



PARTICIPATORY IRRIGATION MANAGEMENT MODEL IN CIHEA IRRIGATION SCHEME, WEST JAVA PROVINCE, INDONESIA¹

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ABSTRACT

Despite the fact that irrigation development and management under the participatory irrigation management (PIM) approach has a long history in Indonesia, however, the initiative of PIM in modern term has only been experimented in Indonesia since the late 1990's. Given the nature of land holding pattern, which is mostly of small holder, the PIM Approach has ever-since been implemented to adjust with small land holding condition. The results have been varying in the level of successes. There has been a number of irrigation schemes proved to be successful in the PIM implementation, through there were also problems of effective collaboration with the water users' association (WUA), not the least of which was the traditional top-down approach prevalent at that time. However, lessons learned 'the hard way', are now influencing the Government towards a new participatory approach in irrigation development that is beginning to pay dividends.

Intervening from the top down in small holder irrigation development always involved difficulties – too many implementing agencies; long delays caused by bureaucratic procurement procedures; and a lack of counterpart contributions from the Government of Indonesia as a result of poor revenue generation of irrigated paddy. Compounding these administrative problems were the difficulties in establishing rural financial services for farmers, during which, more focus on irrigation infrastructure rather than on the participants. Nevertheless, the establishments of WUAs as well as water users' association federation (WUAF) and Principal WUAF (PWUAF) have been formally carried out in many irrigation schemes. The remaining obligations are on the

1- This paper is specially prepared for the 10th International Seminar on Participatory Irrigation Management (PIM), conducted concurrently with the 4th Asian Regional Conference of International Commission on Irrigation and Drainage (ICID), Tehran, Iran, May 2-5, 2007.

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empowerment of the established WUAs in terms of institutional, technical, as well as administrative capacities to maximize the associations' functions.

In an effort to optimize the remaining capacity of the WUAs to pursue the sustainable operation and management of irrigation schemes through PIM approach, this paper has been prepared based on field experiment model that has been successfully conducted by WUAs in Cihea Irrigation Schemes, under the intensive guidance of irrigation services of the West Java Province, Indonesia. A number of experiences of the implementation of the PIM model are described in this paper, including: the salient features of Cihea Irrigation Scheme characteristics; objective and mechanism principles of the pilot model; rights, duties and obligations of the WUAs, membership and organization structure; basic principle of the establishment of WUAs, WUAF and PWUAFs; empowerment of WUAs; collaboration mechanism; budgeting; as well as control, monitoring and evaluation of the PIM implementation. It is expected that some of the PIM experiences presented in this papers are worth for comparative features in other regions or irrigation schemes that are having the similar characteristics.

Key Words: PIM Model, Water Users Association, WUA, Cihea Irrigation Scheme, West Java.

I. INTRODUCTION

In spite of the early initiative of participatory irrigation management (PIM) approach that has long been implemented in Indonesia, the initiative of PIM in modern term has only been experimented in Indonesia since the late 1990's. Given the nature of land holding pattern, which is mostly of small holder, the PIM approach has ever-since been implemented to adjust with the small land holding condition. During which, there were problems, among others due to the traditional top-down approach prevalent at that time. However, lessons learned 'the hard way', are now influencing the Government towards a new participatory approach in irrigation development that is beginning to pay dividends. Further to this, the establishment of WUAs as well as water users' association federation (WUAF) and Principal WUAFs (PWUAF) has been formally executed in many irrigation schemes. The remaining tasks are on the empowerment of the established WUAs in terms of institutional, technical, as well as administrative capacities to maximize the associations' functions.

In an attempt to optimize the remaining capacity of the WUAs to pursue the sustainable operation and management of irrigation schemes through PIM approach, this paper has been prepared based on field experiment model that has been successfully conducted by WUAs in Cihea Irrigation Schemes, under the intensive guidance of irrigation services of the West Java Province, Indonesia. A number of experiences on the implementation of the PIM model are described in this paper, including: the salient features of Cihea Irrigation Scheme characteristics; objective and mechanism principles of the pilot model; rights, duties and obligations of the WUAs, membership and organization structure; basic principle of the establishment of WUAs, WUAFs, and PWUAFs; empowerment of WUAs; collaboration mechanism; budgeting; as well as control, monitoring and evaluation of the PIM implementation. It is expected that some of the

PIM experiences presented in this papers are worth for comparative features in other regions or irrigation schemes that are having the same characteristics.

