Program and to facilitate partnership between farmer groups/cooperatives and private companies, just like an employment agency or a marriage guidance office, should be established in Provincial or *Kabupaten* office. The office would play the following roles.

- To clarify guidelines on contract farming

- To mediate between candidate farmers groups/cooperatives and private companies
- To consult on the conditions of contract and to witness contracts
- To arbitrate problems between farmers groups/cooperatives and private companies

Also some incentives should be introduced for promoting contract farming. For example, invested equipment and facilities of/to farmer groups/cooperatives will be exempted from tax/duty.

<Expected concerned agency> State Ministry of Cooperatives, Small and Medium Enterprises
Directorate General of Agro-Processing and Marketing, Ministry of Agriculture and Forestry

[Activity AG-3.5]

Local government, Province or Kabupaten, will establish a policy to support in cooperation with farmers groups to develop a local specialty. The governments should provide every support in processing, marketing and advertisement, as the successful specialty would contribute to additional revenue.

<Expected concerned agency> State Ministry of Cooperatives, Small and Medium Enterprises,
Ministry of Home Affairs and Regional Autonomy, Directorate General of Agro-Processing and Marketing of MOA

<Output AG-4: Farmers recognize necessity of cooperative works>

Activities	
[AG-4.1]	Build up transparent legal framework for farmer cooperatives including penal regulations to handle illegal management and operation activities
[AG-4.2]	Review the existing incentives to farmer cooperatives/KUD
[AG-4.3]	Train farmers who are willing to participate in farmer organizations

[Activity AG-4.1]

The role of agricultural cooperatives has been reviewed in various countries in the recent market-oriented economy phenomenon. Also, agricultural cooperative movement in Indonesia has lost people's support because of disappointing *KUD* performance. The Government should review the role of agricultural cooperatives in Indonesia to meet new era's requirements and set up a new policy on farmer cooperative movement.

The most important thing is to rearrange the existing farmer groups in accordance with the farmers' interests, as several have similar roles are organized at this moment due to uncoordinated intervention from various agencies. The other important things are to formulate principles that the Government just plays role in preparing incentives for farmers and providing necessary information to farmers instead of insisting that farmers are organized in *KUD* or other forms of groups.

Then a new legal framework will be built up based on the policy. Special attention should be paid to the discipline of cooperative's leaders and the independence from the government intervention, because these are the major reasons why *KUD* has lost people's trust.

<Expected concerned agency> State Ministry of Cooperatives, Small and Medium Enterprises,
Human Resources Development Agency of MOA

[Activity AG-4.2]

Incentives are still important tools for promoting new agricultural cooperative movement. The existing incentives to farmer cooperative/*KUD* should be reviewed based on the new legal framework built up by AG-4.1.

<Expected concerned agency> State Ministry of Cooperatives, Small and Medium Enterprises, Human Resources Development Agency of MOA

[Activity AG-4.3]

The existing training system and curriculum for farmers should be reviewed and revised based on the new role of agricultural cooperatives defined in AG-4.1.

<Expected concerned agency> State Ministry of Cooperatives, Small and Medium Enterprises, Human Resources Development Agency of MOA

<Output AG-5: Farmers can access reliable and easy credit>

Activities	
[AG-5.1]	Formulate accessible farm credit system

[Activity AG-5.1] Formulate accessible farm credit system

A new government farm credit system (*KKP*) to replace *KUT* started in October 2000. However, it is considered that *KKP* is even closely related to the national intensification plan of major food crops. Farmers are requesting more flexible and accessible farm credit system. Such farm credit system would be needed to promote crop diversification and agribusiness, too. The following might be the major important points of the farm credit system.

- Commercial banks and/or NGOs should be outlets of the credit. *KUD* should be excluded from the credit system (*KUD* has lost farmer's trust)
- Outlet banks and /or NGOs should be responsible for collecting the debt
- Auditing system should be well organized in outlet banks and/or NGOs and supervising agency (Government)
- A credit system similar to that of the Grameen Bank in Bangladesh should be examined (micro-credit only, small group members take joint liability on a guarantee, business support through NGOs, etc.)
- Traditional informal credit groups could be a main unit for joint liability

<Expected concerned agency> Directorate General of Agricultural Facilities of MOA, Ministry of Finance

<Output AG-6: Farming size is enlarging and farmer's rights are well secured>

Activities	
[AG-6.1]	Clarify an effective land use/spatial plan
[AG-6.2]	Review the present land law and land taxation to make it easier for real farmers to buy farmland and make it difficult for absentee landowners to keep farmland
[AG-6.3]	Promote organizing sharecroppers to improve their bargaining position in order to reduce their burden and secure their rights

[Activity AG-6.1] Clarify an effective land use/spatial plan

Many farmlands have been converted to factory site and housing area without attention to environment and the regional development plan. Government should clarify a land use plan based on the regional development plan and make it effective (Every local government has a nominal land use plan only on paper).

<Expected concerned agency> Ministry of Home Affairs and Regional Autonomy

[AG-6.2] Review the present land law and land taxations to make it easy for real farmers to buy farmland and make it difficult for absentee landowners to keep farmland

<Expected concerned agency> Ministry of Finance, Ministry of Justice and Human Right Affairs, Ministry of Home Affairs and Regional Autonomy, Agency of Land Affairs

[Activity AG-6.3] Promote organizing sharecroppers to improve their bargaining position in order to reduce their burden and secure their rights

<Expected concerned agency> Ministry of Justice and Human Right Affairs, Ministry of Home Affairs and Regional Autonomy

5.3.4 Formulation of Countermeasures for Public Awareness Issues

The most important aspect of countermeasures is its applicability and effectiveness to overcome the problems and achieve the ultimate goal of irrigation policy reform. Applicability and effectiveness relate to the identified problems of public awareness. Public awareness should confront constraints and problems at all levels and elements of Government administration, water users and concerned parties. Thus a systematic approach is needed to define the target group, impact area and duration before a formulation of public awareness program can be made.

(1) Formulation of Target Group

By taking the prevailing Law No.22/1999 on regional autonomy into account the following categorization of target-groups can be used for public awareness program.

1) Central and Provincial level

- Farmer Organizations which are supposed to be the upper level of farmers and/or WUA/WUAF-related organizations.
- Provincial and Central Governments and Parliaments expected to be in position to coordinate and control the implementation of irrigation policy reform.
- Provincial and Central Government Agencies and other concerned parties (Universities, NGOs, Mass-media, Private, Funding Agency etc) expected to be in a position to support and/or facilitate the implementation of irrigation policy reform.
- The remaining organizations supposedly will be affected positively or negatively by the implementation of irrigation policy reform.

2) Kabupaten level

- Farmer Organizations which are supposed to be the upper level of farmers and/or WUA/WUAF-related organizations.
- Kabupaten/Kotamadya Government and Parliaments accepted to be in position to make decisions regarding irrigation turnover.
- Kabupaten/Kotamadya Government Agencies and other concerned parties (Universities, NGOs, Mass-media, Private, Funding Agency etc) expected to be in position to support and/or facilitate the implementation of irrigation policy reform.
- The remaining organizations supposedly will be affected positively negatively by the implementation of irrigation policy reform.

3) Irrigation scheme level

- Individual farmer and non-farmer water users and their organizations (WUA, WUAF) expected to be the implementers and beneficiaries of the implementation of irrigation policy reform.
- Kecamatan and Village Governments, Government & NGO Agencies, Cooperatives, Private and Local Groups expected to be in position to support and/or facilitate the implementation of

irrigation policy reform.

- The remaining individuals, groups and organizations supposedly will be affected positively or negatively by the implementation of irrigation policy reform.

Accordingly the covered area of public awareness program would be the administration boundaries of 5 Study Provinces (West Sumatera, West Java, DI Yogyakarta, East Java, and West Nusa Tenggara) for first-year duration of activities.

(2) Formulations of Overall Goal, Purpose, Outputs and Activities

Preconditions. It is important to note that countermeasures' applicability and effectiveness also depend on preconditions before the implementation of a public awareness program. Using bio-socio-political, economic and cultural conditions of the Study Provinces identified during the Study Phase I, the following preconditions are considered.

- Controllable National Security
- Reformation for regional autonomy has been completed at all levels of Government administration.
- The irrigated agriculture sub-sector plays an important role in the local, regional and national economy.
- The basic concept of irrigation policy reform matches with local farmers' needs
- Task allocation of irrigation management has been adequately defined among Government and Water Users
- Government authority on irrigation schemes has been delegated to Kabupaten/Kotamadya Governments
- Irrigation management turnover is made possible from Kabupaten/ Kotamadya Government to Water Users on proposal and contractual basis.

(3) Assumptions

Assumption for countermeasure activities are as follows.

- The irrigation policy reform is beneficial to farmers,
- The basic concept of irrigation policy reform does not change, and
- The required dissemination fund has been adequately issued at Central level and distributed to Provincial and Kabupaten/Kotamadya levels.

Based on these assumptions, the following Overall Goal, Purpose and Outputs are proposed.

(4) Overall Goal

Proper understanding and preparedness of the Central, Provincial, Kabupaten/Kotamadya Governments/Government Agencies, Water Users and other concerned parties to allow them to take adequate action in accordance with their respective roles and capacities to achieve the real implementation of irrigation policy reform.

(5) Purposes

Dissemination of the concepts and operation of irrigation policy reform are well implemented and widely accepted.

(6) Outputs

Subsequently the output of public awareness program are as summarized below:

	Expected Output
Central level	<ul style="list-style-type: none"> - Installed Steering Committee and Consulting Team at Central Government level to coordinate the irrigation policy reform dissemination. - Dissemination materials produced at Central and distributed to Provincial and Kabupaten/Kotamadya levels, concerning: <ul style="list-style-type: none"> *Related laws and regulations on irrigation policy reform *Explanatory sets of identified problems and solutions *Proposed Action Plan, expected results and time schedule *Role division among the Government, Government Agencies and Water Users *Financial arrangements on irrigation management and O&M *Required Manuals, Instruments and administration requirements *Other related information. - Proper understandings by Central Workshop's participants on concept and operation of irrigation policy reform. - Installed Data-base of irrigation policy reform at Central Government Agencies responsible for irrigation.
Kabupaten level	<ul style="list-style-type: none"> - Installed Steering Committee and Consulting Team at Kabupaten/Kotamadya Government level to coordinate irrigation policy reform dissemination. - Dissemination materials produced at Kabupaten/ Kabupaten level and distributed to irrigation scheme level. - Proper understanding by Kabupaten/Kotamadya Workshop's participants on concept and .operation of irrigation policy reform. - Installed Database of irrigation policy reform at Kabupaten/Kotamadya Government Agencies responsible for irrigation.
Irrigation scheme level	<ul style="list-style-type: none"> - Installed Steering Committee and Consulting Team at irrigation scheme level to coordinate irrigation policy reform dissemination. - Dissemination materials produced at Kabupaten/ Kotamadya level and distributed to irrigation scheme level. - Proper understandings by irrigation scheme Workshop's participants on concept and operation of irrigation policy reform.

(7) Activities

Due to the expected outputs as listed above, the public awareness program, therefore, needs to include the following activities:

	Activities
Central level	<ul style="list-style-type: none"> - Install Steering Committee and Consulting Team at Central Government level to coordinate the irrigation policy reform dissemination. - Produce dissemination materials at Central level and distribute to Provincial and Kabupaten/Kotamadya levels - Carry out Central Workshop on the concept and operation of irrigation policy reform. - Install Data-base of irrigation policy reform at Central Government Agencies responsible for irrigation.
Kabupaten level	<ul style="list-style-type: none"> - Install Steering Committee and Consulting Team at Kabupaten/Kotamadya Government level to coordinate irrigation policy reform dissemination. - Produce dissemination materials at Kabupaten/Kotamadya level and distribute to irrigation scheme level. - Carry out Kabupaten/Kotamadya Workshop on concept and operation of irrigation policy reform. - Install Database of irrigation policy reform at Kabupaten /Kotamadya Government Agencies responsible for irrigation.
Irrigation scheme level	<ul style="list-style-type: none"> - Install Steering Committee and Consulting Team at irrigation scheme level to coordinate irrigation policy reform dissemination. - Collect dissemination materials from Kabupaten/ Kabupaten level and distribute at irrigation scheme level. - Carry out irrigation scheme Workshop on concept and operation of irrigation policy reform..

5.4 Method of Verification of Countermeasure

5.4.1 Method of Verification of Countermeasure

(1) Objectives of the Verification

This Phase II is scheduled including Detailed Field Survey aiming to apply participatory approach as tools to examine hypotheses of countermeasures of major subjects identified and their adaptability during the problem analysis process.

Objectives of Verification (Examination) through the Survey	
Verifying/ Examining	* Applicability/Adaptability of the countermeasure hypothesis
	* Acceptability by farmers as the policy target
	* Acceptability by government officers as the policy implementers
	* Additional considerable issues to make more realistic concrete countermeasure hypothesis as Draft Action Plan
	* Capability of both farmers and officials to owe the policy within reasonable scope.
* Consistency on the Plan adaptability (local cultural behaviors, financial availability, time intensity, others)	

Because countermeasures provided based on the results of Phase I stage are still tentative and not being examined its applicability, adaptability, acceptability for both sides of farmers and government officers.

Table on the right hand side is summarized objectives of verification/examination while conducting detailed field surveys and other related activities.

(2) Method of Verification

Two major approaches are scheduled as shown in Fig. 5.4.1 as method of verification. One is co-examine suitability/adaptability of Countermeasures as draft Action Plans, named as “Hypothesis” which were prepared in the initial stage of Phase II Study, the other approach to examine whether the policy recipients, means farmers, and officers in charge in field levels could accept them or not, is expected though conducting participatory empowering activities in the field. Methods applied in this Phase II stage are as follows;

- Field investigation in the detailed survey areas
- Case study
- Trial formulation of irrigation O&M plan by bottom-up approach
- Detailed field survey (Clarification of problems through the participatory survey)

Top 3 work items listed above are scheduled to clarify the adaptability of the hypothesis mainly for the government side, while the forth work is scheduled to cover the same aspects mainly for farms’ side. Details of those methods are described in the following section

(3) Sites for Detailed Rural Sociological Survey

Site selection of the Study Phase II was discussed in the meeting of JICA Study Team and the Indonesian Counterpart in Jakarta on October 31, 2000.

Following the Study Phase I for site categories were considered for the Study Phase II too. The categories were:

- 1) site with success WUA,
- 2) site with no WUA,
- 3) site with single WUA and
- 4) site with several or federated WUAs.

Taking account that in Java many project schemes have currently been being

Number of Irrigation Scheme Selected for Detailed Field Survey					
	W.Sumatra	W.Java	Yogyakarta	E.Java	NTB
Successful WUA	1	1	1	1	1
No / non real WUA	2	1	1	1	2
Single WUA	2	1	1	1	2
Federated WUA	2	1	1	1	1
Total	7	4	4	4	6
Grand Total	25				

conducted the site numbers of the Study Provinces of Java were reduced and higher site numbers were given to West Sumatera and West Nusa Tenggara. Site selection frame is as shown in table on the right.

5.4.2 Field Investigation in the Detailed Survey Area

Based on the countermeasure hypotheses, further field investigations were conducted in the detailed survey areas. Objectives of this work are 1) while surveying based on secondary data to know general condition of nominated irrigation schemes, and 2) to confirm sufficient conditions of Hypothesis's adaptability. Target personnel are mainly *Desa* Heads, WUA Board, Farmers' unions, etc. Aspects examined and referred in the work are region internal economic activities, agriculture, existing infrastructure, present condition of irrigation water allocation, and ISF solvency.

Methodology of the works is to confirm hypothesis adaptability with government staffs in Workshops, besides confirming the same through interviewing to farmers for their sides. Results of the work through out the respective provinces were reflected for revising the hypothesis and conducting the detailed field survey.

5.4.3 Case Study and Problem Analysis

One case study was conducted aiming to examine applicability of hypothesis while conducting case study on irrigation & drainage system. For the case study of irrigation and drainage system problems in the detailed survey areas, survey items were as same as Phase I Field Survey such as organizational and institutional, structural aspects and operational problems, etc., but this time with more focus on the issues more closely related to important survey items to be proposed by hypotheses. Institution/regulation, facility structure, water management, WUA management, ISF collection and ISF estimate were the major aspects for referring to in the work. Provincial irrigation departments, WUA/Farmers union & others were targeted for obtaining information as stated as above in the work

Required countermeasures shall be applicable to all areas in Indonesia, therefore the problems shall be classified and rearranged as those problems that are common in Indonesia and specific to regions so that the efficient activities can develop for the acceleration of the turnover program. Judging the effects of the problem solution, importance of the subject was further analyzed.

5.5 Detailed Field Survey

5.5.1 Objectives of the Detailed Field Survey

Objectives of the Detailed Field Survey are set as following;

- To identify actual constraints in the field concerning implementation of Presidential Instruction (*INPRES*) No.3/1999 of Irrigation Management Policy Reform.
- To identify the most important problems and countermeasures in the side of farmers/WUA, considering responsibilities of local government agencies.
- To examine adaptability/suitability of hypotheses of countermeasures prepared by the JICA Study Team and to provide revisions if necessary, to meet more with the given subject of the Study, that is to say, the improvement of irrigation management and empowerment of WUAs for the enhancement of the turnover program.

5.5.2 Selection of Detailed Field Survey Area

(1) Site Selection

Site selection for the Phase II was conducted with participation of local governments from view points of respecting “Participatory Approaches not only for farmers”, namely, taking procedures as follows; 1) the Counterpart Agency is to convey the gist to respective local governments, 2) Local governments participate to select sites to meet with intension of the Study, and 3) Selection is to be completed before the commencement of Phase II study. 4) Its finalization is to be completed in the initial period of Phase II stage.

Original schedule was to select the sites considering the results of categorization of problems/constraints for conducting case study and for detail examination of suitable countermeasures. Opinions were raised that approaches for the study in Phase II were to meet with recent “Decentralization” policy, through let local governments involve as much as possible. Also suggestions were come up that efforts to accelerate participatory approaches were implementing in any sectors and fields. Reasons of adapting such above procedures came from those considerations.

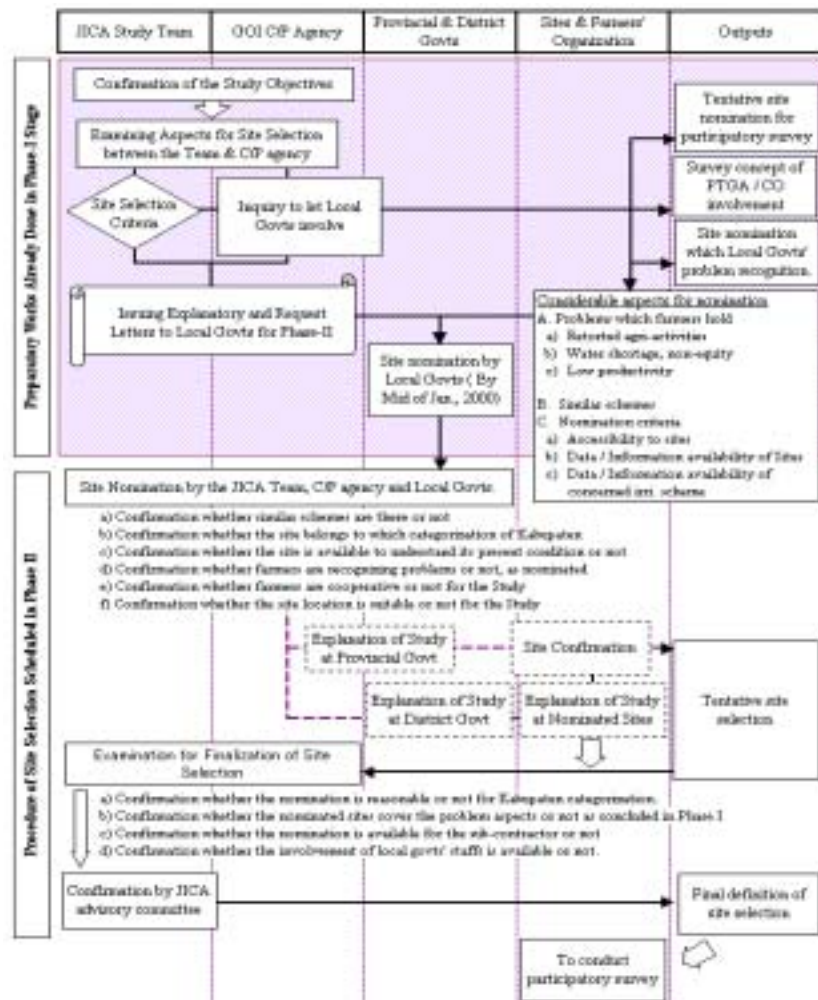
(2) Kabupaten Selection

As recommended the Provincial Governments of the Study Provinces then selected Kabupatens and Kotamadyas respectively by using the following frame:

- Kabupaten number and distribution by Province are as specified in section 5.4.1.
- Priority must be given to the selected Kabupatens or Kotamadya of the Study Phase I.
- However the Provincial Governments’ irrigation policies must be taken into account.

