

ANNEX D: Related Projects

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D.1 Irrigation Development related Studies/Projects

D.1.1 Irrigation Sub-Sector Program (ISSP-I and II of IBRD)

The ISSP-I Project was implemented over a three year period from February 1988 to March 1991 under the IBRD Loan 2880-IND, with total amount US\$ 340.8 million including Indonesian fund. The ISSP-II project constituted a second sub-sector project continued after the first and was implemented between 1991/92 and 1995/96. Both projects were designed to support the implementation of IOMP(1987) by improving the condition of irrigation systems, ensuring adequate O&M funding, improving the quality of O&M, strengthening institutions involved with O&M, transferring responsibility of O&M of smaller systems to beneficiaries, implementing an irrigation O&M cost recovery process and introducing basin water management. They cover nine (9) provinces, i.e. West and South Sumatera, Lampung, West, Central and East java, Yogyakarta, and South and Central Sulawesi. Their achievements are summarized as follows:

	Total Area (ha)	Coverage
Potential Irrigated Area	3,427,224	100.0 %
Special Maintenance Construction	1,071,203	31.3 %
Efficient O&M	2,609,270	76.1 %
Turnover	202,888	5.9 %

Source: Final Report, Irrigation O&M and Turnover Component ISSP-II, DGWRD

As shown in the above table, about one third of the potential irrigation area in nine provinces was included under the Special Maintenance program and 76% of the potential irrigation area achieved the efficient O&M condition. Small irrigation schemes, covering about 6% of irrigated area, transferred their O&M responsibilities to WUAs. Referring to the turnover area, of the total 316,720 ha turned over by 1997 throughout the country, the ISSP project contributed 64%.

The experience gained during the implementation tended to reaffirm the desirability of an integrated approach to rehabilitation, turnover, and ISF.¹ A similar project, financed by ADB, entitled the Third Irrigation Sector Project (INO 860/861) was also implemented, and overlapped with ISSP-I.

D.1.2 Assessment of Options for Sustainable Irrigation Development in Indonesia

The report of this study help us to understand the intricate problems of irrigation development in Indonesia and the complicated counter-measures taken during the New Order, the prevailing paradigms, and the remaining 'challenges' prior to irrigation sub-sector development policy reform, as outlined below.

(1) Macro-Economic Setting

During the past decade Indonesia had been recognized as one of the new economic tiger with >7% annual economic growth, transformation of agricultural economy to industrial-based economy. Food self-sufficiency was achieved in 1984 with decreased rural poverty. But the monetary crisis of Thailand of 1997 spread and completely changed the situation.

- Rupiah decreased from 2,400 to 15,000/\$1
- Many factories ceased, >10 million people were lost their jobs.
- Within political uncertainty and rioting >4,500 buildings in Jakarta were destroyed and scared investors
- Efforts were tried for economic recovery by the help of IMF, but political stability is essential to make economic reform possible.
- The Government put rural sector into priority and search for new sources of growth by using

¹ Staff Appraisal Report for JIWMP, May 1994

policy tool-kit for rice self-sufficiency, not broad-based rural development incl. agricultural diversification and modernization.

- In 1997 drought hit and forced costly imports of rice, but this was fail because of refusal of countries to accept letter of credits (L/C).
- Food security then was based primarily on policy of rice self-sufficiency with Government's stockpiles, civil service rice rations, price supports, and market interventions to secure adequate supplies at an affordable price. But food security was badly compromised.

(2) Overview of Irrigated Agriculture

Irrigation extends dry-season growing areas and improves yields from water stress, hence leads to a significant increase of cropping area. Many irrigation systems, however, do not deliver the level of water security for minimal yields. Due to geographical and climatic differences irrigated agriculture is characterized by a diversities in size, primary water sources, degree of control over water, and organizational structure of O&M. Hence there are many schemes to be managed by the government agencies, within which water user association is essential. Accordingly:

- Technical and semi technical irrigation managed by the Provincial Water Resources Dinas
- Village irrigation systems upgraded by the government.
- Tidal swamps includes about 800,000 ha, upon which Dinas PU has some O&M responsibility, including peat land irrigation.
- Groundwater supported irrigation, some is small-scale private and the others are government sponsored.
- Rainfed is estimated as large as 2 million ha.
- Statistic of Lowland Rice x irrigation types x location (ha)