Through the actual implementation of PIM Model, the successful empowerment of WUAs is accomplished through a series of activities including socialization, motivation, training and visits, periodical meeting on the monitoring team office, facilitation, on-the-job training or comparative study, technical guidance, training, and other similar methods that are suitable with the local condition. Therefore, the implementation approach has been based on local needs, actual social-economic condition, as well as institutional capacity to perform, and monitoring results with periodical updating based on performance assessments.

The mechanism of WUAs empowerment is conducted by addressing all the stages of the empowerment units of the Regency or Municipal levels down to the field assistance units and farmer's assistant taskforce, as well as other units that are responsible for irrigation technical backup and/or implementation of funding support for PIM from the local government – as if available. In this regard, all of the farmers' assistance officers referred to is functioned as motivator, mediator and facilitator for a maximum of one year, after recruitment through a certain selection criteria.

1.1. BACKGROUND INFORMATION AND GENERAL PIM POLICY

Concerning the irrigation operation management in Indonesia, the Law No. 7 of 2004 about Water Resources, prescribes in Article No. 41 and No. 64, as well as in the Government Regulation No. 20 of 2006, on Irrigation, Articles No. 16,17 and 18, that the development and management of primary and secondary irrigation system is executed by the government and local government with the participation of WUAs based on their demands and capacities in terms of institutional, technical as well as funding availability.

The follow up participation of WUAs on the development and management of irrigation is based on the principle of active participation on all phases of PIM process from initial deliberation, decision and the implementation of planning, development, upgrading, operation and maintenance (O&M), as well as rehabilitation activities of irrigation system concerned. The terms of development and management in the PIM approach are meant to support land productivity for increasing crops production, national food security and stability program as well as for enhancing public prosperity of the water users in particular and for the entire communities in general.

The policy instrument further prescribes that the empowerment of WUAs has to be conducted by institution or agency of the respective regency or municipality concerned with irrigation, by which, the implementation must continuously encompassing institutional, technical, administrative, as well as budgetary aspects that had been mutually approved.

To test the effectiveness of the above mentioned irrigation policy, the implementation of PIM pilot model has been situated in the Cihea Irrigated Scheme, West Java Province with a special scrutiny on the enhancement of the WUAs' performances in the already available irrigation infrastructures and already established WUAs.

1.2. OBJECTIVE OF THE STUDY

The objective of the study under the Cihea PIM Experimental Model is to test the actual implementation of irrigation policy instrument and thereby prepare a draft of guideline manual for empowerment of WUAs in implementing the PIM with the necessary terms of implementation of obligations and of detailed procedures of WUAs/ WUAF on the management of irrigation by virtue of PIM approach. Parallel with the preparation of the guideline manual for empowerment of WUAs, the experimental model also intended to strengthen the WUAs in Cihea Irrigation Schemes toward a more powerful and independent water users' association in managing their irrigation infrastructures on the basis of sustainable PIM, in the Scheme – and expected to be replicated in the neighboring areas.

II. SALIENT ACTIVITIES OF THE CIHEA IRRIGATION AREA

2.1. GENERAL DESCRIPTION

The Cihea Irrigation Area as the study area for this PIM Model is the oldest technical irrigation scheme in Indonesia, which was constructed during the Dutch Colonial Government in 1879, and only fully completed physically in 1904. However, the irrigation scheme was only started to function 10 years later in 1914. One of the major constraints of the development was that the area, during the development period, was once the source of malaria that could only be eradicated after the country's independence in 1945.

The irrigation service area of Cihea Scheme is located on two districts government administrations which are the Bojong Picung and the Cirajang Districts with a total irrigated area for paddy at 5,484 ha. Based on the provision of Law No. 7 of 2004 concerning water resources – Article No. 41, prescribed that an independent irrigation area having a total command area of larger or equal to 3,000 ha is subjected to the government's authority for operation and management. Thus, the Cihea Irrigation Scheme falls into the category of the government managed irrigation scheme, comprised of 3,292 ha taking its water from the Cisuru/Cisokan weir at the Cisokan River; and the other 2,192 ha command area from Ciranjang weir at the Ciranjang River, together are having an overall discharge capacity of about 7.00 m³/second. Based on the above mentioned irrigation policy, the government consistently operate, maintain and improve the irrigation networks by applying for PIM approach. The construction approach involves the WUA (*Mitra Cai*, in local term) – a joint cooperation between the public and community is carried out in the form of Irrigation Management Cooperation (IMC).

2.2. IRRIGATION INFRASTRUCTURES

Under the PIM approach, it is very important that the irrigation services together with the water users under the coordination of WUA, makes a routine inventory of all the irrigation infrastructures (irrigation structures, conveyance and drainage canals as well as other supporting and appurtenance structures) that support the effective irrigation water distribution and management activities. The routine inventory and updating of the

underlying status of irrigation infrastructures allows the irrigation officers and the stakeholders to comprehend more exact figures about operation, maintenance and budgetary requirement of the entire activities.