Correspondingly the selected Kabupatens and/or Kotamadyas then selected the sites of the Study from the existing irrigation schemes by using the following screening parameters:

- One Kabupaten or Kotamadya is one site.
- Priority must be given to the sites which evidently meet with the site selection criteria
- However the Kabupaten or Kotamadya Governments’ irrigation policies must be taken into account.



(3) Site Selection Criteria

The site boundary of the past Study Phase I was no longer accepted by the Indonesian Government counterpart due to two reasons. *Firstly*, it is a matter of fact that tertiary irrigation schemes are belonged to the local village communities. *Secondly*, due to the present irrigation policy reform¹⁰ the Indonesian Government deals with turnover of state-irrigation rather than village irrigation scheme. Subsequently the site boundary was changed dramatically from tertiary irrigation scheme to, at least, secondary irrigation scheme within which the tertiary irrigation schemes are embedded. This change in turns implied many things in the implementation of the Study.

Basically the accepted site selection criteria are as listed in the following table.

Aspect		Parameter
1.	Irrigation scheme category	State-irrigation (technical, semi-technical, simple)
2.	Irrigated land area	More or less 1,000 ha
3.	Accessibility	Reachable by car transportation facility
4.	Irrigation scheme condition	Not functioning well or damaged
5.	Agricultural land potential	Paddy and/or commercial cropping
6.	Irrigation turnover	- Not yet turned over, or - Turned over, but improperly managed
7.	Water availability	By good management water is sufficient in dry season
8.	Other project schemes	Not overlapping

(4) The Selected Sites

The Provincial lists of nominated sites were field verified in the beginning of the Study Phase II, and the collected data were discussed accordingly. As a result, the selected sites are as summarized in Table 5.5.1.

5.5.3 Methodology of Detailed Field Survey

Taking account the objectives as presented above, participatory method was considered for detailed field survey by adopting PRA (Participatory Rural Appraisal) and PCM (Project Cycle Management) into the Study. It is however important to note that detailed field survey dealt primarily with verification of countermeasure hypotheses.

Site Confirmation Survey	This survey aims to understand present conditions of the respective site before commencing series of participatory surveys, including socializing the respect community regarding the survey.	
Key Informant Survey	Interviews with village elders, village headman, WUA officials and other local people on the conditions of economic activities, agriculture, community activities, irrigation, education level and other aspects relating to irrigation management.	
PRA	Preparation of field works including training of field facilitators, public awareness for local people and local governments, collection of secondary data / information etc. Implementation of field works including historical analysis of land use, irrigation system and its institutions, walkthrough along canal system, mapping, problem analysis, work program etc. This activity is to include appraisal of local government respond on the farmers / WUA's work program covering its capability of staff, budget, administration/regulations, related policies etc.	
PCM	<i>PCM aims to make the above results more concrete with participatory approach, while clarifying 5WIH aspects for the proposed solutions</i>	
	Participation analysis	All persons, groups, organizations concerned with irrigation O&M will be listed as the potential participants of the workshop. They will be analyzed for their characteristics, problems faced, weak points and capabilities.

¹⁰ See INPRES no. 3/1999 and the WATSAL Working Group's results.

PCM	Problem Analysis	The workshop participants will list all problems related to irrigation management, Their causes and resultant relations will be analyzed to clarify the overall problem picture and structure/correlation.
	Objective Analysis	Based on the problem analysis and considering a scenario on what condition could be, if the problems were solved, method of resolving the problems will be analyzed.
	Prioritization of countermeasures	Based on the problem and objective analysis, the most important problems and countermeasures will be prioritized, having given due consideration to their practicability.
	Project Design Matrix	Provide PDM by each nominated solution with compiling aspects clarified in the above series of participatory consideration as conclusion.
Examining Hypothesis Adaptability	Examine and evaluate adoptability of prepared hypothesis referring to facts and results obtained through series of participatory surveys.	

Two flows of field survey activities were taken into practice. The first was field survey activities conducted by JICA Study Team by which attention was given to Government side. And the second was field survey activities carried out in parallel with the first by the Provincial Study Team by highlighting on water users side (see Fig. 5.5.1).

Basically the two sides began with reconnaissance survey moving from provincial level down to kabupaten/municipal and site levels. And afterwards the Provincial Study Teams continued with key informant surveys and PRA/PCM workshops at site level under supervision of the JICA Study Team.

Findings of both sides then were shared together and discussed at Kabupaten /Municipal Workshops and upper Provincial and Central Workshops.

(1) Reconnaissance Survey

Detailed field survey began with reconnaissance survey focusing on general updating and familiarization of information regarding with field conditions of the Study Provinces due to fast progress of regional government autonomy reforms and change of site selection in particular. In fact reconnaissance survey were multipurpose since hypothesis verification and all preparatory field works had to be done simultaneously during this activity. Confirmation was needed to ensure the preparedness of Provincial Study Teams by province. The coverage of selected sites by included Kecamatan and villages must be made clearer to consider the PRA application and village sampling frame when needed. Whereas the applicability of Questionnaires and other instruments also must be field tested

At Provincial and Kabupaten/Municipal levels, therefore, meetings among the related Government Agencies and the concerned parties were organized to let them know the scheme of Study Phase II and to make sure their help and participation as needed. It was also in the same meetings that hypotheses were discussed with them by using a set of Question-guide or checklist. And afterwards related regulations, statistical data, maps and other supporting kinds of secondary data were collected accordingly.

At site and village levels priority was given to assess field condition of the selected irrigation schemes by walk-through and to ensure the included *Kecamatans*, villages and WUAs by its upstream, mid and downstream distributions. Whilst trials were made for questionnaires and PRA/PCM practices, and relevant schematic maps and secondary data of the selected irrigation schemes were collected at the local *Ranting/Pengamat* offices. Tentative schedules of Key Informant Survey and PRA were discussed locally.

As a result the reconnaissance and trial came up to Operation Plan of detailed Field Survey by Province (Fig. 5.5.1). Detailed Reconnaissance Survey. Comments on countermeasure hypothesis, collected secondary data and field observations of both sides were compiled by the respective JICA Study Team and Provincial Study Team for further verifications.

(2) Key Informant Survey

The Key Informant Survey was conducted in the selected sites of Study Provinces by the Provincial Study Team. The objectives were to assess the local farmers' perceptions concerning problems and solutions of irrigation policy reform (INPRES No.3/1999) implementation, and irrigation turnover, management and O&M in particular. It was also the intension that comments on adoptability of countermeasure hypothesis were collected as well.

Under the PRA method the implemented Key Informant Survey tended to be semi-structured. A set of Questionnaires therefore were prepared to guide the interviews focused on the mostly required information, concerning:

- Bio-physical and socio-economical condition of the included villages (Village Monograph and Potential).
- Irrigation scheme, management, WUA and agricultural conditions (Questionnaire WUA Farmers).
- WUA development progress and empowerment (Questionnaire WUA Official).

The Key Informants were selected from the sample villages representing the upstream, middle and downstream conditions of the irrigation scheme. Belong to local site category they varied from WUA and WUAF leaders, PPA, *Juru Pengairan*, *Pengamat* to *Kades/Kadus*, *KT* leader, Woman Farmer, Ulu-Ulu and Informal leader as specified below.

Key Informant by Site Categorization

SITE CATEGORY	KEY INFORMANT		
	Village Monograph	WUA Official	WUA Farmer
1. Site with success WUA	EI	BCD	ABGH
2. Site with no WUA	EI	BCD	BEFGH
3. Site with single WUA	EI	BCD	ABFGH
4. Site with several/federated WUAs	EI	BCD	ABFGH

Notes:

- A – WUA/WUAF leader
- B – PPA (water gate keepers)
- C – *Juru Pengairan*
- D – *Pengamat* (Head of Sub-Kabupaten Irrigation)

- E – *Kades* (Head of Village/Sub-village),
- F – *Ulu-ulu* (traditional village water officer)
- G – *KT* leader (Group of Farmers),
- H – Woman Farmer
- I – Informal leader

It is important to note that in the sites of success WUAs the WUA/WUAF leaders (A) mostly were informal leaders (I) of the village, whereas in the sites of no-WUA, single WUA and several WUA they (A) mostly were *Kades/Kadus* (E) or *Ulu-Ulu* (F).

While local observations, transect walks and meetings were done, the Key Informants were interviewed individually by the Provincial Study Teams' field members as scheduled with local leaders in the preceding Reconnaissance Survey. The collected information and additional maps, statistical data and other information were compiled, triangulated and summarized accordingly to PRA techniques for the coming PRA /PCM workshop and hypotheses refinement. Whereas a village community meeting was recommended individually for villages included in the respective sites to collect ideas concerning the local irrigation problems, and to elect their representatives prior to PRA/PCM workshop.

(3) PRA (Participatory Rural Appraisal) Workshops

The Key Informant Survey and PRA data collection and analysis techniques culminated at a PRA workshop of the respective sites. These one-day workshops were organized by the Provincial Study Teams in cooperation with irrigation scheme/Kecamatan Government Agencies as scheduled during the Reconnaissance Survey. By taking account the Terms of Reference the workshops aimed at the following objectives:

- Validation of Key Informant and PRA data at site level, and
- Verification of countermeasure hypothesis.

The workshops were attended by WUA/WUAF and/or villages' representatives, Key Informants, and formal and informal leaders of the sites, at an average of about 20-35 persons in correspondence with village number of the selected site.

Materials were prepared by the Provincial NGOs' field members, mainly (a) summaries of local perceptions and aspirations concerning the faced problems of irrigation and WUA empowerment, and (b) supporting PRA technique data exposures.

- The following agenda was usually evident in the implemented workshops:
- Opening session, within which completion of Key Informant and PRA Surveys were reported to the local irrigation scheme/Kecamatan Government Agencies.
- Explanation of the results of Key Informant and PRA Surveys by field members of the Provincial Study Team, namely the summaries of local perceptions and aspirations of irrigation and WUA problems as mentioned above.
- The summaries were usually organized in simple lists by grouped issues, such as irrigation management and O&M issues, agricultural and economic issues, Government and WUA empowerment issues, and socio-cultural issues.
- Discussions responding the presented results of the survey, along which field members of the Provincial Study Teams facilitated the process by encouraging participants and water users in particular to express opinions, clarifying misunderstood statements, recording the relevant points in front of discussions, and reorganized the formulated problems and solutions accordingly.
- In term of big number of participants, discussion was organized into groups of discussion in accordance with grouped issues.
- It is also important to note that in some extent the discussions varied in many ways. In West Sumatera where a field member of the Provincial Study Team is familiar with ZOPP method, cards were used for PCM problem tree analysis, objective tree analysis and prioritization of activities.
- In DI Yogyakarta and East Java where the Provincial Study Team is familiar with PPKP¹¹ method, discussion used this version of PRA application.
- In West Java and West Nusa Tenggara PRA were conducted by the Provincial Study Teams who are familiar with this method.
- Whatever the PRA workshops came up to the expected results, namely the validated problems and solutions of irrigation policy reform implementation and local irrigation O&M in particular.
- Closing
- Follow up
- The results were consolidated by the respective Provincial Study Teams for countermeasure hypothesis verification, and materials for the local Kabupaten/Municipal workshops.

¹¹ *Pemahaman Partecipatip Kondisi Pedesaan*, participatory assessment of rural condition, a WATSAL working group's version of PRA widely applied since last year

5.5.4 Kabupaten/Municipal PCM Workshop

(1) Objectives

The Kabupaten/Municipal PCM Workshop was designed to aim at;

- completion of PDM by using PRA result.
- validation of the completed PDM at Kabupaten/Municipal level and task allocation, and it was also the intension
- to verify the countermeasure hypothesis upon the workshop outcome.

(2) Organizer

The Provincial Study Teams were in position to support organizing Kabupaten/Municipal workshops by close cooperation with the Kabupaten Government Agencies of the respective Study Provinces as discussed in the Reconnaissance Survey.

Accordingly these Kabupaten/Municipal workshops were held for one-day in the local Kabupatens/Municipals respectively in April 23 – May 5, 2001 in liaison with the Kabupaten/Municipal Bappeda and/or Dinas PU of Irrigation.

(3) Participants

The Kabupaten/Municipal PCM workshops were attended by the Kabupaten/Municipal Governments and related Government Agencies and representatives of the selected sites' PRA workshops at a range of about 20 – 35 people by workshop.

The Kabupaten/Municipal Governments were usually represented by the local Bappeda, while the related Kabupaten/Municipal Government Agencies varied as they included Dinas PU of Irrigation, Foodcrops, Fisheries, Cooperatives to Village Community Development (PMD), BIPP¹², DISPENDA¹³, and other project (SSIMP III, Sumbawa, West Nusa Tenggara).

Local House of Representatives was strongly recommended by the workshop to involved since the implementation problems and solutions of irrigation policy reform related to laws & regulations and Kabupaten/Municipal development plan and budgetary allocation. A trial made in Padang Municipal and Kabupaten of 50 Kota, West Sumatera revealed better contents of discussions and workshop results due to local Parliament participation.

The site workshops' representatives also varied in many ways since *Kades* (Village Head), *Camat*, *Pengamat*, and *Juru* (also KUD) were elected to accompany WUA/WUAF and farmer leaders. The attendances coming from Provincial Government Agencies (Bappeda, Dinas PU *Pengairan*, PTGA, Agriculture, PMD and Trade/Industries) were also evident in West Sumatera, but it was not the case.

(4) Materials

The materials of The Kabupaten/Municipal PCM workshops were prepared by the Provincial Study Teams following the completion of PRA workshops of selected sites, concerning:

- Tabular lists of validated problems and solutions by PRA workshops of selected sites
- Problem tree analysis by PRA workshops of selected sites
- Objective tree analysis by PRA workshops of selected sites
- Program/activity prioritization by PRA workshops of selected sites

¹² BIPP, *Balai Informasi Penyuluhan Pertanian* (Centre for Agricultural Information and Extension Services)

¹³ *Dispenda, Dinas Pendapatan Daerah*, Dinas for Regional Income

- PDM by PRA workshops of selected sites

Supporting field data, administration and irrigation schematic maps of the selected sites and other related information were exposed differently in the workshop. Above all OHP, cards and other tool-kits as required for presentations and PCM discussions also were used.

It is however important to note that in some cases inadequate material preparations were evident due to practical reasons, such as lack of coordination of the Provincial NGO Team and their field team and in data compilation in particular, time span, inadequate familiarization of PCM method, etc), that may affected workshop process and results.

(5) Methodology

Facilitator was usually acted by the Provincial Study Teams' members/ field members averaging at about 3-4 people and flexibly rolling as moderator, presenter, and recorder as required, while proceeding the workshop with the procedure as followed;

- Opening session with some key-notes by the Kabupaten Government.
- Presentation of the PRA results specified above by the Provincial Study Team member/field member by using the distributed materials, OHP and other presentation aid materials.
- Discussions responding the above presentation, focusing on: 1st problems analysis, 2nd objective analysis, 3rd program prioritization, and 4th task allocation.
- Closing by the Kabupaten Government.

Cards were distributed to individual participants to write his/her own findings and opinions correctly prior to discussions. And belong to the number of attendances the discussions were usually organized into small groups. The participants realized the difficulty to generalize or to summarize the results, because of existence of individual situation of respective site.

(6) Results

1) Major problems by the selected site and Kabupaten/Municipal levels

A trial was made to summarize the major problems of irrigation management, WUA and turnover at the selected site and Kabupaten/Kotamadya levels. Using >50% site and Kabupaten/Municipal parameters the major problem category realized in the entirely selected 25 sites and Kabupaten/Municipal of the Study Provinces is as shown in the table below.

Major Problems in 25 Sites and Kabupatens/Municipals

Major Problems	Scheme	Kab./Kadya
A. Government Role, Support, Laws & Regulations		
B. WUA Management, Institutional Aspect		
1. WUA/WUAFs are inactive, less functioning	V	V
2. WUA and O&M funds are not available, limited, insufficient	V	V
C. Irrigation O&M, Water Management		
3. Water is insufficient in dry season	V	V
4. Water resources deteriorate, decrease	V	V
5. O&M implementation is inadequate	V	V
6. Sedimentation is too high	V	V
D. Agriculture, Economic, Finance		
7. Uncontrollable pests, insects and animal disturbances	V	V
8. Production inputs are lack, expensive	V	V
9. Cropping pattern and calendar are not organized, not applied	V	V
10. Production is low	V	V

Source:

Field Survey in 25 Selected irrigation schemes in the Study Provinces of West Sumatera, West Java, DI Yogyakarta, East Java and West Nusa Tenggara, JICA Study Team, 2001

The major problems concentrate on WUA institutional, irrigation O&M and management, and agriculture. It occurs in both the selected Schemes and also in the entire Schemes within the local Kabupatens and Municipals.

2) Major activities by the selected site and Kabupaten/Municipal levels

By using the same screening parameter, major programs prioritized at both site and Kabupaten/Katamadya levels are as presented in the table below. Belong to site and Kabupaten/Kotamadya levels, a set of actions should be taken to address the major problems, namely:

- reconstructions of both WUA/WUAF and irrigation structure adequately,
- partnership with private sector for agribusiness development, and
- WUA/WUAF socialization under irrigation policy reform.

Major Actions in 25 Sites and Kabupatens/Municipals

Major Problems	Scheme	Kab/Kodya
A. Government Role, Support, Laws & Regulations		
B. WUA Management, Institutional Aspect		
1. Provide leadership training for WUA/WUAF leaders	V	V
2. (Re)organize WUA/WUAF democratically	V	V
3. (Re)formulate AD/ART with members	V	V
C. Irrigation O&M, Water Management		
4. Improve irrigation structure by number and quality	V	V
5. Rehabilitate irrigation structure permanently	V	V
D. Agriculture, Economic, Finance		
6. Develop partnership for business-oriented agriculture and marketing	V	V
E. Socio-Cultural Aspect		
7. Socialize WUA/WUAF under irrigation policy reform	V	V
Source: Field Survey in 25 Selected Schemes in the Study Provinces of West Sumatera, West Java, DI Yogyakarta, East Java and West Nusa Tenggara, JICA Study Team, 2001		

5.5.5 Provincial and Central Workshops

(1) Provincial Workshop

1) Objects

The Provincial PCM Workshop aimed at (a) completion of PDM by using Kabupaten/Municipal PCM workshops' results, (b) validation of the completed Kabupaten/Municipal PDM at Provincial level and task allocation, and (c) verification of countermeasure hypothesis upon the workshop outcomes.

2) Organizer

The Provincial Study Teams were in position to organize the workshops by close cooperation with the Provincial Government Agencies of the respective Study Provinces as discussed in the Reconnaissance Survey.

The workshops were held for one-day in the respective Provinces in May 8-15, 2001 in liaison with the Provincial Bappeda and/or Dinas PU of Irrigation offices.

