

Paradigmatic Change in the Indonesian Irrigation Development: From Rice-Based to People-Based Policy

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Introduction

The economic crisis that Asia has been experiencing since 1997, following the depreciation of the Thai Baht, has resulted in a unique crisis in Indonesia. The uniqueness of the crisis can be seen in multidimensionality and the extent of the crisis. The latter has left the Indonesian rupiah comparatively the most affected local currency by the Asian crisis, with the longest impact.

The crisis in Indonesia actually began months before the Asian crisis came. The Indonesian macro economy at that time was disturbed by serious natural calamities in the forms of extensive forest fire destroying a large forest area and a very long drought destroying agricultural production. Before the country fully recovered from the natural crisis, Indonesia joined several countries that faced the Asian financial crisis by the end of 1997. While Indonesia is still in the middle of facing an economic crisis, it suddenly faced a sociopolitical crisis. Soeharto who had governed Indonesia for more than three decades was forced by the students to step down as the president of the country, 2 months after receiving the mandate of the People's Assembly (MPR).³

It is globally admitted that this crisis significantly originated from the economic development model adopted by the authoritarian government, which was very fragile and had no strong economic foundation. A reformation movement following the economic crisis has been sociopolitically anticipated by the *newly established* democratic government under Habibie, Wahid and Megawati as the third, the fourth and the fifth Presidents of Indonesia, respectively, to review overall national development policies and conduct necessary policy reformation at all levels.

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³Maksum 2001.

The country's irrigation development policy was not an exception. This development sub sector had been very strongly positioned to support the rice-biased agricultural development for the sake of self-sufficiency in food. Radical reformation of the national irrigation policy that has been well drafted and socialized strongly indicates the need for having a more comprehensive and socially sensitive development policies. Otherwise the agriculture sector would be dampened deeper into its sectoral and structural poverty in the *next crisis*.

Marginalized Irrigated Agriculture

The Indonesian experience in the crisis means many things for the agriculture sector. It is now nationally accepted that the agriculture sector of Indonesia has been impoverished within the country's economic development model characterized, among others, by a) the adoption of the top-down development model, b) development based on foreign capital and foreign input, c) industry-biased development, and d) rice-biased development in agriculture.⁴

Such a development model has successfully improved the living standard of the country but with a very limited attention to the need of attaining the *growth-equity-sustainability*⁵ objectives of the country's development. The first three characteristics have been able to provide an average annual growth rate of about 7 percent to the country's economy for the last decade by abnormally concentrating on high-technology-intensive industry (HTI), capital-intensive industry (CII), and skilled-labor-intensive industry (SLI). The abnormal bias in these industries has resulted in a favorable economic growth at the expense of other industries, namely, natural resources-intensive industry (NRI) and unskilled-labor-intensive industry (ULI), the two industrial sectors shouldering the economy of the majority of the citizens.

This policy bias to HTI, CII and SLI, which penalized NRI and ULI, could be observed in many cases. Industry-biased credit distribution, industrial development and local currency protection, among others, had made a robust growth in the three industries but at the same time made NRI and ULI to be extremely high cost, inefficient and less- competitive industries. Through this mechanism, the Indonesian agriculture sector has been structurally impoverished for the last decades.⁶ Poverty incidence dominated in rural areas could be partly attributed to this policy bias.

The implication of sectoral poverty to the country's irrigation development is very clear. As far as agricultural development is concerned, the rice-biased and industry-biased development policy had made the agriculture sector marginalized for the sake of rice production *at all cost*. Nationwide agricultural development in the country before entering into its reformation era was completely designed and dedicated for delivering production-oriented rice development. Consequently, overall supporting systems, including irrigation, have been developed for producing rice.

⁴See Maksum 2001.

⁵The critical triangle as cited by Maksum 1997.

⁶See Maksum and Arif 2001.

Because of agricultural and irrigation development the country has been very successful in attaining self-sufficiency in rice, which attainment has been significant since 1984. However, this success in rice was not very well accompanied by proportional improvement in the people's welfare in agricultural and rural areas. Table 1 shows poverty trends in Indonesia for the period 1976-1999.