In order to perform irrigation water distribution for the command area of 5,484 ha in the flat undulated most and flat plain, the Cihea Irrigation System is equipped with two intake weirs, three major diversion structures, 10 outlet structures, 96 drop structures, 11 water measurement structures, 9 measurement flumes, 22 water supplying structures, 146 tertiary units and 23 culverts at the drainage channels. The entire main system canal network (both conveyance and drainage canals) has a total length of 74.70 km, and about 20 km of inspection road along the major canals.

2.3. OPERATIONAL AND MAINTENANCE ACTIVITIES

Consistent with the national irrigation policy instrument, the O&M as well as management of irrigation infrastructures in Cihea Irrigated Area for intake weir, primary canals and secondary canals are conducted by the Branch Irrigation Service (Regional Coordinator III -- Korwil III) Ciranjang. The Regional Coordinator III is responsible to help empowering the WUAs, whereas the management of tertiary networks is handed over to the WUAs to perform independently.

Water Distribution System: For simplification, the irrigation water distribution of the Cihea Irrigation Scheme is compounded into three Groups. These are: Group I = 1,863 ha, Group II = 1,852 ha, and Group III = 1,769 ha. A regular biweekly meeting for determining the water allocation and distribution is conducted by the Branch Irrigation Services/Korwil. During this regular meeting, determination of water requirement is decided through mutual calculation of the crop water requirement for the next periods. Subsequently, the water discharge for the following period is determined in accordance with the mutual calculation of the plant water requirement. Based on determined discharge, the magnitude of water volume for individual tertiary irrigation unit is implemented by making use of water measurement devices in every outlet gates on the tertiary unit. From this point downward the water distribution management is entrusted to the local WUA for irrigating the farm blocks.

O&M Tasks: The “Operation” and “Maintenance” activities of irrigation are regarded as the two sides of the coin, which is mutually co-existence, and hence cannot be separated. In this regards, “**operation**” of irrigation involves a number of activities, including the water distribution management, operation of the water measurement gates, measurement and recording the volume of water distribution through water measurement devices, conducting water distribution and the necessary coordination amongst the WUA members. On the other hand, the “**maintenance**” of irrigation involves a number of physical works including the regular maintenance of embankment, patching the leakages of conveyance channel, lifting the silt deposit on canal bottom, weirs and other irrigation structures, grass cutting, weed and garbage removals lubrication and painting of water gates, periodical maintenance and normalization of the canal wetted perimeter, replacement of water gates and stop-logs as well as other such activities, including emergency O&M endeavors.

2.4. CROPPING PATTERN

The cropping pattern and schedule which apply in the Cihea Area have been based on the mutual approval between the government and irrigation stakeholders through annual meeting of Irrigation Commission at the regency or municipal level. The mutual commitment for cropping pattern is endorsed by the local government through the formal Regent's decree. For example, the result of the 2005's meeting has been endorsed by the Regent Decree No. 521/Kep135-PSDAP/2005 concerning cropping pattern and schedule of the drying period on irrigation area for annual maintenance (covering a total area of 5,484 ha, having 26 villages within two district government administration). The overall cropping patterns and irrigation schedule stated in the above Regent's Decree are outlined as follows: (1) Planting season I, mainly for paddy with the total area of 5,484 ha; (2) Planting season II, which also for mainly paddy for a total area of 5,484 ha; and Planting season III, which is projected for the mixture of the second crop at 3,220 ha and 2,260 ha proposed for dry season paddy. The irrigation schedule is presented in **Table 1.** as follows:

Table 1. Cropping Pattern and Irrigation Schedule of the Cihea Irrigation System

Plantation Schedule (PS)	PS I	PS II	PS III
Cropping Pattern I	01-10-05	16-02-06	01-07-06
Cropping Pattern II	16-10-05	01-03-06	16-07-06
Cropping Pattern III	01-11-05	16-06-06	01-08-06
Notes:			
Based on the production data of 2005, the actual yields of the crops based on the above cropping pattern are as follows: (1) PS I with the yield of 6.00 to 7.00 tons/ha of dry grain paddy; (2) PS II with the yield of 5.00 to 6.00 tons /ha of dry grain paddy; and PS III with the yield of 4 tons/ha of dry grain paddy on an area of 2,260 ha; and an average of 0.8 tons/ha on 3,220 ha of second crops (ground nuts, corn, soy beans etc.)			