3) Participants

The Provincial PCM workshops were attended by the Provincial Governments and related Government Agencies, representatives of the selected Kabupatens/Municipals and representatives of the selected sites' PRA workshops at a range of about 30-40 people by workshop. The Provincial

Governments were usually represented by the Provincial Bappeda. In case of West Sumatera, the workshop was also attended by the related Commission of Provincial House of Representatives. But no idea nor comment given during the workshop as they firstly would like to just listen and learn.

The Kabupaten Governments were usually represented by the Kabupaten Bappeda, Dinas PU of Irrigation and Agriculture officers. Whereas the PRA workshops' representatives of the selected sites mostly were Camat, Pengamat, *Juru* and WUA/WUAF/farmer leaders.

4) Materials

The materials of the Provincial PCM workshops were prepared by the Provincial Study Teams. The distributed materials usually consisted of:

- Tabular compilation of problems and solutions of Kabupaten/Municipal PCM workshops
- Draft problem tree analysis established upon the compiled problems of Kabupaten/Municipal PCM workshops of no (1) above
- Draft objective tree analysis established upon the problem tree analysis of no (2) above
- Tabular program priorities of respective Kabupaten/Municipal PCM workshops
- Tabular task allocations of respective Kabupaten/Municipal PCM workshops

Field data, administration and irrigation schematic maps of the selected sites and other information were exposed differently in the workshop, whereas OHP, cards and other tool-kits were prepared for presentations and PCM discussions uses.

5) Methodology

Similarly to Kabupaten/Municipal workshops, the Provincial Study Team and field members acted as facilitator, moderator, presenter and recorder as required.

Opening session with some keynotes was usually given by the Provincial Bappeda of the respective Province. Presentation of the Provincial Study Team followed concerning the problem tree, objective tree and program prioritization of Kabupaten/Municipal PCM workshops.

Validation of the presented results of Kabupaten/Municipal workshops was made at plenary and group discussions by focusing mainly on problems, objective analysis, program prioritization, and task allocation especially which regards to the expected roles of Provincial Government.

Likely in the Kabupaten/Municipal level, problem tree analysis, objective tree analysis, program prioritization and task allocation then were developed afterward by small group upon the collected workshop outcomes, and hypotheses were verified accordingly.

6) Results

a. Major problems by site, Kabupaten/Municipal and Provincial levels

A trial was made to summarize the major problems of irrigation management, WUA and turnover by site, Kabupaten/Kotamadya and Provincial levels of the Study Provinces. Using >50% site screening parameters the superimposed data show that 9 of 11 major problems prevailing in the selected 25 sites and Kabupatens and Municipals confirmed at Provincial level as shown in the table below.

Major Problems by Site, Kabupaten/Municipal and Province

Major Problems	Scheme	Kab/Kody	Province
A. Government Role, Support, Laws & Regulations			
B. WUA Management, Institutional Aspect			
1. WUA/WUAFs are inactive, less functioning	V	V	V
2. O&M funds are not available, limited, insufficient	V	V	V
C. Irrigation O&M, Water Management			
3. Water is insufficient in dry season	V	V	V
4. Water resources deteriorate	V	V	V
5. O&M implementation is inadequate	V	V	V
D. Agriculture, Economic, Finance			
6. Production inputs are lack, expensive	V	V	V
7. Cropping pattern is not organized, not applied	V	V	V
8. Production is low, decreases	V	V	V
9. Farmer income is low	V	V	V

Source:

Field Survey in 25 Selected Schemes in the Study Provinces of West Sumatera, West Java, DI Yogyakarta, East Java and West Nusa Tenggara, JICA Study Team, 2001

The major problems concentrate on WUA institutional, irrigation O&M and management, and agriculture. The remaining two 'major problems of Scheme and Kabupaten/Municipal levels did not occur for all Schemes in the Province.

b. Major activities by site, Kabupaten/Municipal and Provincial levels

By using the same screening parameter, three major programs were recommended to be taken into priority for all Schemes in the Provinces as evident from the table below.

The recommended actions concerned with:

- (Re)formulation AD/ART with members
- Rehabilitate irrigation structure permanently
- Partnership with private sector for agribusiness development and marketing

Major Actions by Site, Kabupaten/Municipal and Province

Major Actions	Scheme	Kab/Kody	Province
B. WUA Management, Institutional Aspect			
1. (Re)formulate AD/ART with members	V	V	V
C. Irrigation O&M, Water Management			
2. Rehabilitate irrigation structure permanently	V	V	V
D. Agriculture, Economic, Finance			
3. Develop partnership for business-oriented agriculture and marketing	V	V	V

Source:

Field Survey in 25 Selected Schemes in the Study Provinces of West Sumatera, West Java, DI Yogyakarta, East Java and West Nusa Tenggara, JICA Study Team, 2001

(2) Central Workshop

1) Objectives

The Central Workshop intended to a) completion of Provincial PDMs by using the results of Provincial PCM workshops, b) validation of the completed Provincial PDMs at Central level, c) discussions on Central Government roles and implementation of INPRES no 3/1999 under Law No. 22/1999.

2) Organizer

The Central workshop was organized for one-day by the JICA Study Team in liaison with the Indonesian Counterpart under coordination of the DG of Water Resources, KIMPRASWIL.

3) Participants

The workshop was attended by the related Central Government Agencies and NGOs, Provincial and Kabupaten/Municipal Government Agencies, representatives of the selected sites' farmer water users and ADB, JICA and FAO, at a total of about 65 people.

The Central Governments were represented by Ministry of Kimpraswil, DG and Directorates of Water resources, Ministry of Agriculture, Ministry of Home Affairs, Bappenas, LP3ES, Ministry of Cooperatives, and Bappedal.

Whereas the Provincial and Kabupaten Governments as well as the representatives of the selected sites consisted of BAPPEDA, Dinas PU Pengairan, PTGA and WUA/WUAF/farmer leaders.

4) Material

The materials were prepared by the JICA Study Team and respective Provincial NGO Study Teams concerning:

- (1) Survey objectives, method, and selected sites by Province
- (2) Results of the Provincial PCM workshops by Province in terms of:
 - Tabular summary of Problems and Activities
 - Problem tree analysis
 - Provincial PDM and task allocation
 - Verification of countermeasure hypothesis
- (3) Compilation of above materials prepared by the JICA Study Team
- (4) Presentation aid materials, OHP etc.

5) Methodology

The JICA Study Team was the facilitator of the workshop. The results of Provincial PCM workshops were presented by the respective Provincial NGO Study Teams.

Using additional information of BAPPENAS concerning the progress of irrigation policy reform, two sessions of discussions were organized by the Indonesian counterpart. There was no group discussion or PCM method practiced during the workshop.

6) Results

The results were as summarized below:

- 1) The problem of irrigation is rooted in past policy on agricultural development, which was obviously more addressed towards production (for the sake of national food security) rather than it was to farmer human resource development.
- 2) At implementation level formulation of irrigation policy reform needs to include:
 - Clearer redefinition of jobs and responsibilities of Central Government, Provincial Government, Kabupaten/Kotamadya Government and WUAs
 - WUA empowerment principles and approach: which are participatory, democratic, integrated, consistent, transparent, and based on the one Scheme one management principle
 - Governmental supports and services that must be made possible on proposal basis
- 3) Field findings show that at implementation level the problems of irrigation policy reform mainly include:
 - Government roles, support, laws and regulations
 - Agriculture, economic, finance, marketing
 - Function and condition of irrigation scheme

- Water users and institutional aspect
 - Water resources, river and forest conditions
- 4) Implementation of irrigation turnover requires:
 - Legal basis in terms of Laws and regulations
 - Irrigation policies which truly benefit farmers
 - WUA empowerment implemented on needs based basis
 - 5) Water is used for farming and non-farming sectors. This implies that WUA empowerment and irrigation management improvement need to include both farmer and non-farmer water users
 - 6) Trainings and extension works should be participative and dialogs (two-way communications)
 - 7) Planting system and calendar among farmers of one Scheme should be organized by the farmers instead of regulated by the Government.
 - 8) Irrigation represents a sub-system of agriculture. covering production, technology, capital, production means/inputs, marketing, organization etc.
 - This implies the problems of irrigation must be seen comprehensively with the remaining agricultural factors
 - 9) It is important for WUA empowerment to take account of:
 - Need for a self-help socio-economic organization
 - Need to simplify organization at farmer level
 - Existing *Kelompok Tani*, *Klompencapir*, *KUD*etc. promoted for farmers
 - Right of farmers to decide for and by themselves
 - 10) Implementation of irrigation management turnover needs for a) Government preparedness, b) Step-by-step process, c) Monitoring and evaluation (M&E), and d) Involvement by Universities and NGOs
 - 11) Attention must be given to commercial crops to meet input-output ratio adequately, within which irrigation management and O&M costs are included
 - 12) At Central level, policy making on food security and paddy price in particular is complicated and not benefiting farmers.
 - 13) According to Law No.22/1999 authority must be given to Regional Government, so Kabupaten have full authority to prepare benefiting food production policy adequately to local conditions and priorities.

5.6 Trial Formulation of Irrigation O&M Plan

5.6.1 Objectives and Site Selection

(1) Objectives

Based on the results of work item "Specification of the Subjects and Analysis of Problems" and "Clarification of Problems through the Participatory Survey", a trial irrigation O&M plan was carried out with participation of representatives of WUA and sub-district officers in charge the WUA in West Java Province. For the trial, the following activities are proposed:

- To examine actual cause-solution of problem and its action plan.
- To seek for practicability of the action plans as well as its sustainability.
- To measure outcomes of the action plans in term of turnover program achievement.

(2) Site Selection

Cipalebuh Irrigation Scheme, in Kabupaten Garut West Java Province, was selected as trial site, according to the following criteria:

- Federated WUA has been (is being) established.

Selected Irrigation Scheme for the O&M Trial Activities

Name of D.I.		Project Area	Kabupaten
Cipalebuh		1,016ha	Garut
WUA: Batu Pameungpeuk	SDB	370ha	Kc.Pameungpeuk, Ds: Pameungpeuk
WUA: Mandala	SDB	279ha	Kc.Pameungpeuk, Ds: Mandala Kasih
WUA: Sanimukti	SDB	113ha	Kc:Cikolek, Ds:Paralayan
WUA: Tanimukti	SDB	150ha	Kc:Pameungpeuk, Ds:Mancajajar
WUA: Sukamulya	SDB	114ha	Kc:Pameungpeuk, Ds:Jati Mulya

- WUA officials are considered active.
- Water distribution is managed.
- ISF is collected.
- Irrigation infrastructures are not (seriously) damaged/dysfunctional.

Study tour location was selected according to the above criteria, plus the following:

- O&M activities are routinely programmed.
- ISF is spent to meet O&M programs.
- ISF is transparently managed and regularly reported.
- Agricultural product is significantly increased.
- O&M is (about to be) turned-over.

Cimanuk Irrigation scheme in Kabupaten Garut was selected as advanced case.

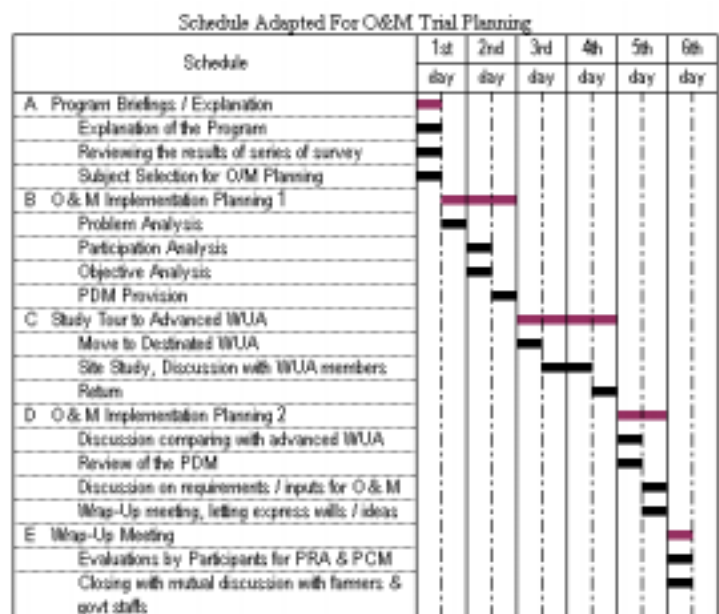
5.6.2 Methodology

Activities in this trial consist of;

- O&M implementation planning and
- Study tour to advanced WUA.

In the O&M implementation planning, the following activities were conducted:

- 1) Reviewing the results of the Phase II WUA Study for the selected location/WUA. The method for this highlighted critical review of key findings of the PRA and PCM for the selected WUA.
- 2) Selection of subject for O&M.
- 3) Problems analysis of the O&M subjects to clarify actual problem-solution relationships.
- 4) Participation analysis of farmers/WUA, local government staffs, and *kabupaten*/provincial staffs concerned with irrigation O&M.
- 5) Objective analysis with regard to methods of resolving O&M problems.
- 6) PDM provision.
- 7) PDM review.
- 8) Inputs requirement for O&M.



PCM workshop was adapted for activity 4) through activity 8). Study tour to advanced WUA area was carried out aiming formulation of PDM through:

- Discussion with officials of the advanced WUA.
- Observation of O&M formulation and activities of the advanced WUA.
- Comparison of problems and O&M activities of the advanced WUA to meet with the actual problems

5.6.3 Trial Results

Useful facts and lessons were obtained through the trial for developing countermeasures for the given subjects of this Study. Fundamentally farmers are quite smart for maintaining irrigation facilities at their requirement level, which is caused from their well-balanced sense of minimum inputting,

applying their own decision-making procedure in a community. And the trial became a re-confirmation that matter of trunk system is out of their consideration basically. Such task allocation recognizing by farmers is not caused by their selfishness unilaterally. During last few decades, a clear task demarcation was existing, defining the ex-PU owes responsibilities by 50 m downstream from a turn-out of secondary canal and down stream parts were left to farmers' side completely. Imprinting of such demarcation proved effective strongly. Contribution of the trunk system, conveying irrigation water, is not recognized so deeply by farmers as cash-oriented balance level. Government's expectation of O&M owing by farmers for trunk system seems difficult because of lack of their perception for the function of trunk system. Aspects required reconsideration for present approach for the policy saturation are there also for government side.

Those results are summarized below.

- 1) The studied irrigation scheme (Cipalebuh irrigation scheme) did not receive an annual maintenance budget from Garut Kabupaten Government. Infrastructures have already deteriorated reducing performance of water supply particularly due to heavy sedimentation and leakage along the main system and to the existence of many broken gates. Scouring of the bottom of the weir and river banks threaten the stability of those structures. Cost estimation resulting from a walkthrough along the main system by the WUA officials is as follows:
 - Routine maintenance of 2 km canal length (canal cleaning and small repairs), Rp.10,000,000/year
 - Sediment removal along 2 km of canal length (0.5 m depth of sediment), Rp.60,000,000/year
 - Rehabilitation works (canal banks protection, gates replacement etc.), Rp.185,000,000/year
- 2) The amount of irrigation service fee decided by the WUA officials varies among those 5 WUAs. On average, it was approximately 7 kg of rice/unit area/harvest equivalent to Rp120,000/ha/year (7 kg of rice/unit area/harvest – 7 unit area=1 ha -- 50 kg rice/ha/harvest – Rp.1,200/kg -- 2 time harvesting/year – Rp.120,000/ha/year).
- 3) Farmers already understand that they have to pay irrigation service fee. However, coverage of its collection is very small (upstream non, middle 10%, downstream 25% -- about 10% in average). Coverage area of paying the fee is about 100 ha (irrigation area is about 1000 ha) so that collected fee is about Rp.12,000,000/year. In theory, at the agreed rate, if there were full coverage the collected fee would be sufficient to cover the required routine maintenance budget mentioned above.
- 4) Sediment removal along main system carried out by Sub-district *Pengairan* office (maintenance gang) and self help (*gotongroyong*) from farmers did not contribute significantly to improve water supply.
- 5) WUA organization is based on the *desa* administrative boundary. As mentioned above there are 5 *desas* with 5 WUAs. Membership of the WUAs is not clearly understood whether farmers living in the same village or farmers cultivating in the same designated irrigation area. It is obvious that WUA officials are not really representative of their members. Most farmers do not feel they have a common bond with WUA. This might be one of the causes for the small coverage of fee collection. Farmers are just targets for fee collection.
- 6) Relations between established *desa* level institutions and the WUA may also create some problems particularly regarding the location and function of canal system and membership of WUA if such an organization is based on the location of the *sawah* land. Such problems could become greater if there is budget from outside to be handled by the *desa* (such as the *Kecamatan* Development Program funds and P3DT). This kind of issue need to be clarified although *Inpres*. No.3 clearly mentions that WUA is the most powerful organization with regard to the management of irrigation systems.
- 7) It is currently being planned to established federation of WUA (WUAF). However, that plan seems premature. Having looked at the current organization of WUAs there appears to have been little involvement by farmers in the WUA.

- 8) Learning from the visited irrigation scheme (Cimanuk irrigation scheme), there is a possibility that contracts for rehabilitation works could be made with the WUAF as it has been implemented by WUAF in Cimanuk irrigation scheme. Administratively, there is an acceptable set of procedures for directly contracting with WUAs mentioned in Circular (SE-119/A/2000) from Ministry of Finance's Directorate General of Budget. WUAs in studied irrigation scheme are interested to get such kind of contractual works to provide the above financial requirement and to generate its capital.
- 9) According Provincial Office staff it is important to re-educate *kabupaten* level staff. The message regarding empowerment and turning over had not really been appreciated by many staff at this level; there was also considerable change in staffing at these levels, and it might be prudent to ensure that nominated trainees are indeed likely to be the appropriate staff before embarking on full scale training exercise.
- 10) Concerning those finding following actions are to be carried out to empower WUA and enhance irrigation turnover:
 - a) Public awareness or campaign to introduce policy of irrigation management turnover. This is to be carried out in such a way to cover entire farmers within the irrigation scheme. The right and responsibility of each individual farmer and the advantages of turning over of irrigation management should be clearly explained. Pamphlets and other displays are required.
 - a) Facilitate farmers to discuss democratically the re-formation of WUA organizations. Outside interference and domination from the head of village, village elders, government staff etc. should be avoided. Advantages and disadvantages of choosing territory of working area and membership (e.g. village/residential based or designated irrigation area/sawah land based) should be clearly explained.
 - b) Facilitate formation of individual WUAs completion with all required aspects of organization such as elected officials, article of association, legalization etc.
 - c) Collect information according to the needs of farmers to prepare training materials. Such training needs might be grouped into aspects of organization, irrigation system and its water management, infrastructures design and construction, finance and contract management etc.
 - d) Provide training to WUAs officials and other farmer representatives. Ensure that nominated trainers are indeed likely to be the appropriate staff before embarking on full scale training exercise.
 - e) Provide day-to-day guidance to WUAs (by government staff at *kecamatan* level) to recognize irrigation management problems particularly problems relating to coordination works among individual WUAs. By recognizing those problems it is expected to create an idea to form federation of WUA (WUAF).
 - f) Motivate WUAs and its members to set up meeting as frequent as possible to discuss the irrigation management problems including the needs to form WUAF.
 - g) Facilitate formation of WUAF completion with all required aspects of organization such as elected officials, article of association, legalization etc.
 - i) Introduce 'participatory design' and 'participatory construction' as implemented in the visited Cimanuk irrigation scheme (contracting rehabilitation works to WUAF) to increase self-reliance, self help, sense of belonging and generate WUAF capital.
 - j) Motivate WUAs and its members to increase coverage and level of irrigation service fee to cover required cost of O&M.
 - k) Discuss the possibility of irrigation management turnover.