Table 1. Poor population in Indonesia, 1976-1999.

Year	Rural Poor (in millions)	Urban Poor (in millions)	Total Poor (%)	Poor Population
1976	44.2	10.0	54.2	40.08
1979	38.9	8.3	47.2	32.3
1980	32.8	9.5	42.3	28.6
1981	31.3	9.3	40.6	26.9
1984	25.7	9.3	35.0	21.6
1987	20.3	9.7	30.0	17.4
1990	17.8	9.4	27.2	15.1
1993	17.2	8.7	25.9	13.8
1996	15.3	7.2	22.5	11.4
1998	31.9	17.6	49.5	24.2
1999	32.3	15.6	48.0	23.4

Source: Recalculated from the Central Bureau of Statistics.⁷

This "rice-biased agricultural development" has, to some degree, the same damaging impact as the other characteristics of the country's development model on agricultural development. Among other impacts are: a) its production approach has allowed the farmers to remain poor; b) input dependency of rice farming has made the sustainability of rice questionable; c) rice-biased agricultural policy has left almost no incentive to other agricultural commodities; d) non-rice economic development, including R&D, was very minimal; e) diversification of crops has been discouraged; f) more MNCs are dependent of the non-rice production system; and g) the food-security profile tends to depend on a single staple food, which is rice, instead of diversified staple foods as previously practiced by Indonesians. In turn, due to sectoral mal-development, the agriculture sector in general, including forestry and fishery, has hardly gained any global trade advantage during the crisis.⁸

⁷From various papers published by the Central Bureau of Statistics (CBS) of the Republic of Indonesia. This poverty statistics however, according to Dillon (2001), leaves approximately 50 million people classified as a near-poor community, which is very fragile to any poverty line changes. For details see Dillon 2001.

⁸Export development of the agriculture sector showed minimum growth in 1997 and 1998, while some industries in this sector showed even a negative growth. When local currency depreciated, this negative or minimum growth of domestic-based sector should not have been the case if sectoral development has been normal.

In criticizing this agricultural and irrigation development paradox, a national workshop on structural poverty in irrigated agriculture conducted in the Center for Rural and Regional Studies, Gadjah Mada University, 1999⁹ recommended that the poverty incidence in irrigated area in Indonesia was very much influenced by structural problems. Therefore, it must be considered as structural poverty¹⁰ by any development intervention. Otherwise, any intervention policy formulated would never be very sensitive to poverty alleviation needs.

It has been well mentioned in the introductory part of this paper that irrigation policy reform within the period of political reformation was initiated in 1999. Since then the Irrigation Policy Reform Committee has been working hard to socialize its policy draft to stakeholders in irrigation for consultative and enrichment purposes. Though it does not solely guarantee the success of irrigation development in the country, people may hope that it might serve as the basis to better develop the country's irrigated agriculture with a more proportionally humanistic consideration.

Irrigation Management Policy Reform

The preliminary draft of the Irrigation Policy Reform, which has been strongly supported by the Gadjah Mada University, has been subjected to public revision. Based on public consultation and socialization, that preliminary draft has been intensively revised. Since its initiation, several experiments of this policy reform implementation have also been executed at the grassroots level to search for possible lessons that could be learned.

Basically, the previous irrigation development policy was, in fact, designed for poverty alleviation purposes through the improvement of agricultural production. To attain that objective, three basic strategies were adopted: a) infrastructural development, b) provision of incentives to farmers, and c) institutional development.¹¹ In accordance with this strategy, therefore, irrigation development was very strongly concentrated on a) target-oriented physical development, b) an engineering approach with engineering-economic considerations, c) a very centralistic approach, and d) homogeneity of the implementation approach.