2.5. PRESENT STATUS OF WUA (*MITRA CAI*)

For actual implementation of PIM approach in the Cihea Irrigation Area, a total of 65 WUAs units has been established, out of which, 40 units in Bojong Picung, and 25 units in Ciranjang Area. For facilitation of effective coordination the WUAs are jointly incorporated into three WUA's Federation, (WUAF) which are: (1) WUAF *Tirta Walatra* with 21 WUAs units; (2) WUAF *Karya Sejahtera* with 21 WUAs units; and (3) WUAF *Sabanda Sariksa* with 23 WUAs units. These three WUAF are further incorporated into a Principal WUAF, which is referred to as the Principal WUAF *Tirta Mulya Rejeki*. The PWUAF is responsible to coordinate the entire WUAs' (IP3A, in local abbreviation) activities, as if requested on actual demand basis.

III. PRINCIPLES AND FEATURES OF WUAS UNDER THE PIM APPROACH

3.1. Principles and Characteristics

For supporting the actual implementation of PIM, the establishment of WUAs together with the subsequent empowerment is the most important prerequisites. The establishment must meet the special characteristics, among others as follows: (1) WUAs are based on the principle of *gotong-royong* (mutual aid); (2) WUAs are based on a social-economic community with special awareness on sustainable environmental concept; (3) WUAs are institutions with distinct characteristics including; (a) Self maintenance capacity for physical, social, cultural as well as economic characteristic; (b) Capable of preserving the local wisdom, knowledge and indigenous technology inherited from their ancestors – such as utilization of locally available technology and resources; (c) Willing to adopt external technology and knowledge having sufficient capacity for adjustment with indigenous knowledge and technology.

Objectives of WUAs, WUAF, and PWUAFs: The primary objectives of WUAs establishment are among others: (a) To organize the development and management of irrigation system on tertiary irrigation networks; (2) To participate in the development and management of primary as well as secondary irrigation system; (3) To accommodate problems and farmer's aspiration related to water issues for their farming business; (4) As an umbrella organization of the farmers for communicating their thoughts, insights and problem-solving alternatives; (5) To provide services for meeting the demands of farmers especially for adequate irrigation water; (6) To facilitate representation of the farmer in cooperating with external parties including local government or other institutions.

Meanwhile, the objectives of the WUAF's establishment are among others: (1) To coordinate the WUA members on their commanding area in participating with the development and management of irrigation systems; (2) To coordinate the participation of its member in distribution, allocation as well as water utilization; (3) To facilitate representation of the WUAs on the Regency/ Municipal Irrigation Committee as well as in the Provincial Irrigation Committee. With regards to the PWUAF, its establishment is specially carried out by coordinating of several WUAFs within a large independent irrigation scheme or large block of main system, based on actual demand principles.

3.2. URGENT DEMAND FOR WUAS' EMPOWERMENT

Considering the institutional and policy reforms on irrigation, which have been suffered from uncertainties within the last few years, it has been quite unfortunate that the process of policy reform has been going very slowly, while the day-to-day activities of PIM, particularly of WUAs' empowerment cannot be postponed. As a result, the activities have been conducted without special policy guidelines – with obvious consequences of highly diversified achievements. As soon as the policy instruments have been enacted, the PIM activities together with their related aspects must be adjusted immediately. This includes the immediate demands for empowerment of WUAs as the following policy outlines: (1) The empowerment of WUAs/ WUAF has to be geared toward self propelling institutional capacity (technically, socially and financially), so that it could actively involved in the development and management of irrigation by means of PIM approach. Nevertheless, given the functions and tasks of

WUAs in the development and management of irrigation which differs from the WUAF's empowerment, therefore, the empowerment processes of both institutions have to be address in parallel terms. (2) The empowerment of WUAs within irrigation system has to be systematically undertaken in such a way that the institution could perform their interdisciplinary tasks and responsibilities -- technical, social-economy, organizational as well as financial – with special focus on the related prerequisites among others: i) Assurance of the legal status of the organization, acknowledgement of the rights and responsibilities of its members, procedure of management implementation, acknowledgement of its presence as well as its responsibility on irrigation management on their respective working areas; ii) Assurance of the technical capability on irrigation management and farming activities; iii) Assurance of financial capability and management to refrain from dependency attitude; iv) Assurance of their entrepreneurship capacity for supporting the organizational obligation to sustain operational as well as management activities of their organization. This includes the necessary collaboration with other technical as well as non technical units at all levels, as are demanded by the PIM implementation.