5.7 Verification of Countermeasure

5.7.1 Verification of Countermeasures

Through the WUA area surveys applying PRA and PCM method, and kabupaten and provincial workshops, the problems and countermeasures were discussed in each region based on the results of PRA in each study WUA. Then the countermeasures proposed by the Study Team were verified, such as “is there any deference between proposed countermeasures and discussed results of countermeasures in each workshop?” or is task allocation of activities. In parallel with PRA/PCM workshops, the Study Team conducted several studies on the major subject in the field and discussions to confirm the possibility and breakdown of activities. Total considerations of field survey/workshops and studies, the countermeasures are verified as discussed below.

5.7.2 Identified Problems through Detailed Field Survey and Regional Government Workshops

(1) Specific Problems in the Study Provinces

1) Introduction: the Common, Average and Specific Problems

It was reported that 25 sites of field survey undertaken in 5 Study Provinces of the Phase II were selected by using 4 site categorizations, namely a) 5 sites with success WUA, b) 7 sites with no WUA, c) 7 sites with single WUA, and d) 6 sites with several WUA. An attempt was made to compile the faced problems at irrigation scheme level by the mentioned site categorizations. The compilation used a set of screening parameters below.

Screening parameters

1 – 8 irrigation schemes	Specific problems
9 – 17 irrigation schemes	Average problems
18 – 25 irrigation schemes	Common problems

2) Common Problems

Belong to the field data 2 problems were commonly taking place in 18-25 irrigation schemes of 5 Study Provinces as shown in the table below. Its mostly concern with shortage of water in dry season and low price and unstable of farm productions.

Common Problems

<ol style="list-style-type: none">1. Water shortages, especially in dry season and MT-3, and2. Low production price, not stable
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3) Average Problems

The other 19 problems averaged at about 9-17 irrigation schemes of 5 Study Provinces as listed in the table below. It is mostly highlighted the problems of source of water availability, physical irrigation conditions, O&M, farming practice and production, organization and income of farmer.

Average Problems

<ol style="list-style-type: none">1. Water source is small, decreases2. Canal bank is broken, <i>longsor</i>, planted with trees3. Water leakage is high4. Canal is not in good condition, broken5. Downstream is lack of water6. O&M fee collection is low, funded from village land7. Maintenance is low, canal is not cleaned8. Sedimentation is high, <i>pendangkalan</i>9. Productivity is low, not optimal, decreasing10. Uncontrollable pests, insects, animal disturbances

- | |
|---|
| <ul style="list-style-type: none"> 11. Production inputs are lack (seed, fertilizer), expensive 12. Cropping pattern and calendar is not organized 13. <i>KUD</i> has no competing power against private/traders 14. Farmer income is low 15. Farmers' awareness on O&M is low |
|---|

4) Specific Problems

The remaining 133 problems were reported as to be problems taking place differently by local sites at a range of about 1-8 irrigation schemes. These specific problems will be discussed below by site categories.

(2) The Specific Problems by Development Category of WUA

1) Government role

About 18 problems faced differently by individual irrigation schemes concerning with Government role. It varies by site categories as presented in the table below. As clear from the table, less problems were faced by the success WUA irrigation schemes as compared with the remaining site categories.

Looking at its distribution by site categories it is likely that the faced problems mostly concerned with i) task allocation of Government and water users, ii) inter-sectorial coordination, iii) extension works, iv) and socialization fund for PPI.

2) WUA management, institutional aspects

About 24 specific problems were identified under institutional aspects and WUA management in particular as listed in the table below. Similarly to Government role above, the listed problems reveal that basically the successful WUA sites proved better than the remaining site categories. It is however interesting to notify that regular member meetings were reported as not available yet at least at 2 irrigation schemes of successful WUA sites..

The other problems spread amongst the entire site categories. Its mainly regard with WUA or WUAF availability, WUA leaders, WUA and O&M fees, WUA administration, WUA articles and problem of legal status. While sites with no WUA concerned mostly on WUA leaders' inactivity and farmers that do not pay O&M fee so far.

The problems of WUA and WUAF leaders reported as dominated the trainings and not elected democratically seem typical for single and several WUA sites.

3) Irrigation O&M, water management

About 36 specific problems were listed under irrigation O&M and water management. The successful WUA irrigation schemes reflected typically the problems of irrigation investment and O&M cost due to the experienced responsibility, whereas the remaining site categories took differently the other problem priorities which regard to irrigation O&M and water management.

Sites with no-WUA concerned, for examples, on farmers unawareness concerning water allocation system and water management on-farm level, whereas the single WUA Sites on problems of the existing irrigation structure and buildings. The several WUA sites, on the other side, referred to the problems of water distribution among WUAs and O&M fee that was mostly considered by the WUA/WUAF leaders without involving farmers. They also reported their concern on O&M fee of non-farmer water users is currently being managed by the Government. These water users may include clean water supply for domestic uses, PDAM etc, electricity uses, factories and other non-farming

water uses potential in money term for irrigation O&M sustainability.

Above all the faced problems of irrigation and water management of the 4 sites categories were mainly represented by flood, uncontrollable forest cuttings and deforestation, irrigation construction, water allocation coordination, and O&M fee as well as O&M technical know-how and practices.

4) Agriculture, economic, finance

The problems of agriculture elaborated in the table below represent the mostly complicated things reported differently by the respective site categories, since both of successful WUA sites and the remaining site categories in some extent seem trapped into same conditions in many ways.

Low land holding, improper and inefficient farming practices, low productivity, lack of marketing and organizing capacities are, among others, the main irrigated agricultural problems they faced. The important fact behind is that at farmer level agriculture and its irrigation scheme both represent a subsystem of local communities rather than sector nor sub-sector, hence option development for countermeasure must be made locally and comprehensively, and that an intrusion of elements as required for such a change needs to work from within.

From this view point it is clear that irrigation development must be seen as the mentioned intrusion of Government to accelerate the rural communities grow by themselves rather than for the sake of irrigation sustainability itself nor other aims, in corresponding with rural-urban interdependent societies.

In addition it is important to realize that the problems of production inputs including adoption of technology on one side and market of farm productions on the other side and the subsequent flows of labor and money as listed in the table below are the things that together with efforts to overcome show progress, no matter fast or slow one, along the growth.

5) Socio-cultural aspect

The problems of socio-cultural aspect prevailing locally at irrigation scheme level, again, represent the intricacy of irrigation and irrigated farming managements in the non WUA, single WUA and several WUA sites as compared with successful WUA sites.

The listed problems also reflect as to how the vicious cycle phenomenon of poverty is remaining evident in the most irrigation schemes, whereas the successful WUA sites left it a little bit far behind. This indicates might be any lessons there that should be learned from within as to how an optimization of resources, however scarce, could be made possible for a real social change.

5.7.3 Verification through Detailed Field Survey and Kabupaten PCM Workshops

Based on the PRA and PCM Workshop in the WUA area, Kabupaten and Provincial Workshop results, the verification of the countermeasures was conducted by Provincial Study Team (Tables 5.7.1 to 5.7.4). Results of countermeasures verification through Detailed Field Survey and Kabupaten PCM Workshops are as follows. Please refer the numbers of the activities and their details in Sub-chapter 5.3.

(1) Countermeasures on Irrigation Issues

1) “Public Awareness”; [Activity I-1.1] & [Activities I-1.3]

This activity aims to publicize necessary information for letting understand contents of the Project and its related components, mainly to farmers and local government officers as the first step. Conclusions/topics obtained through confirmation are as follows;

- a) It was found that both of local government staffs and farmers did not understand contents of INPRES No.3/1999
- b) Turning-over the authority of irrigation O&M from government to farmers were supported by both farmers and local governments. But
- c) Farmers expectation to take-over the authority was from “farmers’ distrust to government staffs”.
- d) Abuse originated top-down system are still remaining on both sides and they have never break the shell. They are “lack of sense of ownership” and no willingness oriented “mutual distrust”, which can be said a background of low achievement of WUA establishment
- e) “Public Awareness” is suggested as necessary measures to break those abuses and to set up preparations for commence activities.
- f) Some measures are necessary for proceeding “Public Awareness” of new policies & INPRES No.3/1999
- g) Some measures to encourage/generate or to respect “Mutual-trust” among people and
- h) The activity of “Public Awareness” shall be set forth as a premise of the Project

Most of participants of kabupaten workshops could not explain the detail of the new policy when they were questioned the contents, neither kabupaten officers nor WUA leaders. At Kabupaten Sumbawa workshop in Sumbawa Island, both local government staffs and WUA leaders could not explain the content of Inpres No.3/1999. The same conditions were reported from other provinces.

Lessons from this topic are as follows; 1) Quite limited officers know national policies, usually only higher rank officers know and the majority does not know. 2) The majority has worked under instructions mainly. 3) Farmers don’t have any intensions for policies, 4) Easily to provide their own shell against any approaches from the governments as previous.

Behind the achievement of nearly 20 years efforts for setting-up WUA such situation was there. Only the central Government and higher rank officers knew policies. Sufficient population to initiate movements to saturate the policies was not provided by the present.

Farmers are eager for obtaining self-management of irrigation facilities as a reaction against unfairness of collected charge use. Farmers have doubts on accountability or fairness of local government staffs. So many farmers expressed desire to know the detail which will be available to obtain their own management, to avoid any interventions for utilizing water charge. On the other hand, it is obvious that it is necessary to conduct public awareness into local government staff who should be in charge to propagate policies and to assist farmers later to establish WUA(F).

A staff of PTGA in East Java Province, knows well present conditions of irrigation scheme and community people. Year by year he set target to conduct public awareness to guide farmers to establish HIPPA. He explained the activity is time intensive work and the most important issue for the work is “not hide” and “trust”. Achievement of WUA establishment is not in haste. In other provinces it was hard to meet with PTGA staffs like him unfortunately.

Well informed personnel are hardly found unfortunately in local governments, not only PTGA but also

staffs in other departments. Quite few staffs are available to explain/describe present condition of facilities, institutional aspects, scope of regulations and other necessary to conduct civil services of irrigation sector.

It was considered the necessity of some measures to make aware government staffs that they should change their attitude to meet with new era. Even though being said “bottom-up”, “democracy”, “participatory” in these days, attitude of government staffs have never been changed. Those terms are still same as previous, just what to be conveyed from “Top” to “Down”.

2) “Community Organizer; [Activity I-1.2]

The activity is proposed as one of components of preparations to conduct “Public Awareness”. Main intension is to provide a person backed and trusted by community people and let him (her) owe function to guide the community while bridging between community people and local government, to enhance establishment of WUA or WUAG. This activity is to be done by “Secondary canal”. Conclusions/topics collected during confirmation in the fields are as follows;

- a) Being recognized that majority of farmers are isolated from any laws and regulations, not only from money economy. Hence persons in charge to facilitate/moderate to make them aware are required who are trusted by community members. Both of farmers and local government staffs accepted the reason.
- b) Being reconfirmed that the most precious aspect to proceed the policy is to recover “Mutual-Trust” minds among people. Hence issue of “Public Awareness” shall be enhanced as the most basic input.
- c) Being reconfirmed that tasks of the representative are i) to propagate latest laws and regulations with related rights and obligations, ii) to guide community people to be familiar with social participation and iii) bridging between governments and the WUA community or iv) bridging between (or among) vicinity WUAs.
- d) Being accepted the idea by almost all participants to set/select representative of the respective community people through democratic procedure, not by top-down appointment, to keep “Trust”.

As already described in the previous section PTGA strengthening issue was proposed from viewpoint to utilize existing human resources. The activity here aims to dig up hidden talent and to promote potential leader to guide community people. Tasks to be owed are same with PTGA staffs, but completely based respective community.

Quite few WUAFs are available over the provinces by now to adapt these activities because number of mature WUAG is limited DI. Pekikjamat, Kabupaten Kulon Progo, Yogyakarta is the WUAG seemed available to be adapted the activity. At first two persons are to be nominated as potential persons for training to be Community Organizer (CO) from 13 member WUAs and to be chosen only one for the position.

Cynically the appointed CO and WUAF members in DI. Pekikjamat, Yogyakarta have never been mature to understand the task. The CO selection is not from their idea but by instruction from local government. Even though so function as aimed is necessary for enhancing establishing WUA and WUAF. So some top-down approaches are needed. From that recognition the activity is to be applied to any secondary canal base over the country.

3) Participatory Formulation/Reformulation of WUA(F); [Activity I-1.4]

This activity aims to make WUA members reconfirm their participation to establish WUA

representatives, not aiming to reshuffle present WUA(F) boards. As being already reported most of present WUAs were established under the previous top-down administrative instructions. Hence lack of “Sense of Ownership” is there in minds of WUA members. Main intension is to adapt democratic election procedure to select WUA board members. Conclusions/topics obtained through confirmation in the fields are as follows;

- a) Being indicated to set some measures to make members participate more to WUA activities.
- b) Being indicated to set some measures to recover “Trust” between WUA board and members, because most of present WUA were formed by top-down system.
- c) Being recommended/agreed by both farmers and government staffs to adapt/respect traditional community based bond as foundation of WUA.
- d) Being confirmed the necessity to enhance establishment of unit WUAs as primary cell to set up of WUAF and IWUA.
- e) Being reconfirmed that government has no concrete plan or targets to establish WUA. Also it was hardly for them to identify areas to establish new WUAs.
- f) Being indicated the necessity to provide some incentives to attract farmers to formulate unit WUA like assistances on institutional set-up, financial supports and marketing extension services as direct incentives. Also some different approach to stir sense of crisis or sense of keeping up with WUA formulation.

Necessity of formulation/reformulation is one of aspects proposed in the initial stage of the Study. After commencing the field works in Phase-I Study, quite many complains were raised from the Provincial Study Teams. They reported that about 25% of WUAs listed as survey sites were not found in the fields. Also they reported that most of farmers did not understand terminology of “WUA or P3A”.

While visiting the fields in Kabupaten Padang Pariaman in West Sumatra province, Mr. Sulaiman, a farmer at Desa Padang Lapai, explained a real story while guiding the JICA Team. One day being called by a village master and instructed to select dominant persons to fill positions of a WUA board. He did not inquire the details and just followed the instruction. He remembered he and other four members signed in a form. That was all. After that none of any instructions was given from the village master any more. He said, hence it was obvious that any members don’t know “WUA or P3A”. Same story was given by a local government officer in East Java Province when questioned the reasons why such contradictions were reported. “Achievement to report to Jakarta was the best, even though being false under the state power system” was his explanation. Most of present WUA establishment is not from farmers’ need-base. They do not have common bond with present WUA. Same stories are reported from other provinces.

Eagerness of WUA re-establishment is not only from farmers but also from local officers originated from local farmers. They have been in dilemma between top-down instructions in office and opinions from their own families in the field. O&M of irrigation system has been managed as one of community subjects like ceremonial occasions, of course by tertiary level. As they used irrigation O&M with their own traditional names (*Tuo Banda* in West Sumatra, *Mitra Cai* in West Java, *Opa* in Yogyakarta, *Bina Tirta*, *HIPPA* in East Java and *Pekase*, *Makar* in NTB). Also local officers themselves don’t have common bond with “P3A” system. Actually in East Java province both of officers and farmers are not going to use the terminology “WUA”, but “HIPPA”.

Intention of the activity proposal is to realize WUA organization representing its members for further empowerment and basis for irrigation management turnover. Whilst the central Government has poured efforts to step up WUA policy by present, present condition seems like “one-man stage play”

at field level. Most of farmers and local officers complied with the activity proposal.

A high rank officer in the central government suggested to set some measures to stir farmers' willingness to join WUA formulation like a competition style which easily to meet with their character of enjoying events, while keeping bottom-up/democratic approach. Incentive is to be implementations of rehabilitation as farmers' planning. Eligibility to participate to such event is setting up WUA and its registration. Judgment is to be left to farmers, whether they would like to establish WUA or not. Information to be conveyed to public after the rehabilitation will be a success story and make impact to stir jealousy minds. Efficiency is not clear but the idea seems from keen observation of farmers' characters and worth implementing.

Implementation of the activity is to be managed by farmers. There will be no difference by WUA status, by region.

4) Participatory Training of WUA; [Activity I-1.5]

This activity is proposed as one of components in initial stage of the Project and aims to train WUA leaders/dominate farmers to let them be familiar with basic issues for establishing WUA or managing WUA. Trainer will be PTGA staff utilizing training modules already developed, basically through On-The-Job-Training approach. Conclusions/topics obtained through confirmation in the fields are as follows;

- a) Being requested by farmers to provide assistances to enforce management capability of WUA, because farmers are feeling uneasy about new issues without experiences.
- b) Government staffs are recognizing its importance as one of approaches to recover the trust between them and farmers. Hence government staffs are supported this activity.
- c) Local government staffs stressed the necessity of continuous supports to realize farmers' self-reliance.
- d) Required human resources to be mobilizes are, i) PTGA staffs, if being trusted by farmers, and ii) Community Organizers from viewpoint of "Farmers to Farmers", means farmers are to be appointed to train farmers.
- e) It was confirmed that some pre-conditions like conducting public awareness and capability building were to be completed or already been conducted before implementing the activity.

Explanation of On-the-Job-Training made farmer fascinate because of its continuity. Almost all of trainings, which have been conducted through any programs, were lecture type trainings. Impacts of achievements of IDTO program are form its continuous training in the field. The program has been conducted several years in the fields and adopting participatory training subject by subject, from training for enforcing capability of problem finding, provision of solution planning, and examining task allocation and cost estimate, which are similar approach the JICA Study Team adopted in the study. The idea is oriented results of field surveys conducted in this study. It was noticed that farmers have sufficient capability to solve problems by them, if some proper supports are available.

It was pointed out that preparations before commencing the activity are necessary like upgrading capability of trainers, securing sufficient budget for the activity, definition of task allocation of the program and so on.

The activity aims quite basic issue; participatory training. Contents of the training shall be distinguished by WUA status in the details. But its application might be same over the country.

5) ISF Coverage; [Activity I-1.6]

Whilst the central government aims “Full Cost Recovery” by WUAs from water source facility to intakes along tertiary canals, present conditions are far from the Government’s expectation, not only farmers but also local government staffs who shall be in charge to guide the farmers. Conclusions of verification are as follows;

- a) Whilst INPRES No.3/1999 aims to direction of “Full Cost Recovery”, the Government has no way to show estimated cost by each irrigation scheme. Hence not being available to keep fairness, just repeat the concept.
- b) Local government officers have never recognized and understood the INPRES No.3/1999 at field level.
- c) “ISF” has never been realized/understood by both WUA members and local government staffs. Seems confusions are in their minds between “*IURAN*” and “ISF”, because nobody showed exact cost and the policy contents.

Actually farmers recognize necessity of water charge owing, but by tertiary level. “*IURAN*” is charges owed by farmers to maintain tertiary level facilities or facilities in their community. Owing ISF is like a bolt from the blue, which is surely additional expenditure for them. For farmers, “*IURAN*” and “ISF” are completely falsely similar, also same in local government staffs.

WUA Sumber Rejiki in D.I. Pekat in Kabupaten Lombok Barat was awarded as the best WUA in the province in 1999, commending their own O&M management to rehabilitate irrigation facilities against flooding. They maintained not only tertiary canals but also parts of secondary canals. But owing “Full Cost Recovery” is beyond of their understanding, because length of primary and secondary canal is about 20 km totally.

Mr. Shamsudine, a farmer in DI. Beringin Sila in Kabupaten Sumbawa categorized as drought area, explained that the primary and secondary canals are easily filled up with sedimentation in rainy season every year, that total length is about 13 km. He expressed as WUA members’ opinion that re-construction or improvement of such condition shall be pre-condition to receive O&M authority.

Many irrigation schemes in West Sumatra province are scattered in mountainous areas and their command areas are by 300 ha or so. DI Sungai Jernih in Kabupaten Agam is 90 ha, DI. Batang Liki is 217 ha in Kabupaten Limapuluh Kota and others. Small-scale WUAs in the province are maintaining facilities well by themselves. Those schemes were originated traditional irrigation system developed and maintained by community farmers. Fundamentally interventions from governments are not necessary for them.