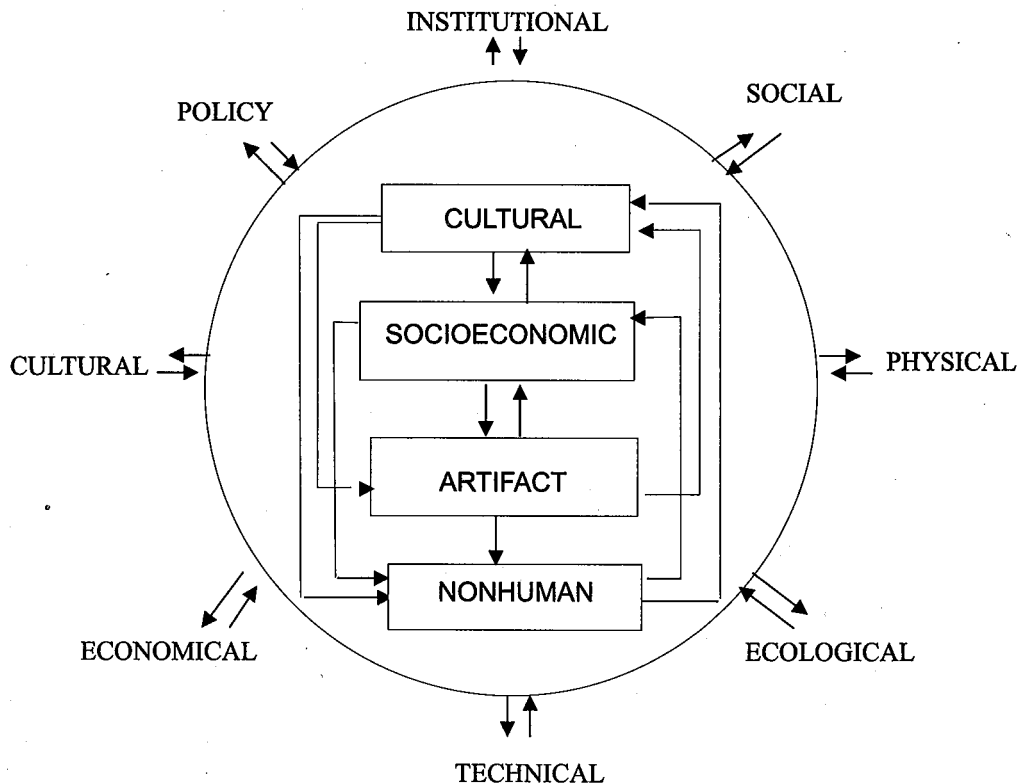
Based on this strategy, coupled with the fact that the country's macroeconomic policy has been strongly dominated by an industry-biased and a growth-oriented economic policy, irrigation development has been very successful only in providing rice-self sufficiency without proportional consideration to the need for considering a humanistic approach in attaining development objectives. Sociocultural jumps have significantly characterized irrigation development because irrigation development was centralistically planned without prior understanding that irrigation development is, in fact, a sociocultural phenomenon closely related to social change. This is presented in figure 1.

⁹That workshop was conducted by the Center for Rural and Regional Development Studies (CRRDS) of Gadjah Mada University in cooperation with KIKIS, Percik and AUS-Aid. December, 1999.

¹⁰Several basic problems connected with structural poverty in irrigated agriculture recommended by the KIKIS workshop are summarized in Maksum and Arif 2001.

¹¹This is elaborated by S. S. Arif in his keynote address delivered at the International Seminar on Water Resources for Sustainable use in Indonesia. Bogor, 29 October-1 November, 1992.

Figure 1. Irrigation management as a sociocultural system of the existing community in equilibrium with the surrounding environment.



In anticipating the need to consider and understand that irrigation development is a process of sociocultural changes, the Government of Indonesia, in a formal Cabinet meeting in October 1999, formally recommended the application of participative approach in any stage of irrigation development. In addition to this, the government established a Working Committee to intensively review existing policies and to formulate necessary adjustments in water-resources policies. For the case of irrigation, the committee was then formalized on 26 April 1999 with the issuance of the Presidential Decree No. 3/1999 on *Pembaharuan Kebijakan Pengelolaan Irigasi, PKPI (Irrigation Management Policy Reform-IMPR)*.