IV. INSTITUTIONAL ARRANGEMENT

4.1. RIGHTS AND RESPONSIBILITIES OF WUAS AND WUAF

In order to assure the institutional capacity of both the WUAs and the WUAFs to undertake effective organizational arrangement, there have to be a clearly defined right and responsibility of the board of management, among others as the following responsibilities: (1) To implement the rules and regulation of the organization; (2) To provide the necessary organizational supports and facilities, including the effort to appeal resources supports from the local government as well as from other external funding organizations; (3) To facilitate the necessary cooperation with external organization, including the government related institutions; (4) To facilitate mutual dialogues for approval of PIM implementation, such as construction of new infrastructures, collective coordination, collaboration and working arrangement mechanism.

Water Use Right: Under the terms of institutional arrangement, the WUAs / WUAFs are entitled to irrigation water use right from irrigation turnout gates. For the case where the WUAs/ WUAFs have yet established – the water use right is deliberated in the form of water allocation to the management board for subsequent delivery to the relevant tertiary irrigation turnouts.

For assurance of judicious and fair water allocation, the WUAF has a special responsibility to settle water disputes or to facilitate democratic voting (if necessary) for determination of water allocation through the regular Irrigation Committee Meeting at the regency/municipal or provincial levels. The WUAF also responsible for facilitating joint proposal for cropping patterns, system and irrigation schedule, acquiring of collective irrigation water allocation and so on.

Rights of WUAs and WUAF Members: (1) To obtain irrigation services based on the availability of water source; (2) To put up objection for the case of water allocation is not meeting the mutually agreed schedule; (3) To allege entitlement to elect or to be

elected as being the member of board of management; entitlement to management audit; and entitlement to give suggestion in relation with the development and management of irrigation system.

4.2. ACCOUNTABILITY MECHANISM OF THE WUAS AND WUAFS

Periodical Meeting: The terms of accountability of the WUAs and WUAFs are formulated through periodical meeting, which are meant to set up the terms and accountability mechanism as follows: (1) To formulate and establish the bylaws and constitution; (2) To establish and review of organizational structure; (3) To engage and disengage from Board of Management; (4) To formulate implementation program; (5) To organize on-demand meeting for determining the terms and the magnitude of O&M contribution, collection mechanism, resources management and financial accountability; (6) To determine the types of violations and the subsequent sanctions; (7) To confirm, approve or disapprove the report of board of management; (8) To organize special meeting for formulating the term of cooperation with the third party, if any.

Obligation of WUAs and WUAFs Members: In order to assure the effectiveness of organizational arrangement, it is essential that all of the members of the WUAs and/or WUAFs aware about their obligation, and the consequences of management problems should the member neglect their membership obligation.

The terms of obligation of WUAs and/or WUAFs' members are among others: (1) To comply with the bylaws and constitution of the WUAs; (2) To comply with the underlying laws and regulation; (3) To determine and set up the coordination mechanism for development, O&M of the tertiary irrigation schemes, including the implementation of the related activities such as water allocation, usage and disposal of excess water within the tertiary irrigation block; to collect O&M Fees; (4) To establish the demanded WUAFs for facilitating coordination amongst WUAs with another parties including the relationship with the local government concerned.

Entitlement of WUAs and/or WUAF's member: Like most organization, the active members of WUAs and/or WUAF are entitled to: assure and maintain the effectiveness of irrigation infrastructures; consistent payment for subscription in terms of O&M service fees; and to comply with the organizational bylaws and constitution.

Responsibility of WUAs and WUAFs Management: For maintaining the constant flow of organizational arrangement, the management of WUA and/or WUAF have to implement the organizational activities they are responsible for, including among others: (1) To manage and conduct the consistent development and management of tertiary irrigation scheme, including the routine collection, management and financial account; (2) The management of WUAs/ WUAF coordinates their members for participation in the development and management of irrigation system on secondary and primary networks; (3) To execute sanctions to the member for any violation of the underlying regulatory instrument; (4) To undertake the necessary settlement of disputes; (5) Providing for the best possible services by means of fair, transparent and judicious water distribution in conformity with the actual availability of water.

4.3. DETERMINATION COMMAND AREA'S JURISDICTION

The jurisdiction area for WUA or WUAF varies from one irrigation scheme after another, depends upon the hydrological and physical characteristic of the irrigation service area of the irrigation schemes in questioned. For example, determination of command area's jurisdiction of the WUA is based on tertiary irrigation area, or on physical boundary of the village as agreed upon by the members. Meanwhile, determination of the command area's jurisdiction of WUAF is usually based upon hydraulic boundary of secondary blocks. Otherwise, it may be based on an individual irrigation area in accordance to the mutual agreement of the association's member. For the Principal WUAF (PWUAF), determination of command area's jurisdiction is commonly based on primary blocks or based on an independent irrigation area, in accordance with the mutually agreed consensus amongst the members.