For proceeding the policy of “Full Cost Recovery on Irrigation O&M”; it is better to understand the contents of INPRES No.3/1999 is the final target and better to set some phased approach before reaching to the final target. But there are so many issues to be overcome and to set sufficient conditions to start ISF collection. The present situation is far from it, no sufficient information to know present facility conditions of the field, no cost estimates for rehabilitation/renovation based on walk-through results, no results of examination of cost allocation between WUA(F) and the government, fair rules co-agreed by both sides and so on.

Implementation of this activity needs some premises as described above. After completing those set-ups, mainly by the Central Government & Kabupaten governments the activities can be adapted over the country. Hence there will be no differences among WUA status or among regions. Schemes

less than 150ha, called Small Scale Irrigation or Village Irrigation will be excluded from this activities, because those schemes are planned to be cared as rural infrastructure.

6) WUA Registration for expansion of activities; [Activity I-1.7]

This activity is proposed to enhance WUA registration regally to local governments, as preparation to complete initial set-ups predicting expanding scope of self-management under regal status like opening bank account, receiving financial assistance and obtaining bank loans if necessary.

Conclusions of verification;

- a) Effects of expanding scopes based on regal registration are beyond from WUA members' considerations. They could not know/imagine how much they could expand their activities because of no facilitation.
- b) Also local government staffs have never shown such possibility expansion based on regal registration.
- c) Such conditions make notice the importance of "Public Awareness" to farmers
- d) Explanation of WUA registration is same as success story introduction. Hence it made reminded effect of some measures like "Success story introduction" to stir farmers willingness.
- e) Even though being agreed the activity by both sides, it became clearer that the local governments are not familiar with such registration concretely.

WUA members expressed astonishments at Kabupaten Kediri workshop in East Java province, which they could never imagine possibilities how and what they can do with regal registration. Their understanding was just as obligation as being instructed by local government and could not know merits/advantages as regal body. Local government staffs also have been just conveying information as instructed in top-down management system. Lesson obtained here was an awareness that some appurtenant measures are necessary to enhance public awareness to let people know rights and obligation when laws/regulations are to be issued.

Whilst being accepted the activity by participants, they pointed out the poor achievements of setting-up necessary and clear procedure/guidance to reach to such financial assistances on both sides. Farmers shall grow up to be sufficient to handle financial assistances by themselves, at least should realize transparent WUA balance sheet while keeping "IURAN"/ISF collections, record keeping available to be evidence of expenditure and provision of concrete activity plans, as "Self-Reliance Body". Besides that the government is also shall pour efforts to set-up sufficient surroundings to support WUA(F)s to use their rights, for example to prepare credits for irrigation O&M as described the Activities of "Start-Up Assistance", "Kabupaten Irrigation Improvement Fund (KIIF)" and others.

Acceptance of participants, mainly WUA members in the workshops was referred to confirmation for adaptability and applicability of the activity. Most of WUA members could understand/imagine the availability to expand their activities with regal registration. Whilst provincial governments knew the regulation, achievement of recognition is quite low. They could not explain to farmers the details how to manage the steps.

From the Government's viewpoint the progress of regal registration is quite important; to know which irrigation blocks are already organized WUAs or which blocks are to be targeted for next target to establish WUA. Achievement will effect directly to the national burden, O&M cost. Hence the activity of WUA registration shall be conducted over the nation under target-oriented management while using administration channels effectively. There shall be no difference among regions and among WUA

status.

7) Joint Management of Irrigation System; [Activity I-1.8]

This activity is proposed to adapt for stages of conducting O&M of upper parts of major irrigation systems in future actually, envisaging to use "ISF". WUAs are maintaining tertiary level basing on farmers' community activities adapting collected "IURAN". Present condition of achievement of WUA establishment is actually at individual WUAs by tertiary level and WUAG at limited locations. Joint management is to be applied for upper part of major irrigation system from secondary canal to intakes. Conclusions/topics obtained through confirmation are as follows;

- a) Being confirmed that farmers are recognizing irrigation system from water source to end of secondary canals are belonging to the Government, not being related with, like a "Taboo".
- b) Such sense of demarcation comes from old policy that the Ex-PU owed tasks of construction from water source to end of secondary canal, not entered into tertiary. Facilities after tertiary canal were belonged to farmers. Hence there was no undercoat in farmers' sense that upstream facilities from secondary canal shall be under their management, but under the governments'
- c) Idea of the activity seemed hard little bit for farmers of WUA level.
- d) It was suggested to set "Phased approach to complete the INPRES No.3/1999" by local governments officers.
- e) Present conditions of the local governments are not mature to conduct or guide farmers, which have been handed over or just been informed to be handed over from the Central, no sufficient information like facility inventory, results of facility evaluation, references for cost estimate of rehabilitation/renovation, priority list of facility rehabilitation, prioritization criteria and so on.

Whilst being defined the authority of irrigation O&M is to be under farmers, they have quite strong understanding that the upstream facilities from secondary canal are belonging to the governments. Among reasons why farmers are not going to participate any activities related to upstream facilities such recognition of farmers exist. Upstream facilities from secondary canal are like "Taboo" for farmers. There was no occasion for farmers to participate planning or any decision making during facility constructions.

Besides such recognition of belonging upstream facilities from secondary canal, dimension of upstream facilities are beyond from the manageable scale by farmers. Rehabilitation/renovation of those facilities are to be classified into "River improvement" actually.

This activity was prepared as future activity to realize the concept of INPRES No.3/1999, not in haste. Hence actually the subject/content of the activity could not be recognized as their own issue by farmers. Intension to keep assistance of government side named "Joint Management" are coming from farmers conservative logic.

Local Government staffs, both of kabupaten & province, understood the necessity of the activity because they knew the farmers' capability in the fields.

Implementation of this activity needs some premises as described above item 6). After completing those preparations the activity will be available to be adapted over the country. Hence there will be no differences among WUA status or among regions. Intension of the Government on "Turn-Over" issue is for cost transfer to the beneficiaries, which has been disbursed for Upstream major facilities. It shall be aware that quite many issues are there to be overcome on Government side, while conducting preparations to turn-over. Whilst pursuing farmers' "Self-Reliance", Government should owe subjects to make him be "Self-Reliance"

8) Kabupaten Irrigation Improvement Fund; [Activity I-1.9] & [Activity I-2.3]

This activity is proposed to care WUA(F)s to enhance rehabilitation/renovation of present facilities, targeting transfer irrigation O&M entirely to WUA(F)s, not including O&M on tertiary level while expecting growth of “Sense of Ownership” and “Self-Reliance”. Mainly replies are from local governments. Conclusions/topics obtained during verification are as follows;

- a) Local governments supported the activity from viewpoint of utilization of their knowledge resources, mobilization of present staffs.
- b) Also uphold the idea because it can complement lack of farmers’ capability to prepare rehabilitation proposals and cost estimates.
- c) WUAF member suggested to clarify task demarcation between government and WUA(F)s like a relation between ordinary rehabilitation and serious renovation damaged by floods, for example.
- d) Similar to the difficulty of “Joint Management” activity, it was pointed out by WUA leaders that there are quite many issues to be solved or completed by Government before conducting the activity to keep fairness like facility inventory, guidelines of cost estimate, procedure of proposal provision and so on.

Whilst it seemed little bit hard for local government staffs to understand the advantages to be generated through the activity, like realization of cash-oriented farmers’ self-reliance, local government staffs, mainly by the provincial staffs, agreed the concept, as occasions to mobilize staffs to the activity. Farmers also agreed to the idea because of ensuring pockets to receive assistances from government.

Similar suggestions for “WUA Registration” and “Joint Management” were expressed regarding to preparations before commencing the activity like summarizing present conditions of irrigation facilities for providing rehabilitation plans and cost estimate, guidelines of cost estimate, concrete regulations to disburse funds, evaluation criteria to appraise WUA balance sheet, transparent criteria of WUA prioritization for selecting WUAs to adopt the fund and so on.

Implementation of this activity needs some premises as described above. After completing those set-ups, mainly by the Central Government & Kabupaten governments the activity shall be adapted over the country. Hence there will be no differences among WUA status or among regions. Schemes less than 150ha, called Small Scale Irrigation or Village Irrigation will be excluded from this activities, because those schemes are planed to be cared by other programs for rural infrastructure.

9) Coordination of WUA Support Groups; [Activity I-2.1]

This activity aims to establish steering body to integrate related assistances to WUA policies and to avoid discrepancies, considering lessons of the previous achievements; isolated sectional management. Conclusions/topics obtained through confirmation in the field are as follows;

- a) Any government supports set from previous don’t function well due to sectional management, which is acknowledged by the people, including government staffs themselves.
- b) Low achievements of the governments’ activities have caused “distrust” between government and farmers, among government’s stratum.
- c) Supports from government should be integrated to secure the efficiencies of any welfare implementations.
- d) Both of local government staffs and farmers are agree to integrate any supports to secure the efficiency.
- e) Farmers are eager to ask government to establish section(s) in-charge well-coordinated among relevant agencies.

Whilst expressing distrust/doubts to government staffs, farmers are looking for assistances from government to start self-management paradigm. Local government staffs are also noticing inefficient activity implementation in daily lives.

Mr. Shamus and farmers of Desa Bogor in Kabupaten Indramayu have been damaged by both mismanagement of irrigation water and delay of pesticide delivery. Annual water distribution plan is provided and instructed by "Irrigation committee". Every year water use plan has been summed up following government stratum and finally been authorized by provincial governor. But authorization has been delayed and never met with cropping calendar. After being authorized almost every year coordination between *PPL* and *PPI* was not functioning well and equity of water distribution was not kept. Supply of pesticide was through *KUD* before. At that time delivery was always after crop harvesting. Farmers in D.I. Beringin Sila in Kabupaten Sumbawa reported that *PPL* has never gave instructions or extension but enjoying fishing only.

Secretary of Bappeda in Kabupaten Bima stressed at the kabupaten workshop the necessity of integrated coordination among relevant departments to secure the effect of supports at occasion of decentralization. Farmers and officers participated to the West Java provincial workshop also expressed necessity of reinforcement of local government staffs and some measures to coordinate departments.

The activity does not require any additional resources basically, utilizing present department staffs, and lead them to be activate. Funds for replenishing the lack of routine activities like transportation, communication and for accessing to necessary information are to be prepared sufficiently. Constantly budget of government at any levels have been prepared with some shortage last few decades.

Implementation of this activity does not need any premises basically. Any local governments are available to establish such coordination body consisting of present agencies. Hence there will be no differences among WUA status or among regions.

10) Start-Up (Financial) Assistance; [Activity I-2.2]

This activity aims to support farmers in irrigation blocks that have never been organized into WUA or WUAs just being established, with institutional and financial assistance to cover O&M costs during the first two years. During the period it is expected that a cash fund (from ISF collections) will be accumulated to enable operations to proceed with a positive balance after the Project assistance has been removed. A need-base budget will be prepared as part of this assessment. Conclusions/topics obtained through confirmations in the field are as follows;

- a) Necessity of distinguishing supports between WUA and Non-WUA blocks is recognized by both farmers and local government staffs, because of lack of capabilities of WUA members mainly to set-up and to manage the organization.
- b) Widely accepted to set measures to support non-WUA farmers for strengthening institutional aspects and upgrading capability of self-management.
- c) "Coordination of WUA Support Groups" shall be a necessary premise to commence the above activity.
- d) Target oriented plan shall be prepared on government side before commencing the activity, which includes priority list to care, defining measures to adopt, in-charge agency and task allocation.

Whilst been proposed to support farmers, especially for financial aspect, which has never been

organized WUA yet, farmers expressed their anxieties to involve into never-experienced aspects like socialization, commencement of election, registration procedures at kabupaten workshops of DI. Suangi in Lombok, DI. Kebon Agung in Madura and DI. Lubuk Nyiur in Kabupaten Pesisir Selatan in West Sumatra Province.

A project coordinator of West Java Team of IDTO which has been continued more than several years financed by World Bank, stressed that the most precious factor is to find out potential person for leader(s) He/she can coordinate and guide members to solve problems even though if being any.

Implementation of this activity shall be recognized as the most principal measure from government side to farmers who have never been organized. Achievement of this activity is the indicator of progress of WUA establishment. Application of the activity shall be set and implemented without any differences among regions. Concrete monitoring by governments is so important.

(2) Countermeasures on Agricultural Issues

In most provinces there was either agreement with or no comment regarding the overall goals, the outputs and the proposed activities within this section (Table 5.7.2). West Java tended to differ from the other four provinces, where in many cases whilst being in general agreement with the hypothesis, changes/modifications were suggested. Both West Java and NTB suggested changes to the project purpose. The one activity where there was total disagreement related to the 'promotion of a one village one special product policy'. West Sumatra disagreed with the activity concerned with 'the build up of a transparent management framework of farmers' groups'.

Basically agreed but minor modification required or commented are;

- Activity AF-1.1, [cropping plan based on water availability and income increase]
- Activity AF-1.3, [periodic meeting improve farming technology]
- Activity AF-1.4, [group purchasing agricultural inputs]
- Activity AF-2.3, [training post harvest]
- Activity AF-3.1, [joint activities among farmers]
- Activity AF-3.2. [select capable leaders democratically]

And most of the provinces disagreed the following countermeasure;

- Activity AF-2.2, [one village one special products policy]

(3) PDM Irrigated Agriculture Development Program (for Government)

Whilst West Sumatra, Yogyakarta and East Java either were in general agreement with or had no comment regarding the overall goals, the project purpose, the outputs and activities within this section, West Java and NTB suggested many changes (Table 5.7.3). Again the one issue where there was general disagreement related to the 'one village one product policy'.

Basically agreed but minor modification required or commented are;

- Activity AG-3.2. [hand-tractor hiring business]
- Activity AG-4.1, [farmer cooperatives]

And most of the provinces disagreed the following countermeasure;

- Activity AG-3.5, [one village one special products policy]
- Activity AG-4.2, [review existing KUD]
- Activity AG-6.2, [clarify effective land use]

(4) PDM Social Preparation

In this section there was almost universal agreement, or no comment, with the overall goals, the project purposes, outputs and activities (Table 5.7.4). In only one instance under activities, were changes suggested by West Java. A few additional points were suggested, over and above those included in the original hypotheses. Whilst West Sumatra suggests to include regional house of representative (DPRD) members in this public awareness program.

(5) WUA's Functions to Support Irrigated Agriculture

Prior to formulating the action plan, it is critical that the intended WUA's function should be defined clearly. In addition to core functions related to irrigation, WUA might have a number of secondary functions, including agriculture supporting services. There are cases where WUA have become multi-functional organizations in several countries, and the secondary functions could contribute to improved solidarity of WUA and to increased members' benefits. WUA may be able to re-define its functions to incorporate the secondary functions with the core functions. The followings are some examples of secondary functions.

- 1) Procurement of agricultural inputs, including credit;
- 2) Regulating crop choices and planting schedules;
- 3) Mobilizing additional sources of revenue;
- 4) Carrying out agricultural processing and marketing; and
- 5) Practicing land and soil management;

However, there are certain issues that WUAs have to be considered before become involved in the secondary functions. Special attention should be paid to avoiding overlapping functions with other existing organizations, which can handle the secondary functions. A FAO guideline on "Transfer of Irrigation Management Services" suggests criteria for the judgment. The following table shows the result of judgments for each criterion in Indonesia.

Criteria	Judgment	Remarks
<Reasons why WUA may choose to get involved in Secondary Functions>		
1 The WUA cannot improve the productivity or profitability of irrigated agriculture enough unless it also helps to make improvements in	not to get involved	There is an existing agricultural extension system
2 The WUA cannot obtain enough funds to cover the cost of irrigation unless it raises revenue from secondary sources	to get involved	If possible, new revenue from secondary sources is
3 The WUA cannot obtain enough support, loyalty and interest among its members unless it involves them in additional activities which increase the benefits to them from the organization	not to get involved	The secondary functions do not necessarily cause support, loyalty and interest among
4 No other organizations exist which can effectively handle the secondary functions	not to get involved	There are <i>KT</i> , <i>KUD</i> and other farmers groups
<Reasons why WUA may choose not to get involved in Secondary Functions>		
1 Regulations prevent the WUA from doing so	to get involved	
2 Other organizations exist which can handle the secondary functions adequately	not to get involved	Its depends on <i>KT</i> , <i>KUD</i> and other farmer groups
3 The WUA can obtain sufficient financing without secondary sources of incomes	to get involved	
4 The WUA cannot maintain sufficient focus and control over its primary functions and deal with the secondary functions as well	not to get involved	

Judgment about WUA's secondary functions in Indonesia

It is concluded that WUA in Indonesia may choose not to get involved in the secondary functions in

accordance with a comprehensive judgment of the criteria. Of course, the Study Team does not take an attitude that WUA in Indonesia must not become multi-functional organization. The WUA may incorporate the secondary functions with the core functions by members' consensus. The Study Team simply suggests that Government should consider an action plan for WUA enhancement apart from a plan to increase farmers' income in its irrigation turnover policy, if the present circumstances in Indonesia are taken into consideration.

It is sometime suggested that WUA in Indonesia have to have the secondary functions because the other organizations expected to carry out such functions do not fulfill their respective duties at this time. Also, farmers do not pay water charge because of low returns from farming. It is expected that the secondary functions could generate members' income so that the members can afford to pay water charge.

It is considered that the first issue should basically be examined by Government aiming at reinforcing the existing organizations instead of expecting WUA to take on secondary functions. According to the study result, it is clear that farmers are not very satisfied similar-functioned farmer organizations, which are individually established with uncoordinated intervention from separate Government agencies. It seems that now is a time Government is going to rearrange the existing farmer organizations in accordance with the farmers' interests rather than encouraging WUA to be involved in agriculture supporting services. Otherwise, the farmers might be more confused by Government's agriculture support policy.

For the second issue, it is true that many farmers complain about low return from farming and declare it to be a major reason why they do not pay water charge. The low return is obviously a critical problem among farmers in Indonesia. However, the relation between farmer's income and water charges should be reexamined carefully. Water is one of indispensable inputs for rice farming, together with seeds, fertilizers, agro-chemicals, and if they had no alternative. Then, farmers would pay for all the inputs as long as they could expect certain profits, because rice farming would no longer be possible without them. In case of Indonesia, farmers are still paying for the inputs as same as before except for irrigation water, even though they complain about low return from rice farming in recent years. It is very interesting that farmers cannot afford to pay only water charge but the other inputs. It is certain that farmer's sufficient income must be a necessary condition for paying water charge. But, the adequate income is not a sufficient condition for paying water charge. The action plan basically has to focus on the reason why farmers cannot afford to pay only water charge rather than the reason why farmers do not get sufficient return from farming. If the return is too low to make farmers intend to do not pay for the inputs, a comprehensive agricultural development program instead of a WUA enhancement program should become the main issue. The issue must not be only a problem of WUA or farmers in irrigated area but also a problem of all farmers in Indonesia.

5.7.4 Results of Verification

(1) Acceptability and Applicability of Countermeasures for Irrigation and WUA Management

In most provinces there was either agreement with or no comment regarding the overall goals, the project purpose, the outputs and the proposed activities within this section. West Java tended to differ from the other four provinces, where in many cases whilst being in general agreement with the hypothesis, changes/modifications were suggested. All countermeasures are basically accepted but some province justified minor modification or commented on the following points (Table 5.7.1):

- Overall goal; WUAs are self-standing, autonomous and taken root
- Activity I-1.3 [Public awareness campaign] traditional local leaders shall be targeted
- Activity I-1.4 [Formulate WUA/WUAF]
- Activity I-1.6 [Assist to set ISF] no assist but guide
- Activity I-1.7 [WUA registration] no assist but guide

(2) Acceptability and Applicability of Countermeasures for Irrigated Agriculture

As discussed in previous section 5.7.3 (2) and (3), it is possible to say most of countermeasures are accepted and applicable for the future activities to improve the irrigation management and to empower WUAs, except the following activities;

- Activity AF-2.2, [one village one special products policy]
- Activity AG-3.5, [one village one special products policy]
- Activity AG-4.2, [review existing KUD]
- Activity AG-6.2, [clarify effective land use]

“One village one special products” is one of the most popular policy to develop rural area in Japan. But it might not so much pay attention on the regional development among the people under irrigated agriculture. They give their attention more on the irrigation among the participants of this Study. And past KUDs’ activities gave most people bad image, it would need another approach to formulate cooperative activities. And effective land use originated the land tenure system or agrarian reform might need the socio-cultural changes. The present small land holding or share cropping system problems are rather difficult to start reformation, even farmers know it need improvement.