Substantially, the primary principle of this IMPR-1999 is community empowerment translated into its five principal policies, namely: a) redefining the duty and responsibility of irrigation institutions, b) institutional capacity building of water user associations (WUAs), c) turning over of irrigation management to WUAs, d) the collection of irrigation fees, and e) irrigation system sustainability.

Right after the formulation of IMPR-1999, implementation programs have also been executed and socialized to both the district and the provincial governments all over the country. At present, the provincial governments are preparing for the implementation of the irrigation management transfer (IMT) to WUAs.

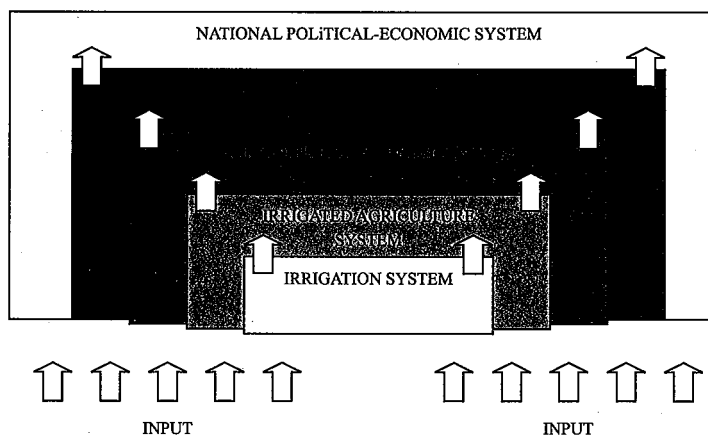
Implementation Constraints of IMPR

The initial period of implementation of IMPR-1999 could be considered very transitional, and therefore, potential constraints could be easily observed in the field. Empirical findings connected with the implementation of Presidential Decree No. 3/1999 could be summarized, among others, as follows: a) limited support of macro-level policy, b) human resources capacity constraints, c) sociocultural heterogeneity, d) limited availability of data and information, e) weaknesses in the management function, particularly connected with the coordination of institutions concerned, and f) limited financial availability.¹²

To illustrate the macro-level problem, it would be easier to understand by considering an irrigation system as a nested system as shown in figure 2.¹³ IMPR has been formulated at the top level and has been empirically experimented at the grassroots level. However, the top and the grassroots level are connected by a large *gray area* of many systems between the two, which are not favorable to agricultural development. Overall trade policies in this country are still biased to the off-farm sectors as compared to the agriculture sector.

The second constraint, human resources problem, is closely related to the development model that has been adopted for decades. The monocentric and authoritarian development model has marginalized and domesticated the participation of the community in all aspects of development. Local initiative and capacity have not gained any accommodation and, in turn, have resulted in community apathy and passivity. Under the changing government system towards polycentricity and autonomy, community empowerment is urgently needed. The understanding of sociocultural heterogeneity of Indonesia is constraining the IMPR

Figure 2. Irrigation system as a nested system.



¹²For further discussion of this, see Arif 2000.

¹³The figure is adopted from Small and Svendsen 1992

implementation during transition from production- oriented agriculture towards people-based development.

Lessons Learned from IMPR Implementation

Just after the national irrigation policy reform was launched in April 1999, the World Bank supported implementation of the reforms in four provinces in Java under the Java Irrigation Improvement and Water Resources Management Project (JIWMP)-Irrigation Development and Turnover Component (IDTO). In this connection, Gadjah Mada University has done some research on those five policy reforms. For the first policy, redefinition of role and task of irrigation institutions, the university conducted research with the same title in East Java Province. The objectives of the research were a) to gather public opinions on the role, task and structure of irrigation institutions at provincial, district and irrigation-system levels and b) to develop strategy and implementation programs on restructuring irrigation institutions at all levels of management. Ten districts were selected as case study areas based on the historical and cultural background of the districts, size and complexity of irrigation schemes and performance of irrigation institutions.¹⁴