4.4. MEMBERSHIP CRITERIA AND ORGANIZATION STRUCTURE

Membership: The members of WUAs are all farmer which directly benefited from the tertiary irrigation service or a village irrigation area comprised of: the owner, pond's owner which acquire its water from irrigation and other institutions using irrigation water. The members of WUAFs are all representations of WUAs units on a secondary block service area, a collection of several secondary blocks or an independent irrigation area. While the members of PWUAF are all representations of WUAF (*GP3A*) on a primary block service area, a collection of several primary blocks or an irrigation area, with an addition of their representation at a minimum of one third of the total WUAs on every cluster of WUAs.

Organization Structure of WUAs and WUAFs: Since the WUAs and WUAF are comprised of members and management units as well as sub units, therefore, the organization structure is mostly determined and established collectively through the general assembly meeting. The management structure for the case of Cihea Irrigation Scheme comprised of President, Vice President, Secretary, Treasurer, Technical Commission, Block Chairman or Quaternary unit's CHAIRPERSON.

4.5. ESTABLISHMENT OF WUAS AND WUAF

Water Users Association: In general, the basic rule of establishment of WUAs is based on the principle "*from the initiative of the water user, by the water user, and for the user*" all are conducted by means of transparent and democratic rule. On the basis of this approach, the water users come up to an agreement to establish a WUA, having determined its own management, Institutional arrangement and code of ethics, as well as bylaws and constitution. For formal term, the establishment of WUAs, together with the subsequent management, Institutional Arrangements, bylaws and constitution through a formal general assembly meeting, and the result of assembly shall be reported by the president of WUA to the Local Regent or Mayor in charge. The next process is the management of WUA registers their Institutional arrangement, bylaws and constitution of the association to the State Court for obtaining the formal or at least registered legal status.

WUAF (Water Users Associations' Federation): Similar with the principle of the establishment of WUAs, the WUAF are also established based on the principle of *“established from, by and for several WUAs together on a secondary blocks/service area or a part of irrigation area”* by means of democratic rule. Whereas the management and its member comprises of the representation of WUA unit within the secondary block in questioned. At the initial stage several WUAs located on a secondary block entered into an agreement to form a WUAF, establish a management board and formulate institutional arrangement as well as drafting the bylaws and constitution. The establishment of WUAF, management board, institutional arrangement as well as bylaws and constitution are officially endorsed on an assembly meeting and shall also be reported by the management / WUAF chairman to the local Regent or Mayor. The established WUAF is subsequently functioned for coordinating of several WUAs within a secondary block or the cumulative service area of several irrigation areas in participating with the development and management of irrigation within the jurisdiction area. Similarly, the establishment of PWUAF at the larger secondary or larger irrigation scheme by making consensus amongst several WUAFs to form PWUAF for conducting coordinative activities of the WUAF.

V. EMPOWERMENT OF WUAS

5.1. EMPOWERMENT APPROACH

The empowerment of WUAs and WUAF is related to two main issues. These are: (1) Strengthening of internal organization by applying for democratic and transparent rule including the effort to acquire a formal but justifiable legal entity to fully independent in implementing the justifiable irrigation management within the relevant jurisdiction area; (2) Facilitating the enhancement of organizational empowerment including the development of self propelling capacity in technical, financial, managerial, administrative and organizational aspects to be able to be independently managed its own irrigation area on the basis of sustainable operation and management.

In an attempt to put the above two issues into a realistic and workable plan of action, the approach must carefully consider both the technical and non-technical elements which are highly decisive to the successful implementation of PIM approach. These include: (1) The principle of partnership, transparency, democracy, accountability, and the extents of law enforcement in the O&M activities; (2) Consideration of the approach for fostering a sound planning through participatory measure, without disregarding the environmentally friendly technology and local resources as well as indigenous technology; (3) Consideration of the non technical aspects that are associated with socio-cultural conditions, as well as other intangible parameter; (4) The empowerment, as far as possible shall be oriented on the actual needs and interests of the WUAF; (5) The empowerment of WUAF is to be implemented on the basis of sustainable approach by means of effective, efficient and sustainable participatory irrigation management.

Sequence of Empowerment Process under the PIM Approach: Upon confirmation of mutual commitment for empowerment of WUA, the actual implementation by employing PIM Approach, a series of activities has to be undertaken through sequential

activities ranging from socialization and public consultation concerning the PIM to the local government agencies together with the existing WUA members.