(3) Countermeasures for National Policy on Irrigated Agriculture

Results of the verification mainly based on a series of meetings with MOA’s officials concerned are shown in the attached Table 5.7.6 It is concluded that Government’s preparation for taking the countermeasures is regrettably not complete, if the results are comprehensively taken into consideration. It seems that the actual situation leaves little room for optimism that the countermeasures will be taken in the near future. The results suggest that the Action Plan should be formulated without expecting the agricultural countermeasures being taken by Government.

(4) Task Allocation of the Countermeasures Activities

The task allocation of activities in countermeasure hypothesis were discussed in several kabupaten and provincial workshops. The following summaries of task allocation validation at Provincial level used >25% site screening parameter for activities.

Law No.22/1999 on regional autonomy and related laws and regulations were taken into account. As a result, task allocation which regard to Government role IDAF (initiative, decision, action and funding) to be acted by Government at Kabupaten and Municipal level. Water users and other concerned parties are at beneficiary and participation positions. Similar task allocation was recommended for Irrigation O&M/water management especially for water resources and irrigation rehabilitation. Task allocation which regards to the remaining actions belongs to Water Users’ IDAF. Government is in position to coordinate and control, whereas the other concerned parties are support and participation.

(5) Adaptability of Used Participatory Approach

For the verification countermeasure, the Study conducted PRA survey combined the applied PCM method in the field and continuously carried out the kabupaten PCM workshops. PRA survey is considered a method to empower the participants through the participatory learn and action especially for small scale communities as applied for this study, so that Government has applied PRA surveys at

initial stage to formulate WUA or to empower WUAs/farmers, though their achievements are low actually. And it needs to share the farmers' intention to make activities with regional government, because the government has supported irrigation system. WUA farmers and government officials are partners for the irrigation management for both of government irrigation schemes and village irrigation schemes.

Through the observations of Kabupaten and provincial workshops, farmers' representative were empowered through PRA/PCM workshop in the field expressed their opinions in the joint discussion with regional government officials as partners. Through those workshops, communication between farmers and regional government officials and partnership were formulated. The PRA/PCM combined workshop approach was confirmed to accelerate the mutual understanding and partnership between farmers and regional government officials. Hence it is strongly recommended the follow-up workshop after PRA workshop for the empowerment of farmers and make their activities shall be made with regional government.

Table 5.1.1 Project Design Matrix on Irrigation and WUA Management

Narrative Summary	Important Assumptions
1. Overall Goal	
1. Irrigation schemes are managed, operated, maintained and rehabilitated sustainable by empowered water user associations (WUA)	
2. To provide the necessary support to WUA to ensure that WUA can practice sustainable O&M by empowered local governments (<i>kabupaten</i>)	
2. Project Purpose	
Empowerment of water user associations (WUA) for the sustainable operation and maintenance (O&M) of irrigation schemes.	
3. Outputs	
1. Democratic WUA capable of sustainable O&M of irrigation schemes.	
2. Local governments (<i>kabupaten</i>) capable of providing the necessary support to WUA to enable the WUA to practice sustainable O&M.	
3. Turnover of O&M responsibility for irrigation schemes from Government to WUA.	
4. Activities	
I-1.1 Activate <i>Program Tata Guna Air (PTGA)</i> trainers from previous training programs, and use trainers for facilitation and dissemination of WUA and turnover concepts at provincial, <i>kabupaten</i> and <i>kecamatan</i> levels.	<ul style="list-style-type: none"> • Adequate budget is available
I-1.2 Recruit and train community organisers to facilitate WUA program.	<ul style="list-style-type: none"> • Adequate budget is available
I-1.3 Implement public awareness programs for local government and farming communities, particularly on WUA concepts, water rights, responsibilities and ISF.	<ul style="list-style-type: none"> • Community organizers are accepted by the community. • Farmers and Government officials are receptive.
I-1.4 Form and/or reform WUA and WUA federations in line with farmer needs, traditions and norms using a participatory approach (WUA structure, articles of association/ legal standing, sanctions, administration, etc).	<ul style="list-style-type: none"> • Farmers participate in WUA formation.
I-1.5 Implement on-the-job/ participatory training of WUA officials and members, to include the following aspects: <ul style="list-style-type: none"> • development of cropping plans and calendars; • water distribution scheduling and operational procedures based on cropping plan and water availability; • joint <i>kabupaten</i>/WUA walk-throughs of irrigation scheme to inspect physical infrastructure of irrigation scheme and determine priorities for maintenance and rehabilitation programs; • preparation of maintenance and rehabilitation proposals for submission to <i>kabupaten</i> (including cost estimates and WUA contribution/inputs). 	<ul style="list-style-type: none"> • WUA officials and farmers are receptive. • Kabupaten Coordinated WUA Support Group is established.
I-1.6 Assist WUA to set ISF levels.	<ul style="list-style-type: none"> • Receptiveness of WUA officials and farmers.
I-1.7 Assist WUA with preparing for legal status (AD/ART), and applying for registration.	<ul style="list-style-type: none"> • Local government is able to process applications.
I-1.8 Determine and review joint responsibilities for irrigation O&M between WUA/WUA federations (WUAF) and local government.	<ul style="list-style-type: none"> • Willingness of both parties to cooperate.
I-1.9 Assist WUA to prepare proposals for Kabupaten Irrigation Improvement Funds for maintenance and rehabilitation priority programs.	
I-1.10 Establish Kabupaten Coordinated WUA Support Group (decree from <i>Bupati</i> , funding, staffing, logistics, etc).	<ul style="list-style-type: none"> • Kabupaten irrigation committees become a sub-committee of the river basin water management committees (PPTPA). • Regional autonomy is in place.
I-2.2 Establish and develop guidelines and criteria for the provision of start-up financial assistance (subsidy, credit, loan options) for O&M to WUA.	<ul style="list-style-type: none"> • Agreement of local government. • Funds are available.
I-2.3 Establish and develop procedures and guidelines for the application and disbursement of Kabupaten Irrigation Improvement Funds.	<ul style="list-style-type: none"> • Funds are available
I-2.4 Implement introductory/ refresher training for <i>Kabupaten</i> Coordinated WUA Support Group and other relevant agencies.	<ul style="list-style-type: none"> • Funds are available.
I-2.5 Establish and develop coordinated extension procedures and scheduling (continued extension service or WUA 'as-requested' service).	<ul style="list-style-type: none"> • Kabupaten agree to form Coordinated WUA Support Group. • Funds are available.
I-3.1 Review turnover criteria, and assist the implementation of the turnover program (criteria to encompass both Government and WUA needs).	<ul style="list-style-type: none"> • Willingness of WUA to accept O&M responsibility.
I-3.2 Implement monitoring and evaluation of turned over schemes to determine WUA progress and O&M sustainability (carried out by an independent body in consultation with local government and WUA).	<ul style="list-style-type: none"> • Availability of funds to employ independent body.
Preconditions	<ol style="list-style-type: none"> 1. WATSAL reforms, particularly those concerning irrigation management, are carried out. 2. Government counterpart funding is available for WUA financial assistance and WUA support activities.

Table 5.1.2 Project Design Matrix on Irrigated Agriculture for Farmers

Narrative Summary	Important Assumptions
Overall Goal	
1 Farmers are willing to pay water charges	* WUA is well empowered to operate and maintain of irrigation scheme on a sustainable basis
2 Farming is attractive for young generation	
Project Purpose	
1 Farmers enjoy sufficient annual income from farming	* Government is resolute for long-term agricultural development policy
Outputs	
1 Farmers have appropriate return from farming, especially from rice	* International rice price in terms of Rp. does not decrease drastically
2 Farmers diversify their crops for additional income	* Domestic demand for rice does not decrease much
3 Farmers recognize necessity of cooperative works	* Demand for various agricultural products steadily increases
4 Farmers can access reliable and easy credit	
Activities	
AF-1.1 Make cropping plan based on the availability of water and to look for income generation	* Irrigation water is adequately allocated and reliable
AF-1.2 Introduce high quality rice variety	* The Government continues to support farmers, but not intervene in their activity
AF-1.3 Organize periodical meeting to exchange and/or share advanced technology on farming for increasing production and reducing production cost (call <i>PPL</i> as the occasion demands)	* Many farmers continue farming
AF-1.4 Organize joint procurement of agricultural inputs for reducing procurement cost	Preconditions
AF-1.5 Organize rice harvesting team among farmers	
AF-1.6 Organize joint marketing of paddy and/or rice-milling for increasing bargaining power	
AF-2.1 Promote a contract farming with private companies and/or joint marketing	
AF-2.2 Promote "one village one product policy"	
AF-2.3 Organize training how to grow and market new products including post-harvest technology in combine with activity 1.3 (call <i>PPL</i> and private traders)	
AF-3.1 Discuss the advantage/necessity of joint activities among farmers	1 Rice price is stabilized at appropriate level
AF-3.2 Select capable leaders of farmer group by a democratic way	2 Private sector's participation in production/marketing of agricultural inputs and mechanization services is well encouraged
AF-3.3 Built up transparent management framework of farmer group	3 PPLs are well trained in crop diversification and appropriate budget is allocated for agricultural extension services
AF-4.1 Formulate credit groups among members, if possible, inject formal credit fund into the credit groups (WUA or farmer group try to reach to formal credit system)	4 Sufficient market information reach to farmers
	5 Appropriate incentives for cooperative activities are clarified
	6 Accessible formal credit system is well formulated
	7 Farmers', especially sharecroppers, rights are well secured

Table 5.1.3 Project Design Matrix on Irrigated Agriculture for Government

Narrative Summary	Important Assumptions
Overall Goal	
1 Farmers are willing to pay water charges 2 Farming is attractive for young generation	* WUA is well empowered to operate and maintain of irrigation scheme on a sustainable basis
Project Purpose	
1 Farmers enjoy sufficient annual income from farming	* Government is resolute for long-term agricultural development policy
Outputs	
1 The national food security policy, especially for rice is well clarified 2 Farmers have appropriate return from farming, especially from rice 3 Farmers diversify their crops for additional income 4 Farmers recognize necessity of cooperative works 5 Farmers can access reliable and easy credit 6 Farming size is enlarged and farmers' rights are well secured	* International rice price in terms of Rp. does not decrease drastically * Domestic demand for rice does not decrease much * Demand for various agricultural products steadily increase
Activities	
AG-1.1 Establish a reliable and transparent food monitoring system AG-1.2 Rebuilt the existing rice price policy including the strategic reserve policy AG-2.1 Promote more flexible marketing of agricultural inputs, especially in off-Java provinces AG-2.2 Reduce the monopoly structure on fertilizer production and trade AG-2.3 Promote hand-tractor hiring business AG-2.4 Promote rice-milling business by farmer group AG-3.1 Reinforce research works for vegetables, fruits, ornamental plants, freshwater fishes, etc. AG-3.2 Train <i>PPLs</i> /farmers how to grow and market vegetables, fruits, ornamental plants, etc. AG-3.3 Establish a market information network system to connect local markets AG-3.4 Promote a contract farming with private companies to farmer groups/cooperatives AG-3.5 Promote "one village one product policy" in rural area AG-4.1 Build up transparent legal framework for farmer cooperatives including penal regulations to handle injustice management and operations AG-4.2 Review the existing incentives to farmer cooperatives/ <i>KUD</i> AG-4.3 Train farmers who are willing to participate in farmer organizations AG-5.1 Formulate accessible farm credit system AG-6.1 Clarify an effective land use/spatial plan AG-6.2 Review the present land law and taxations to make real farmers easy to buy farmland and make absentee landowners difficult to keep farmland AG-6.3 Promote organizing sharecroppers to increase their bargaining position in order to reduce their burden and to secure their rights	* Many farmers continue farming * Concerned agencies do not lose farmers' trust
Preconditions	
	1 Government gives high priority to agricultural development and food policy 2 Indonesian economy stays in sustainable development

Table 5.1.4 Project Design Matrix of Social Preparation (1/2)

Narrative Summary	Important Assumptions
<p>OVERALL GOAL</p> <ul style="list-style-type: none"> a Proper understanding of the socio-economic-and political powers at all levels of government administration to put the irrigation policy reform into operation b Preparedness of the GOI, GOI Agencies and the concerned Parties at all levels of government administration to take actions adequately to their respective roles and capacities for a real implementation of irrigation policy reform on request basis c Proper understanding of the local village communities for the importance of well-managed irrigation for a sustainable irrigated farming d Willingness of farmer and non-farmer water users to take over and manage the local irrigation system by themselves 	<ul style="list-style-type: none"> a The basic concept of irrigation policy reform does not change in the long-run b The required funding, manuals, equipments and instruments etc were produced and distributed to the 5 Provinces c Higher dependency of farmers on irrigated farming rather than dryland farming and off-farm works d Irrigation policy reform is beneficial for farmer and non-farmer water users e Long-term contract is made possible to farmers to manage an irrigation system by themselves
<p>PROJECT PURPOSE</p> <ul style="list-style-type: none"> a Disseminations of concept and operation of irrigation policy reform are well implemented and widely accepted 	<ul style="list-style-type: none"> a Fund is available b Presidential Instruction no. 3/199 on irrigation policy reform is up-lifted to be a laws or government regulation
<p>OUTPUT</p> <p>1 <u>Central level</u></p> <ul style="list-style-type: none"> a Installed Steering Committee and Consulting Team at Central level to coordinate the irrigation policy reform dissemination b Produced dissemination materials for Central level and distribution to lower levels, concerning: <ul style="list-style-type: none"> a) Laws & regulations related to irrigation policy reform b) Explanatory sets of identified problems and solutions c) Proposed Action Plan, expected results, time schedule b) Role divisions amongst the involving GOI Agencies, and c) financial budget arrangement d) Required manuals, instruments and other information c Proper understanding of Central Workshop's participants on concept and operation of irrigation policy reform d Committed workshop attendances which include: <ul style="list-style-type: none"> a) GOI & GOI Agencies, NGOs, Universities, State & Private Companies, mass-media and other concerned parties, and b) the representations of Provincial GOI and irrigation communities e Financial budget distribution among the involving levels and sectors of GOI Agencies f Installed Database on irrigation policy reform at Central GOI Agencies responsible for irrigation <p>2 <u>Kabupaten/Kotamadya level</u></p> <ul style="list-style-type: none"> a. Installed Steering Committee and Consulting Team at Kabupaten/Kotamadya level to coordinate the irrigation policy reform dissemination b Available resource persons for the scheduled dissemination workshop of the included Kabupatens from the local Province attending the central dissemination workshop c Prepared materials for the dissemination and operation of irrigation policy reform corresponding to biophysical and biosociological conditions of Kabupaten/Kotamadya d Proper understanding of Kabupaten/Kotamadya Workshop's participants on concept and operation of irrigation policy reform e Committed workshop participants which include: <ul style="list-style-type: none"> a) Kabupaten/Kotamadya GOI & GOI Agencies, NGOs, Universities, Private, mass-media and other concerned parties, b) Representations of Kecamatan GOI Agencies, informal leaders and local community organizations (WUA/WUAF, KUD, PKB, Kelompok Tani, etc) c). Kabupaten Consulting Team and Field Staffs (COs) f Financial arrangement among GOI Agencies at Kabupaten/Kotamadya and DiKecamatan/Village levels g Installed Database on irrigation policy reform at Kabupaten/ Kotamadya GOI Agencies responsible for irrigation <p>3 <u>DI level</u></p> <ul style="list-style-type: none"> a. Installed Steering Committee and Consulting Team at DI level to coordinate the irrigation policy reform dissemination b Collected dissemination materials from upper GOI levels c Proper understanding of local DiVillage communities on the importance of sustainable irrigated agriculture d Local water users' desire to manage and finance the local DIs by themselves e Better orientation and motivation of water user farmers to develop profitable irrigated farming and efficient self-help organization f Better chance for women to actively participate in decision making 	<p>1 <u>Central level</u></p> <ul style="list-style-type: none"> a A Consulting Team was installed at Central level to assist and be responsible to the Steering Committee for the optimization of irrigation policy reform implementation b One-day meeting is sufficient to disseminate the conceptual and operational frameworks of irrigation policy reform at Central c As a follow up the representations of the Provincial GOI and irrigation communities are mobilized to disseminate at Kabupaten level correspondingly d Human-rights, civil society, democratization, clean government and transparency need for a real actualization in a true community-centered development programs e Irrigation-related University, NGO, Mass-media and farmer organizations may represent the existing socio-cultural-economic-and political aspirations in the country <p>2 <u>Kabupaten/Kotamadya level</u></p> <ul style="list-style-type: none"> a The Kabupaten Consulting Team is hired transparently by the Kabupaten GOI on contractual basis b The Kabupaten Consulting Team have field irrigation-based University x NGO backgrounds c The Kabupaten Consulting Team bases at Kabupaten level and operates field staff (CO?) at DiKecamatan level d Inclusion of local adat institutions e Potential participants are selected and be trained on adult education method by the Kabupaten Consulting Team + Field Officers (COs) hence competent to be the facilitators of their own DiVillage communities. <p>3 <u>DI level</u></p> <ul style="list-style-type: none"> a Top-down, sectoral and project oriented are no longer evident b Kabupaten/Kotamadya, DiKecamatan and Village GOIs are interested to develop irrigated farming for employment and income generations c Higher dependency of farmers on irrigated farming rather than dryland farming and off-farm works

Table 5.1.4 Project Design Matrix of Social Preparation (1/2)

ACTIVITIES	
<p>1 <u>Central level</u></p> <p>a Install Steering Committee and Consulting Team at Central level to coordinate the irrigation policy reform dissemination</p> <p>b Prepare dissemination materials which can be used for (1) the coming field operation of irrigation policy reform and (2) disseminations at Central, Kabupaten and DI/Village levels.</p> <p>c Provide one-day dissemination workshop</p> <p>d Arrange financial requirements amongst the involving levels and sectors of GOI Agencies</p> <p>e Installation of Database program at Central GOI level</p> <p>f Monitoring and evaluation of social preparations at Kabupaten and Village levels</p>	<p>1 <u>Central level</u></p> <p>a Fund is available</p> <p>b There is no conflicting interest among the related GOI Agencies and the other concerned parties</p> <p>c One-day workshop is sufficient for dissemination purpose</p>
<p>2 <u>Kabupaten/Kotamadya level</u></p> <p>a Install Steering Committee and Consulting Team to coordinate the irrigation policy reform dissemination</p> <p>b Propose to the Provincial level for resource persons of dissemination workshop</p> <p>c Collect and produce materials for the dissemination and operation of irrigation policy reform by taking account the bio-physical and bio-sociological conditions of the local Kabupaten/Kotamadya and DI/Villages</p> <p>d Provide one-day dissemination workshop</p> <p>e Introduce adult education methodologies to the selected dissemination participants potentials for water user motivational</p>	<p>2 <u>Kabupaten level</u></p> <p>a Fund is available</p> <p>b Adequate University and NGO candidates available for the Kabupaten/Kotamadya and scheduled program</p> <p>c Adequate Provincial resource persons available for Kabupaten/Kotamadya workshop</p> <p>d One-day workshop is sufficient for dissemination purpose</p> <p>e Workshop participants from Kecamatan/DI are competent to be resource persons for dissemination workshop at DI level</p> <p>f Additional date is made possible for one-day exercise on adult education practices by facilitation of Kabupaten Consulting Team and field officers</p>
<p>3 <u>DI level</u></p> <p>a Install Steering Committee and Consulting Team to coordinate the irrigation policy reform dissemination</p> <p>b Mobilize local resource persons and propose to Kabupaten/ Kotamadya for additional resource persons of the scheduled dissemination workshop</p> <p>c Collect materials for dissemination and operation of irrigation policy reform from Kabupaten level</p> <p>d Provide one-day dissemination workshop</p>	<p>3 <u>DI level</u></p> <p>a Fund is available</p> <p>b Adequate University and NGO candidates available for the DI Consulting Teams and scheduled dissemination program</p> <p>c Adequate resource persons and dissemination materials are available at Kabupaten/ Kotamadya</p>
	<p><u>Precondition</u></p> <p>a Controllable national security</p> <p>b GOI reorganizations and redefinitions were completed for regional autonomy at all levels of GOI administration</p> <p>c Concept and operation of irrigation policy reform matches with the local needs of farmers</p> <p>d Task allocation on irrigation management was clearly defined for GOI and Water Users</p> <p>e GOI authority on irrigation was delegated to the Kabupaten/ Kotamadya GOI</p> <p>f Irrigation turnover is made possible on request basis.</p>