Results of study showed that most WUAs in the study area were ready to manage irrigation up to the secondary level, with some conditions, i.e., a) O&M in the secondary level is done by the WUAs, but farmers still need some technical assistance and subsidies for heavy maintenance and rehabilitation of irrigation infrastructures. WUAs also want that government subsidies should go directly in cash to WUAs and they will construct the structures by themselves instead of contracting the project to any company, b) WUAs are proposed to be members of the irrigation committee at district level, so they have enough power to control and access decision-making process in water allocation, c) WUAs should be involved in all stages of management including planning, construction, monitoring and evaluation, and decision making, and d) irrigation fee is managed by WUAs and not to by district governments, as previously done, and farmers agree that some parts of the fee will be submitted to the government as irrigation service fees.

According to farmers, the role of government should be limited. At the district level, the government role in irrigation management should be only in a) O&M at primary levels, b) providing technical assistance and subsidies if necessary, c) facilitating training and empowerment of farmers and farmer's institution, d) facilitating the information system, especially in water availability and market, e) facilitating dialogue on water allocation among users in river system, and f) facilitating dialogue when conflicts occur either among farmers or between farmers and the government in irrigation schemes.

At the provincial level, the role of the government is almost the same as that of the district government and these roles are necessary whenever the district government is unable to do their tasks. The provincial government is also responsible for developing a planning and macro strategy of irrigation management in the province.

On the other hand, bureaucracy at all levels is still worried about the capacity and ability of farmers to do all of their tasks as have been proposed. One reason to support their opinion

¹⁴This finding is elaborated in UGM 2000.

is that irrigation management had been implemented under monocentric management with strong government dominance for a long time. As a result, farmers seem to be not ready to accept the change.

However, this is not true for all parts of Indonesia. For example, farmers have been able to manage their irrigation schemes appropriately in Papah Irrigation Scheme in Kalibawang Irrigation System of Yogyakarta Province and Pehngaron Irrigation Scheme of East Java. In Papah, for example, the success story starts with a good collection rate of the irrigation-service fee. About 100 percent of the fee could be collected from the farmers. The turnover program at secondary level has already been implemented since 2000. WUAs in the scheme are responsible for irrigation management at the secondary level but they also contribute some funds for minor repairs at the primary level in the irrigation system. In Pehngaron, gate tenders are no more needed as most of the works are done by the farmers themselves.

In the second policy, empowerment of farmers and farmer's institutions, Gadjah Mada University (GMU) is one of the institutions that introduced the participatory approach in irrigation management. This approach has been introduced to the government by the GMU since 1995 and it has given good results, especially in changing mindsets of the irrigation bureaucracy at the national level, from a technical approach to a holistic management approach.

The socialization of the participatory approach to lower levels of the irrigation bureaucracy was done quite intensively; however, it did not show significant results. In the past, the bureaucratic community adopted a technical approach ignoring sociocultural aspects of irrigation management. They were not interested in developing a social approach to understand the social aspects such as the application of the participatory approach. The second constraint faced in applying the new approach was that the district government has been rarely involved in decision-making processes and planning. Mostly, they were only involved in implementing programs. So, it has made most bureaucratic peoples at district levels to face difficulty in developing an appropriate development planning process, especially during the era of polycentricity and autonomy.

Prior to implementation of the new concept, a committee established by the local government collected irrigation service fees directly from the farmers. The committee consisted of several members from various institutions including WUA members. Then the committee submitted all the collected fees to the local government treasury. Some part of the fee was allocated for O&M works without any consultation with farmers. Seemingly, this procedure was not transparent and accountable. It made farmers not to pay fees any longer. Considering this, the government changed the procedure of fee collection. Under the new procedure, WUA collects the fee directly from farmers and then part of the fee is allocated for O&M of infrastructure in their own scheme. It appears that farmers feel satisfied with this procedure, for example, farmers in Papah Irrigation Scheme and also in other schemes in Kalibawang Irrigation System now pay 100 percent of the irrigation service fee.