For fact finding and identification of actual status and physical conditions of irrigation infrastructures, the empowerment unit together with the WUA's members conduct mutual-check along the entire parts of irrigation system referred to as "*walk through*". The overall result of the work-through will give an overall picture of irrigation infrastructures, including the demand for improvement, O&M activities and the estimated budgetary requirement of the O&M and improvement activities. Based on the results of the "*work-through*" the empowerment unit, local government representative together with the WUA's members, make further efforts to carry out participatory irrigation design for subsequent O&M activities by involving the WUAs. This process requires a series of meetings and dialogues to finalize and confirm the design for actual implementation.

For further arrangement, sharing of the roles and responsibility, the meeting assigns the working group to coordinate the implementation of participatory O&M and construction activities, as well as monitoring evaluation of the entire process of WUA empowerment in accordance with the implementation schedule that had been mutually approved along the PIM process. (For illustration, see the series of photographs of the implementation of the PIM approach, presented in the **Annex**)

5.2. SCOPE OF EMPOWERMENT

The scope of empowerment of WUAF comprised of institutional aspects indicated are amongst the legal statuses of the organization, managerial capability, management involvement and the number of active members. While the technical aspects comprised of technical aspects such as: (i) Land acquisition method; (ii) Simplicity but effective principle and the use of applied technology, especially for water measurement devices; (iii) Practical method for water management allocation; (iv) Appreciation of the local technology that has been applied successfully in the area in questioned.

5.3. Empowerment Target

The target of empowerment is the establishment of WUAs, WUAF, and PWUAF which are independent in terms of organization, technical, financial and their participation on developing and maintaining irrigation system and supported by the government as facilitator and dynamic-stimulator through programs which meet the demands of each organizations. These include: (1) Organizational aspects such as the establishment of WUAs, WUAF, and Principal WUAF making use of the locally specified characteristic; (2) **Irrigation Technical aspects**, with special scrutiny on the assurance of the empowerment capacity to achieve the well-maintained and well-functioned irrigation networks; (3) **Human resources capacity** through the WUAs to be able to participate on the activities of development and management of primary irrigation system and its secondary system; (4) **Agriculture Technical Aspects** including the capacity to increase and maintain the intensity of high value crops through an efficient water management; capacity to minimize the unjust competition between upstream and downstream parts of irrigation scheme; to be capable of enhancing sustainable crop productivity through efficient irrigation water and crop management.

5.4. FINANCIAL SUSTAINABILITY FOR SUPPORTING EFFICIENT IRRIGATION O&M.

Based on long term experiences, it is considered that the accomplishment of financial sustainability of WUAs is almost impossible without own capacity to collect funds at the minimum of 50% of the need based budget for the main system; the minimum capacity to collect at least 70% of the actual service fees from the members for O&M subscription. For the WUA level, they have to be financially independent for generating O&M fee from within the organization, including the empowerment of the WUAs in order to be capable of accessing funds from reliable financing institutions for healthy investment.

5.5. GOVERNMENT COMMITMENT

Based on the long terms experiences to implement PIM approach under the small land holding irrigated farming condition, it has been clearly observed that such the small land holding condition is highly sensitive to the risk of marginalization of the already marginal farming condition. Therefore, it is somewhat unrealistic to rely fully on the marginal irrigated farming condition for fully recover the costs of appropriate operation and management without external support from the government.

It is therefore highly essential for the availability of empowerment program in the form of training, dissemination of information, learning by doing based on the need based budget of the WUAs, WUAF, and Principal WUAF to be supported partially or fully through the full commitment of the government.

VI. CONCLUDING REMARKS

Learning from actual implementation of PIM Model in Cihea Irrigation Scheme, the empowerment of WUAs has evidently accomplished through a series of interrelated as well as integrated activities including: socialization, motivation, training and technical field visits, implementation of periodical meeting on the monitoring team office, and facilitation of dialogues amongst the relevant organization with PIM activities. The subsequent empowerment of WUAs for implementing PIM approach has also been quite effective by facilitating actual working experience such as on-the-job training or comparative study from the more successful example. The technical guidance and training have been more effective through the learning by doing process, with a series of adjustments with other similar methods that are suitable with the local condition.

Based of the field experiment on the implementation of PIM approach in Cihea irrigation Scheme it has been concluded that the determinant factors for successful empowerment of WUAs are dependent upon the institutional capacity of the implementing agency together with the irrigated farming community to identify the local water management demands that are conducive to actual socio-economic conditions. The most apparent determinant factor of success is also significantly demonstrated by the institutional capacity of the empowerment unit together with the WUAs to perform consistent periodical monitoring activities, and subsequently making use of the monitoring results as well as periodical data updating based on the

performance assessments, and making the necessary adjustment and improvement in accordance with the updated performance assessment.