Table 5.5.1 The Selected Sites for Phase II Survey

Province Kab/Kodya	Irrigation Scheme			WUA		Site Category
	Name	Type	ha	No	Name	
WEST SUMATRA						
1 Agam	Sungai Jernih	V	90	1	Karya Mandiri	Success WUA
2 Pasisir Selatan	Lubuk Nyiur	ST	318	1	Lubuk Nyiur Saiyo	Non WUA
3 Pasaman	Batang Paku	T	245	3	Budi Luhur	Non WUA
4 50 Kota	Batang Liki	ST	220	2	Batang Liki	Single WUA
5 Padang Pariaman	Anai Sasapan	ST	283	1	Anai Sasapan	Single WUA
6 Kota Padang	Koto Tuo	T	1088	9	Setia Usaha	Several WUA
7 SWL Sijunjung	Sungai Betung	ST	228	3	Payang Sekiki	Several WUA
WEST JAVA						
8 Kuningan	Cijangkelok	T	1,160	10	Cibogo	Success WUA
9 Garut	Cipalebuh	T	1,016	5	Mandala	Non WUA
10 Bandung	Ciyasana	T	1,194	2	Melati Asih	Single WUA
11 Bogor	Cisadane Empang	T	794	13	Bantar Jaya	Several WUA
YOGYAKARTA						
12 Kulon Progo	Pekik Jamal	T	739	13	Pekik Jamal Timur	Success WUA
13 Gunung Kidul	Ngeposari Seropan	Pump	95	0	Ngeposari	Non WUA
14 Sleman	Tulung Opak	ST	113	1	Ngudi Rukun	Single WUA
15 Bantul	Merdiko Kiri	ST	170	5	Nototirto	Several WUAs
EAST JAVA						
16 Lumajang	Tekung	T	1937	9	Tirtayasa	Success WUA
17 Sumenep	Kebon Agung	T	783	8	Kebon Agung	Non WUA
18 Kediri	Pulosari	ST	503	4	Sumber Makmur	Single WUA
19 Bojonegoro	Cawak	T	1,733	16	Nglumber	Several WUAs
NUSA TGR BARAT						
20 Lombok Barat	Pekatan	ST	821	4	Pelopor	Success WUA
21 Lombok Barat	Sindang Gila	T	496	2	Beriuk Maju	Single WUA
22 Lombok Timur	Suangi	T	2,356	6	Mule Arak	Non WUA
23 Sumbawa	Beringin Sila	T	2,400	5	Beringin Sila	Several WUAs
24 Bima	Rora Kecil	ST	331	3	Sama Kai	Non WUA
25 Bima	Lebo	ST	330	1	Timu Jaya	Single WUA
Notes: T – technical irrigation ST – semi technical irrigation V – village irrigation						

Source: Materials for Central Workshop of May 30, 2001, JICA Study Team

Table 5.7.1 Verification of Countermeasures for Irrigation and WUA Management

Narrative Summary	West Sumater	West Java	Jogya	East Java	NTB
<i>Ch - changed (minor)</i>	<i>A - agreed</i>	<i>C - commented</i>	<i>D - disagreed</i>	<i>O - no comment</i>	
1. Overall Goal					
1.1 Irrigation schemes are managed, operated, maintained and rehabilitated sustainable by empowered WUAs					
2 To provide necessary support to WUAs to ensure that WUAs can practice sustainable O&M by empowered local government (<i>Kabupaten</i>)	A	A Ch	AC	AC	A
2 Project purpose					
Empowerment of WUAs for the sustainable O&M of irrigation schemes	O	A Ch	O	O	A
3. Outputs					
1 Democratic WUAs capable of sustainable O&M of irrigation schemes					
2 Local government (<i>Kabupaten</i>) capable of providing the necessary support to WUAs to enable the WUAs to practice sustainable O&M	O	A Ch	AC	AC	A
3 Turnover of O&M responsibility for irrigation schemes from Government to WUAs					
4. Activities					
1.1 Activate <i>Program Tata Guna Air (PTGA)</i> trainers from previous training programs, and use for facilitation and dissemination of WUA and turnover concepts at Provincial, Kabupaten and Kecamatan levels.	A	O	O	O	A
1.2 Recruit and train COs to facilitate WUA program	A	O	O	O	A
1.3 Implement public awareness programs for local government and farming communities, particularly on WUA concepts, water rights, responsibilities and ISF	A	A Ch	AC	AC	A
1.4 Form and/or reform WUA and WUAF in line with farmer needs, traditions and norms using a participatory approach (WUA structure, articles of association/legal standing, sanctions, administration etc)	A	A Ch	AC	AC	A
1.5 Implement on the job/participatory training of WUA leaders and members, to include the following aspects:					
a cropping plan and calendar	A	O	AC	AC	A
b water distribution scheduling and operational procedures					
c joint Kabupaten/WUA walk-through of irrigation scheme etc.					
d preparation of maintenance and rehabilitation proposals etc.					
1.6 Assist WUAs to set ISF levels	A	A Ch	AC	AC	A Ch
1.7 Assist WUAs with preparing for legal status (AD/ART) and applying for registration	A	A Ch	AC	AC	A Ch
1.8 Determine and review joint responsibilities for irrigation O&M between WUA/WUAF and local government	AC	O	O	O	A
1.9 Assist WUAs to prepare proposal for Kabupaten Irrigation Improvement Funds for priority maintenance and rehabilitation programs	A	O	O	O	A Ch
2.1 Establish Kabupaten Coordinated WUA Support Group (decree from Bupati, Funding, Staffing, logistics, etc.)	A	O	AC	AC	A Ch
2.2 Establish and develop guidelines and criteria for the provision of start-up financial assistance (subsidy, credit, loan options) for O&M to WUA	A	O	O	O	A
2.3 Establish and develop procedures and guidelines for the application and disbursement of Kabupaten Irrigation Improvement Funds	A	O	O	O	A Ch
2.4 Implement introductory/refresher training for Kabupaten Coordinated WUA Support Group and other relevant Agencies	A	O	O	O	A
2.5 Establish and develop coordinated extension procedures and scheduling (continued extension services or WUA 'as requested service')	A	O	AC	AC	A
3.1 Review turnover criteria, and assist the implementation of the turnover program (criteria to encompass both GOI and WUA needs)	AC	O	O	O	A
3.2 Implement monitoring and evaluation of turned over schemes to determine WUA progress and O&M sustainability (carried out by an independent body in consultation with local government and WUAs)	A	A Ch	O	O	A

Table 5.7.2 Verification of Countermeasures for Irrigated Agriculture of Farmers'

Narrative Summary	West	West	Jogya	East	NTB
	Sumater	Java		Java	
<i>Ch - changed (minor)</i>	<i>A - agreed</i>		<i>C - commented</i>	<i>D - disagreed</i>	<i>O - no comment</i>
1. Overall Goal:					
1 Farmers are willing to pay water charges	O	A Ch	O	O	A
2 Farming is attractive for young generation					
2. Project purpose					
Farmers enjoy sufficient annual income from farming	O	A Ch	AC	AC	A Ch
3. Outputs					
1 Farmers have appropriate return from rice					
2 Farmers diversify their crops for additional income	O	A Ch	AC	AC	A
3 Farmers recognize necessity of cooperative works					
4 Farmers can access reliable and easy credit					
4. Activities					
1.1 Make cropping plan based on the availability of water and to look for income increase	A	A Ch	AC	AC	A
1.2 Introduce high quality rice variety	A	A Ch	O	O	A
1.3 Organize periodic meetings to exchange and/or share advanced technology on farming for increasing production and reducing production costs (call PPL as the occasion demands)	AC	A Ch	AC	AC	A Ch
1.4 Organize joint procurement of agricultural inputs for reducing procurement cost	A	A	AC	AC	A
1.5 Organize rice harvesting team among members	AC	O	AC	AC	A
1.6 Organize joint marketing of paddy for increasing bargaining power	A	A Ch	O	O	A
2.1 Promote contract farming with private companies and/or joint marketing	A	O	O	O	A
2.2 Promote "one village one special product policy"	DC	D	D	D	D
2.3 Organize training how to grow and market new products including post harvest technology in combination with activity 1.3 (call PPL and private traders)	AC	A Ch	AC	AC	A
3.1 Discuss the advantage/necessity of joint activities among farmers	A		AC	AC	A
3.2 Select capable leaders of farmer group in a democratic way	AC	A Ch	AC	AC	A
3.3 Build up transparent management framework of farmer group	DC	A Ch	O	O	A
4.1 Formulate credit groups among members, if possible, inject formal credit fund into the credit groups (WUAs or farmer groups try to reach to formal credit system)	A	A Ch	O	O	A

Table 5.7.3 Verification of Countermeasures for Irrigated Agriculture of Government

Narrative Summary	West	West	Jogya	East	NTB
	Sumater	Java		Java	
<i>Ch - changed (minor)</i>	<i>A - agreed</i>		<i>C - commented</i>	<i>D - disagreed</i>	<i>O - no comment</i>
1. Overall Goal:					
1 Farmers are willing to pay water charges	O	A Ch	O	O	A Ch
2 Farming is attractive for young generation					
2. Project purpose					
Farmers enjoy sufficient annual income from farming	O	A Ch	AC	AC	A Ch
3. Outputs					
1 The national food security policy especially for rice is well clarified					
2 Farmers have appropriate return from rice	O	A Ch	O	O	A Ch
3 Farmers diversify they crops for additional income					
4 Farmers recognize necessity of cooperative works					
5 Farmers can access reliable and easy credit					
6 Farming size is enlarged and farmers' rights are well secured					
4 Activities					
1.1 Establish a reliable and transparent food security monitoring system	D	A Ch	O	O	A Ch
1.2 Rebuild the existing rice price policy including the strategic reserve system	O	A	O	O	A Ch
2.1 Promote more flexible marketing of agricultural inputs especially in off-Java provinces	A	A Ch	O	O	A Ch
2.2 Reduce the monopoly structure on fertilizer production	A	A Ch	O	O	A
2.3 Promote hand tractor hiring business	A	O	AC	AC	A Ch
3.1 Reinforce research works for vegetables, fruits, ornamental plants, fresh water fishes, etc	A	A Ch	O	O	A Ch
3.2 Train PPL/farmers how to grow and market vegetables, fruits, ornamental plants, etc	A	A Ch	AC	AC	AC
3.3 Establish market information network system to connect local markets	A	A Ch	O	O	A
3.4 Promote contract farming with private companies to farmer groups/cooperatives	A	A	O	O	A
3.5 Promote "one village one special product policy" in rural areas	D	D	D	D	D
4.1 Build up transparent legal framework for farmer cooperatives including penal regulations to handle inappropriate management and operations	A	A Ch	AC	AC	A
4.2 Review the existing incentives to farmer cooperatives/KUD	A	O	O	O	O
4.3 Train farmers who are willing to participate in farmer organizations	A	A Ch	AC	AC	O
5.1 Formulate accessible farm credit system	A	A Ch	O	O	O
6.1 Clarify an effective land use/spatial plan	AC	A	AC	AC	O
6.2 Review the present land law and taxations to make it easy for real farmers to buy farmland and make it difficult for absentee landowners to keep farmland	A	A Ch	O	O	O
6.3 Promote organizing sharecroppers to increase their bargaining position in order to reduce their burden and secure their rights	D	A	O	O	O

Table 5.7.4 Verification of Countermeasures for Social Awareness

Narrative Summary	West Sumatra	West Java	Jogya	East Java	NTB
	C - changed (minor)	A - agreed	C - corrected	D - disagreed	O - no comment
<p>1. Overall Goal</p> <p>1 Understandings of the socio-economic and political powers at Central, Province and Kabupaten level to put irrigation policy reform into operation</p> <p>2 Preparedness of the related GOI Agencies at Central level and the Study Provinces to play their roles on a request basis</p> <p>3 Understanding of local village communities of the importance of well managed irrigation for sustainable farming</p> <p>4 Local irrigated land farmers willing to manage irrigation system by themselves</p>	O	A	AC	AC	A
<p>2. Project purposes</p> <p>1 Public awareness of the necessities to turnover state irrigation management to water user communities</p> <p>2 Government preparedness to support and facilitate farmers for enhancement of turnover program</p>	O	A	AC	AC	A
<p>3. Outputs</p> <p>1 Central level</p> <p>1.1 Produce dissemination materials for Central level (which selectively also can be used for lower level), concerning:</p> <p>a Related laws and regulations on irrigation policy reforms</p> <p>b Explanatory sets of irrigation management problems and solutions</p> <p>c Proposed Plan of Actions, expected results, time schedule</p> <p>d Role divisions among GOI Agencies, and GOI and WUAs</p> <p>e Financial budget arrangement</p> <p>f Required manuals, instruments, and information</p> <p>1.2 Understanding, comments and recommendations for the operation of irrigation policy reform</p> <p>1.3 Committed workshop attendees, in terms of:</p> <p>a Central GOI Agencies, NGOs, Universities, state & private companies, mass-media and other concerned parties</p> <p>b Representations of Provincial GOI and irrigation communities</p> <p>1.4 Financial budget arrangement among the involved levels and sectors of GOI Agencies</p> <p>1.5 Installed Database program at the Directorate of Water Resource of Kerpriwil</p>	O	A minus 1,4,1,5	O	O	A minus 1,4,1,5
<p>2 Kabupaten level</p> <p>2.1 Effective Consulting Team at Kabupaten level with a number of field consultants as requested</p> <p>2.2 Available resource persons for dissemination workshops scheduled for Kabupaten (the attendees of Central Workshop)</p> <p>2.3 Prepared materials for dissemination and irrigation turnover purposes</p> <p>2.4 Understanding, comments and recommendations for the operation of irrigation policy reform</p> <p>2.5 Committed workshop participants, in terms of:</p> <p>a Kabupaten GOI Agencies, NGOs, Universities, state & private companies, mass-media and other concerned parties</p> <p>b Representations of Kecamatan GOI Agencies, informal leaders and irrigation communities</p> <p>c Kabupaten Consulting Team and Companies</p> <p>2.6 Financial budget arrangement among the involved levels and sectors of GOI Agencies at Kabupaten and village levels</p> <p>2.7 Installed Database program at Kabupaten Dinas PU of Pangasinan</p>	O	A minus 2,4 >2,7	O	O	A minus 2,4 >2,7
<p>3. Village level</p> <p>3.1 Better understanding of village communities of the importance of sustainable irrigated agriculture</p> <p>3.2 Local water users' awareness of the necessities of well managed irrigation for their cultivation</p> <p>3.3 Local water users' desire to manage local state irrigation scheme by themselves</p> <p>3.4 Better orientation and motivation of water users to develop profitable irrigated land productions and efficient self-help group.</p> <p>3.5 Precision of measures encouraging women to actively participate in decision making in decision making</p>	O	A plus new point	AC	AC	O
<p>4. Activities:</p> <p>1 Central level</p> <p>1.1 Preparation of materials which can be used for a) operation of irrigation turnover, and b) dissemination at Central, Kabupaten and village levels</p> <p>1.2 Provide one-day dissemination workshop to a) share the concept and operation framework of irrigation policy reform, and b) collect feedback, sense of responsibility and support among the included parties</p> <p>1.3 Financial arrangement among levels and sectors of GOI Agencies</p> <p>1.4 Installation of Database program</p> <p>1.5 MSE of social preparation activities at Kabupaten level</p>	O	A minus 1,3	O	O	A minus 1,3
<p>2 Kabupaten level</p> <p>2.1 Select Kabupaten Consulting Team from Universities and NGOs</p> <p>2.2 Propose to Provincial GOI for resource persons of scheduled dissemination workshop</p> <p>2.3 Produce materials for dissemination and operation of irrigation policy reform</p> <p>2.4 Provide one-day dissemination workshop as 4.1.2 above</p> <p>2.5 Introduce adult education methods to the potential participants for water user motivational training</p>	AC	A plus new point	O	O	A
<p>3 Village level</p> <p>3.1 Propose to Kabupaten GOI for resource persons of scheduled dissemination workshop</p> <p>3.2 Collect materials for dissemination and operation of irrigation policy reform</p> <p>3.3 Provide one-day dissemination workshop as 4.1.2 above</p> <p>Provide one-day meeting at WUA/tertiary level to DCS/PA) disseminate concept and operation of irrigation turnover, and b) collect problems and aspirations by using adult education techniques</p>	O	A Ch	O	O	A

Source: Provincial Materials prepared for Central Workshop by the Provincial JGA Study Team of West Sumatra, West Java, DI Yogyakarta, East Java and West Nusa Tenggara, May 2001

Table 5.7.5 Verification of Countermeasures for Irrigation and WUA Management

Activities		Results of Verification through Detailed Field Survey and PCM Workshops
I-1.1	Activate PTGA for facilitation & dissemination	<ul style="list-style-type: none"> - Pros & cons originated "Distrusted" or "Trusted" by farmers. - Prosaic is from acknowledge as top-down govt staff by farmers - Also from his achievement by today at field. - Community Organizer is proposed instead, originated farmers. - Leave appraisal to local government
I-1.2	Recruit Community Organizer	<ul style="list-style-type: none"> - New concept raised with Farmer-To-Farmer concept - Also with task of bridging between govt and farmers - Being accepted by both sides fundamentally - Adopted to nation wide.
I-1.3	Public awareness for local govt staffs	<ul style="list-style-type: none"> - Being confirmed its necessity at every locations. - Especially at kabupaten level. - Not only public awareness, also improve their quality - Some measures to stir competition spirits. - Also formation of their awareness to meet with new paradigm
I-1.4	Form / Reform WUA	<ul style="list-style-type: none"> - Being noticed necessity of re-election of WUA board members. - Both sides accepted the concept / reason. - Being suggested to monitor the procedures & results. - Being agreed to conduct every year or so to wipe out old spell
I-1.5	Participatory training of WUA officials by OJT	<ul style="list-style-type: none"> - OJT training is accepted by participants because of concept - IDTO success story made positive impact to both. - Constraints are lack of fund and human resources to conduct. - Hence premise are quite many before realization.
I-1.6	Assist WUAs to set ISF levels	<ul style="list-style-type: none"> - Though being understood, cost owing is objected / not accepted by farmer - Many issues are there, mainly on govt side to keep fairness / accountability. - Those issues were summed into inventorization & developed to Action Plan - Decided as necessary issue to adopt over the country.
I-1.7	WUA registration for expanding activities	<ul style="list-style-type: none"> - Though being accepted, govt maturity is far beyond to support the plan - Pointed out that govt's low effective supports for the issue in previous & facts. - Appraised its necessity to enhance WUA establishment. Hence - Decided as necessary issue to adopt over the country.
I-1.8	Joint management of irrigation system	<ul style="list-style-type: none"> - Hardly to let farmer share concept due to old spell & Ex-PU demarcation. - Farmer has no "Sense of ownership" for upstream major facilities, only tertiary. - Seems to be time intensive issue to saturate the concept actually. - In line of the latest policy decided to propose as one of Action Plan.
I-1.9	Kabupaten Irrigation Improvement Fund	<ul style="list-style-type: none"> - Accepted from viewpoint of taking over authority from govts. But - Seems to be time intensive issue to saturate the concept actually. Also - Being indicated to adopt some approach to stir competitive spirit among WUAs - In line of the latest policy decided to propose as one of Action Plan.
I-2.1	Coordination of WUA Support Groups	<ul style="list-style-type: none"> - Accepted based on farmer's lesson from govt's contradict achievements by now - Both farmer & govt staffs are eager to set measure to integrate supports from govt - Decided as necessary issue to adopt over the country, with Item 1.3
I-2.2	Start-up financial assistance	<ul style="list-style-type: none"> - Accepted from viewpoint of support expanding for farmer & job generation. But - Being indicated to adopt clear eligibility criteria to let realize self-reliance - Due to magnitude of curiosity to the plan - Decided as necessary issue to adopt over the country.
I-2.3	Provision of guidance of KIIF	<ul style="list-style-type: none"> - Supported by govts staffs mainly to complement lack of staff/member capa. - This issue was appraised as one of components under KIIF - Hence decided to include into KIIF
I-2.4	Training WUA Support Groups	<ul style="list-style-type: none"> - Supported by govts staffs mainly to complement lack of govt staff capability - This issue was appraised as one of components under Item 2.1 - Hence decided to include into Item 2.1
I-2.5	Developing coordinated extension procedure	<ul style="list-style-type: none"> - Supported by govts staffs & farmers to avoid discrepancies as previous - This issue was appraised as one of components under Item 2.1 - Hence decided to include into Item 2.1
I-3.1	Review turn-over criteria	<ul style="list-style-type: none"> - Noticed better to concentrate to WUA establishment than examine the criteria - Because expected situation is "Being taken-over" not "turn-over" actually. - Decided to set inventory provision to clarify targets, instead.
I-3.2	Monitoring & Evaluation	<ul style="list-style-type: none"> - Reconfirmed this issue is as one of issues to be reinforced as basic task of govt. - Hence decided to propose the idea as one of Action Plan with permanent section