Arif et al. (2000) conducted a study on sustainability of irrigation systems in three large irrigation systems in three locations close to the capital of three provinces in Java, i.e. Yogyakarta, Bandung, and Surabaya. In this study, irrigation system sustainability was classified into four categories, i.e., physical, social, economic and environmental. Results of study showed that there were no serious threats to the physical sustainability in all irrigation

systems. It was only in East Java (in Sidoarjo that is located closed to Surabaya, the capital of province), that area index slightly decreased due to land conversion. However, serious threats in terms of economic and social unsustainability occurred in all systems studied, in terms of low economic and financial returns from farming. Most farmers in all the study areas were moving towards off-farm activities. In West Java, pollution due to industrial waste was very severe

Concluding Remarks

The economic development model of Indonesia was strongly concentrated on its capital-accumulation strategies with strong support for state-building measures. Industrial choices have made the natural-resources-intensive industry and unskilled-labor-intensive industry marginalized and trapped into its sectoral and structural poverty (table 2). The irrigation sub sector as supporting input to agriculture suffered about the same structural marginalization. Based on the fact that its structural incidence has never been taken into account, the poverty alleviation program in rural areas showed limited progress.

Table 2. Basic problems connected with structural poverty in irrigated agriculture.

No.	Basic Problems	Observed Problems
1	Power relation	Top-down development Low bargaining power in input and output market Input-dependent farming Low profitability Unclear rights on production input (water)
2	Institutional infrastructure	Government-oriented rural institutions Village Unit Cooperative (KUDs) functioning more in favor of input companies and local capitalists Low credit availability, Bank Plecit is more favorable Farmer union is a wrong representation of the farmers Low agriculture and irrigation research
3	Constraining policies	Industrial-biased economic policy Rice-biased agricultural development Pricing policy in favor of urban community Capitalist-oriented export policy Diversification technology availability Production-based agriculture and irrigation
4	Environment	Water availability, certainty, reliability Higher input dependency of agricultural land High land conversion Lower carrying capacity Higher population pressure and rural dependency of the economy
5	Cultural constraints	Apathy of the majority of farmers More fragmented land Women's role limited Subsistence-oriented farming

Irrigation has been designed and developed to support agricultural development of the nation in delivering self-sufficiency in rice without proportional consideration to the farmers. Consequently, under successful attainment of national self-sufficiency in rice, overall aspects of human development were minimally attained. It is ironical that farmers remain very poor within regions that are self-sufficient in rice. In addition to this, local initiative, indigenous capacity, participation of men and women in development, and other aspects of human development have been degraded due to the adoption of centralistic, authoritarian and a locally insensitive development model.

Sociopolitical reformation, which has been initiated by the country for the last few years, has made the country busy in reviewing its developmental policies. Irrigation and agriculture sectors are not exceptions. For the case of irrigation development, an irrigation policy reform committee has been established since 1999. Through intensive consultative and socialization activities, the Irrigation Management Policy Reform (IMPR) has been soundly produced and implemented at the grassroots level on an experimental basis. However, empirical evidence shows that necessary interventions are still unnegotiably required to bring more prosperity to the people.

Empirical evidence also shows that the existence of an intermediate-level policy, such as: financial policy, limited credit provision, poor extension activity, crop diversification technology, agricultural research and development, etc., has limited the attainment of IMPR implementation at the grassroots level. To have a more effective IMPR, reform of the intermediate policy is also needed as a poverty alleviation support system.

Several years of IMPR field experience connected with paradigmatic changes in irrigation development proved that it is not an easy task to shift from the centralistic and authoritarian towards a polycentric and autonomous development model, or particularly in this case, from a rice-biased irrigation development towards a people-based one. Strategic interventions in approaching this people-based development should, therefore, cover empowerment measures towards the expected sociocultural changes.

We have to admit that, for the case of irrigated agriculture in Indonesia, intervention strategies for poverty alleviation at the grassroots level, through crop diversification, input provision, irrigation efficiency, and the like, are very far from enough. Intermediate policy measures in the forms of favorable market policy, better credit provision, market information, technology development, and agricultural R&D are very important in supporting the effectiveness of any pro-poor intervention program at the farm or community level.

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