In accordance with the need to comply with the decentralization policy, the mechanism of WUAs empowerment is conducted by addressing all the stages of the empowerment units of the Regency or Municipal levels down to the field assistance units and farmer's assistant taskforce, as well as other units that are responsible for technical backup and/or the implementation of funding support for PIM from the local government. However, this approach has to be insisted only as far as the local condition is conducive enough to meet the empowerment approach. In this regard, all of the farmers' assistance officers referred to is functioned as motivator, mediator and facilitator for a maximum of one year, after a certain selection criteria. During the initial process of the massive implementation of PIM approach, it has been the case in Cihea Irrigation Scheme that the Field Assistance Units (who are the most upfront change agents) are amongst the government commissioned on the field which functioned to give immediate technical and administrative support for irrigation water management at the tertiary irrigation networks.

The actual irrigation water management at the tertiary distribution has to be undertaken by irrigation personnel given full trust to the farmer under the WUAs to manage the farm level irrigated agricultural technology (*sapta usaha tani*) with the distance supervision and coordination of the village head, as if mutually considered necessary.

In addition to the Field Assistance Unit, the farmer's assistance officer also play an important role for the implementation of PIM approach in Cihea Irrigation Scheme given special function as motivator, mediator and facilitator for mobilizing the farmers' capacity to implement PIM approach through WUAs at the maximum of one year with the optional follow up extension services, depending upon the actual field demands. To meet the above personal capacity demand, the recruitment of farmers' assistance offices must strictly consider the minimum criteria as the following examples criteria that have been experienced in the Cihea PIM model: (1) To have adequate knowledge, skill, and practical experience on the field of rural economy with the minimum education of bachelor degree; (2) To have adequate skills on the field of irrigation operation with the minimum of bachelor degree on irrigation engineering; (3) To possess special skill and experience on the field of institutional and law enforcement related to irrigation practice; (4) To be recruited based on the actual demand of WUAs and subject to the availability of fund support from the local government; (5) Willing to stay with farmer at the assigned site, on full-time basis, for a maximum contract term of one year or more, subject to the demands for follow-up extension services.

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ANNEX

(Photographs of Empowerment Process under the PIM Approach in the Cihea Study Area)



Step I. Illustration of socialization of PIM involving the WUA members, and empowerment unit of the local government concerns with the Cihea Pilot Model.



Step II. Illustration of the “*walk rough*” to identify the actual status, and condition of irrigation schemes, including demands for O&M, improvement works and actual budgetary requirements.



Step III. Illustration of the Participatory Irrigation Design using the actual data that has been obtained through the “*walk-through activity*”, involving the stakeholders from the early stages.



Step IV. Illustration of the follow up meetings and regular dialogue to reach consensus.



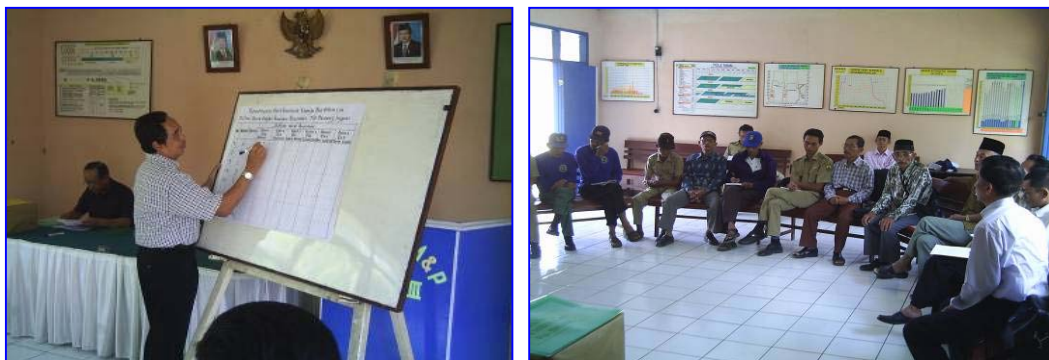
Step V. Illustration of the discussion for establishment of working group, sharing of roles and responsibility in the implementation of PIM approach.



Step VI. Illustration of the mutual work activities for conducting maintenance works, canal improvement and other physical activities of irrigation O&M.



Step VII. Illustration of the finalization of mutual work activities of maintenance works, canal improvement and other physical activities of irrigation O&M.



Step VIII. Illustration of the Evaluation of PIM activities after the routine monitoring of the entire activities, followed by improvement actions.