Table 5.7.6 Verification of Countermeasures for National Policy on Irrigated Agriculture

Activities		Understanding of the Present Situation/Government's Attitude	
1	AG-1.1	Establish a reliable and transparent food monitoring system	Food Affairs Security Agency has been newly established in MOA. The agency is not full activity yet due to lack of preparations. It will take time before the agency will begin to function properly..
2	AG-1.2	Rebuild the existing rice price policy including the strategic reserve policy	Government is reviewing the existing rice price policy. A new policy is expected to be formulated in the near future. However, it takes time to reinforce discipline of concerned agencies/organizations in order to maintain the policy properly.
3	AG-1.3	Promote more flexible marketing of agricultural inputs, especially in off-Java provinces	Fertilizer producing companies, which are all state companies, are still dominant in fertilizer marketing up to <i>Kabupaten</i> level; <i>PT.Pusri</i> is the only company to have national distribution network. MOA does not have a policy to promote competitive fertilizer market at present.
	AG-2.1		
4	AG-2.2	Reduce the monopoly structure on fertilizer production and trade	Majority of officials concerned with fertilizer policy consider that Government's role in controlling/protecting domestic production is still important to secure the availability of fertilizers. Government will keep the monopoly structure on fertilizer production and trade.
5	AG-2.3	Promote hand-tractor hiring business	MOA has carried out <i>UPJA</i> (Farm-machinery Service Development Program), which provides machinery at discount prices. Because of financial reasons, <i>UPJA</i> largely depends on foreign assistance, especially from Japan. The effects and sustainability of <i>UPJA</i> are very limited and weak.
6	AG-2.4	Promoting rice-milling business through farmers' group	<i>KUD</i> is still, in theory, the appropriate farmer organization to promote rice milling service, though most of <i>KUD</i> have lost farmers' trust. Government does not have a clear policy how to treat <i>KUD</i> or other farmer groups in agri-business promotion.
7	AG-3.1	Reinforce research work in vegetables, fruits, ornamental plants, freshwater fishes, etc	Agricultural research has been highly concentrated on rice. The perception of research is top down basis because of the limited farmer feedback. It takes time before researchers are aware of farmers' needs..
8	AG-3.2	Train <i>PPL</i> s/farmers how to grow and market vegetables, fruits, ornamental plants, etc	There exist no clear and direct coordination between the agricultural extension and research. Research and extension are seen as two autonomous activities. Moreover, there are very few refresher training programs for <i>PPL</i> s because of financial reason.
9	AG-3.3	Establish a market information network system to connect local markets	Many confusion in the market information system. Though there are many agencies with responsibility for handling market information, the information collected is not well managed and integrated for effective utilization. The communication and coordination between the agencies is very limited.
10	AF-2.1	Promote contract farming between private companies and farmer groups/cooperatives	MOA has carried out <i>Kemitraan</i> program, which promotes partnership of private sector and farmers. It should be strengthened. It will take time before MOA starts an intensive campaign for <i>Kemitraan</i> program as its attitude still leans toward production oriented policy.
11	AF-2.2	Promote "one village one product policy" in rural area	Government is full of fanfare, but it makes no policy move to act. In the name of decentralization, Government itself does not take positive actions.
12	AG-4.1	Build up transparent legal framework for farmer cooperatives including sanctions to handle illegal management and operation activities	Government does not have clear policy how to settle <i>KUD</i> 's problems including <i>KUT</i> (official farm credit) and how treat <i>KUD</i> or other farmer groups in agri-business promotion. Though Government is attempting to improve the present situation, the approach appears to be somewhat fragmented and temporary.
13	AG-4.2	Review the existing incentives to farmer cooperatives/ <i>KUD</i>	- Ditto -
14	AG-4.3	Train farmers who are willing to participate in farmer organizations	- Ditto -
15	AG-5.1	Formulate accessible farm credit system	MOA has a plan to establish an agricultural financing institution to deal with farm micro-credit. The French Government has committed itself to provide funds for F/S study. MOA is expecting that the study will start within this year.
16	AG-6.1	Clarify an effective land use/spatial plan	- detailed study not made -
17	AG-6.2	Review the present land law and land taxation to make it easy for real farmers to buy farmland and difficult for absentee landowners to keep farmland	- detailed study not made -
18	AG-6.3	Promote organizing sharecroppers to strengthen bargaining position to reduce burden & secure rights	- detailed study not made -

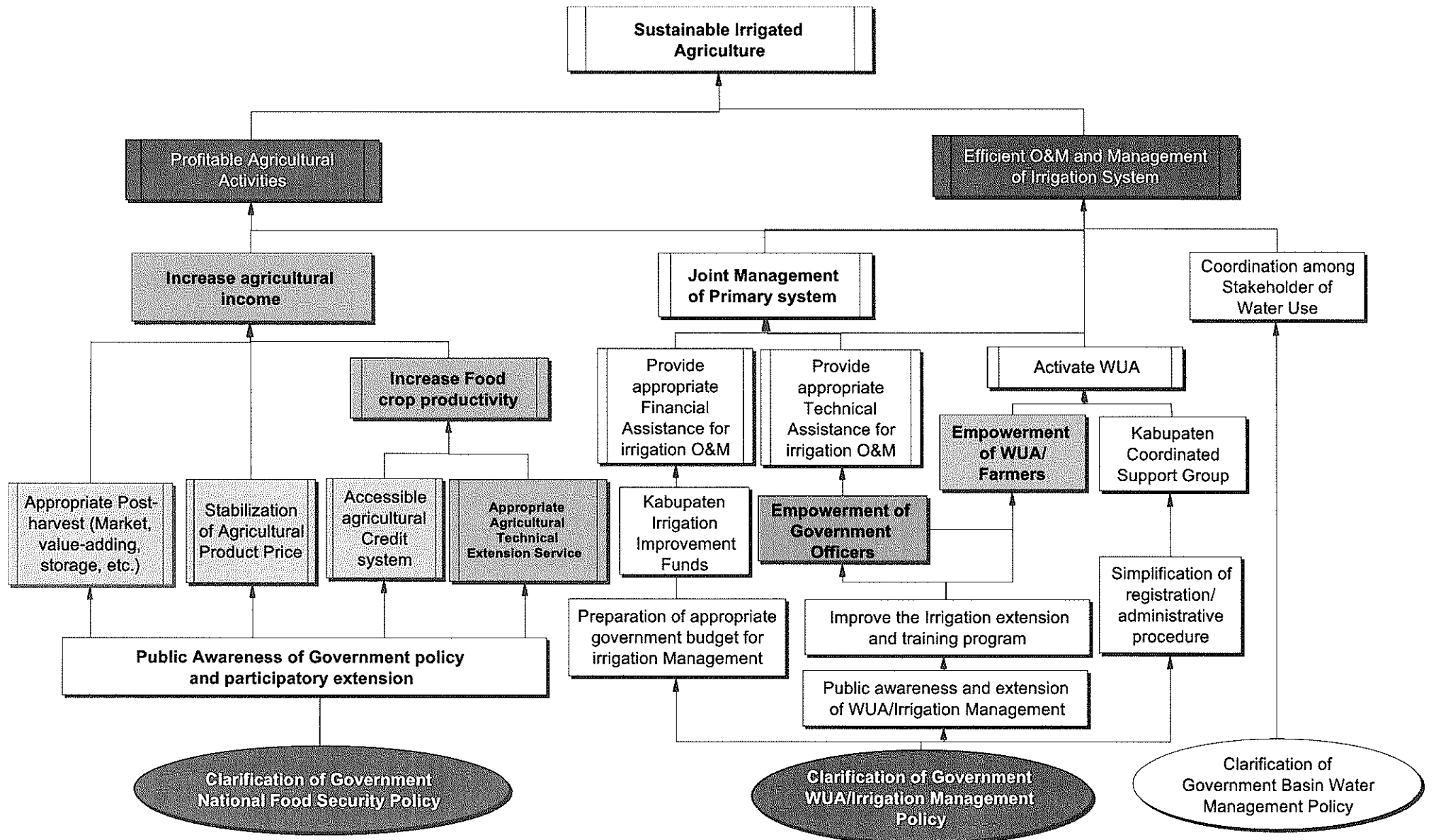


Fig. 5.3.1 Major Issues of Countermeasure Solving Problems

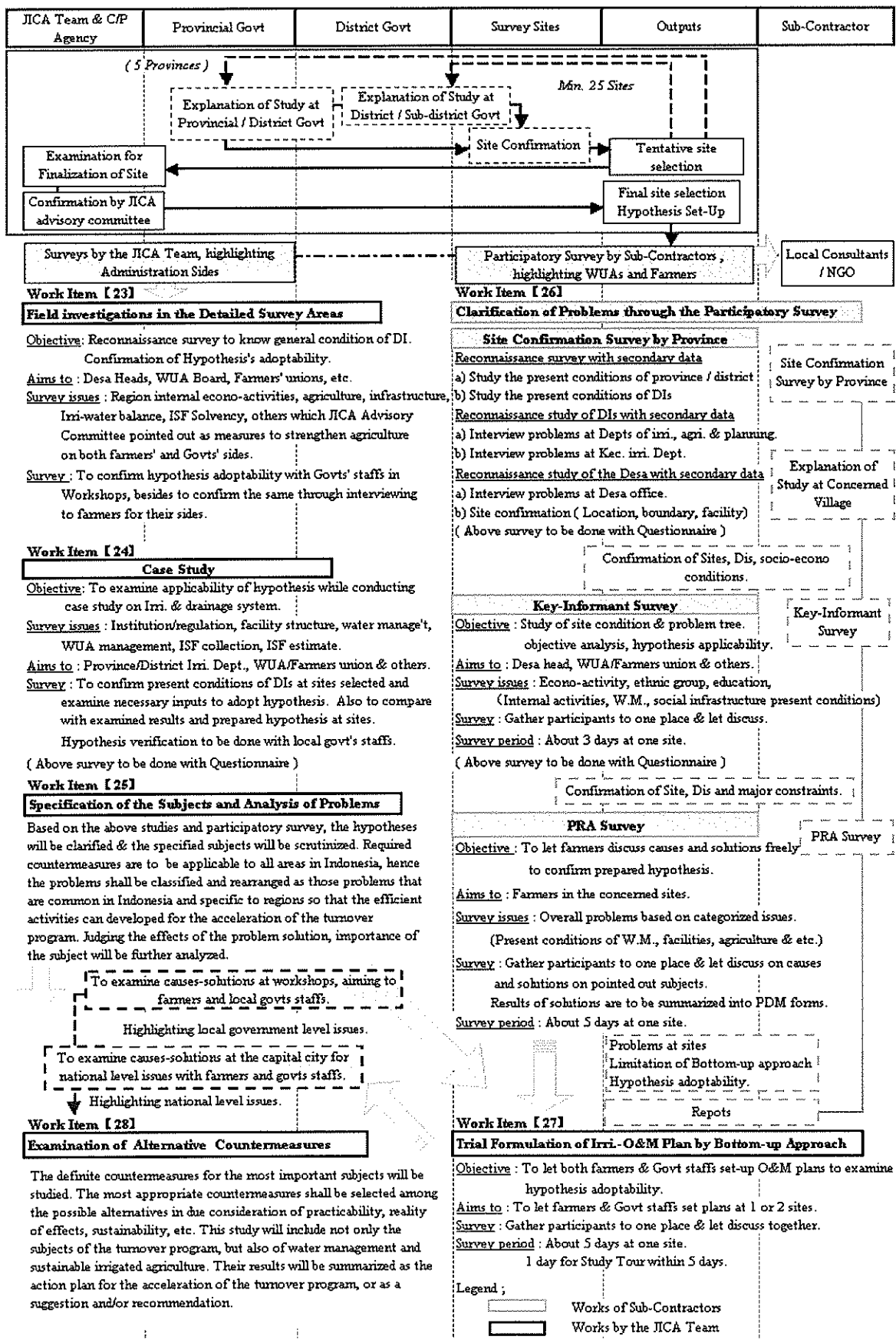


Fig. 5.4.1 Procedure of Participatory Survey and Expected Outcomes

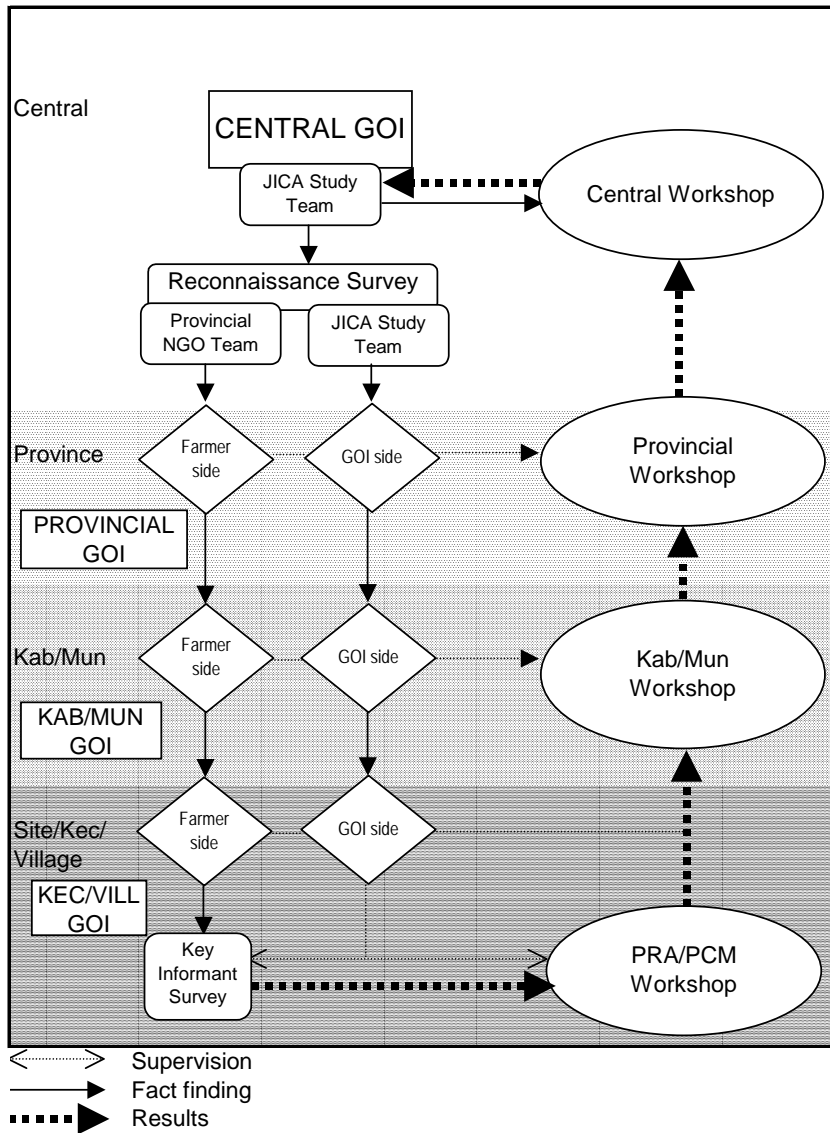


Fig. 5.5.1 Workflow of Detailed Field Survey

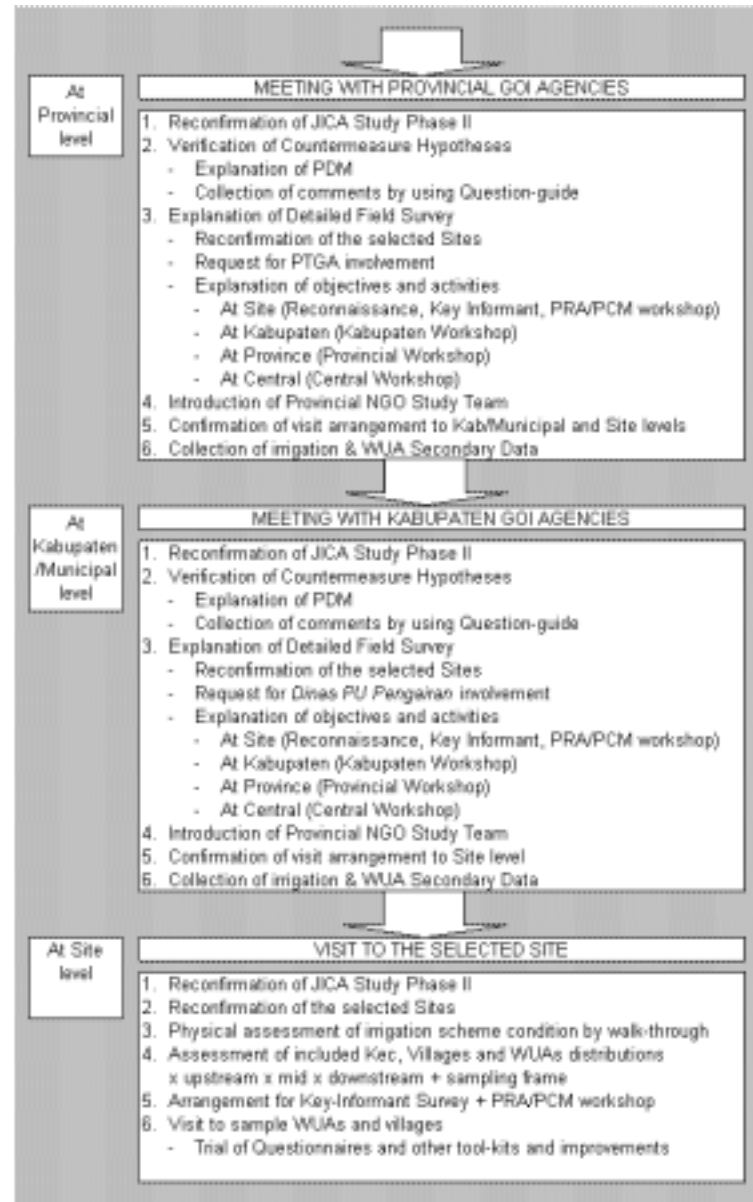


Fig. 5.5.2 Detailed Reconnaissance Survey