Irrigation system	Java	Sumatera	Kalimantan	Sulawesi	Bali & NT	Total
Irrigated	2,561,600	1,049,300	177,800	580,400	318,500	4,687,600
▪ Technical	1,512,300	281,900	10,200	232,200	60,500	2,097,100
▪ Semi technical	391,800	248,700	14,900	97,000	164,500	916,900
▪ Simple	657,500	518,700	152,700	251,200	93,500	1,673,600
Rainfed	796,900	576,200	376,500	297,900	54,300	2,101,800
Tidal swam	2,000	261,600	288,200	2,200	0,200	554,200
Others	2,300	526,300	529,800	61,700	20,100	1,140,200
Total	3,362,800	2,413,400	1,372,300	942,300	393,100	8,483,800

(3) Organization of Irrigation System

1) Primary Government organizations

- Basically, there were 1) DGWRD MPW – Central, 2) Dinas of Water Resource Services – Provincial, and 3) Dinas of Water Resource Services – District.
- DGWRD was responsible for planning, design and construction of irrigation schemes with Provincial Irrigation Project Offices to implement construction, rehabilitation, groundwater, and water storage. Provincial Dinas was for operation and maintenance, consisting of *Wilayah*, *Cabang* or *Seksi* (equal to District), and *Pengamat* who has a number of *Juru Pengairan*, the lowest hierarchy.
- Bureau of Water Resources and Irrigation, BAPPENAS is another central agency responsible for conformity of the proposed irrigation project with the overall development plans of the other economic sectors.
- The other central agency at Provincial level is Kanwil representing the Ministry of PW and functioning to coordinate preparation and provide technical guidance of implementation of public works projects.

2) Water users

- Individual farmers are usually grouped into WUA organizing distribution of water to the lands through tertiary and quaternary channels with rules and obligations.
- When a site has no WUA, there is usual that a village official (Ulu-ulu) is appointed for irrigation O&M.
- In the Government-managed system, WUAs are set for formally responsible for O&M below the tertiary off-take. Above this, PWRS and/or DWRS is responsible
- In the turnover program farmers must assume greater authority and responsibility for O&M, and this is possible by effective WUAs.
- In the ISF program the WUAs are the Government agents in contracted monetary system of water services between the water users and government.

3) Additional Government organizations

- The MOA plays an important roles in decisions related to cropping patterns, crop water requirements, and related water allocation of various irrigation systems. Coordination is at provincial and district levels in form of irrigation committee. MOA is responsible to coordinate the extension workers supposedly supervising the WUAs.
- The MOHA has DG PUOD and DG BANGDA. PUOD supervises the ISF and decentralization, whereas BANGDA supervise the WUA programs. But they have no field offices, and rely on local Bappeda and PEMDA.

(4) Key-Challenges

1) Prices and yields.

- Farmers had to make a reasonable return on production inputs to enable them invest in a better farming production system. One indicator is the ratio of farm-gate price and market fertilizer price.
- In the early of 1980s the ratio was very high resulting productivity boost. In the late of 1980s the ratio was dropped and remained <1.5. In 1996, 97 and early 98 the ratio decreased to 1.3. As a result farmers have no power to invest. And foods and even fruits were imported in large amount.
- In April 1998 about Rp. 5.3 trillion subsidy was given by the Government and farmers was obliged to sell productions to BULOG through KUDs. In fact the subsidy benefited the urban people while dropped the farm-gate prices for farmers

2) Irrigation

- Water is historically seen as a free good for agriculture, thus there is a need to improve efficiency and productivity of water resources in rural areas.
- Accordingly, cost recovery must play an important role in encouraging farmers to use water efficiently.
- Agricultural policy taking crop diversification away from rice.
 - i) IOMP was considered to make irrigation systems self-sufficient by establishing a link between irrigation water users and service providers. But the success of PIK turnover has not reduced the need for government subsidies for O&M, while ISF program has been very unsuccessful.
 - ii) The current IOMP program fails to recognize the central role of farmers in irrigation management as it does not empower WUAs to assume responsibility for managing their irrigation systems.
 - iii) Most water users are reluctant to pay ISF because they do not receive quality service.
 - iv) Increasing non-agricultural landuse, especially in Java, has removed large areas of good irrigated paddy land.
 - v) Run-of-river systems of irrigation with no storage capability, high fluctuation rate

- between rainy and dry season.
- vi) The effectiveness of decentralization depends very much on the degree of overall financial autonomy and accountability.
- vii) On-going investments need to be reviewed, restructured, or cancelled; and new investment must be evaluated in the light of the need to restore rice output and widening rural employment base; hence, again, the need for more efficient and productive uses of water resources.

D.1.3 Java Irrigation Improvement and Water Resources Management Project(JIWMP) and IDTO (Irrigation Development and Turnover).

This project scheme has tried to present models of putting the irrigation policy reform into practice and shared field experience for General Guide to Irrigation Management Turnover Program (PPI). Accordingly the project represent a very important segment within the WATSAL Working Group. The project was originated in 1995 under the World Bank loan IBRD-3762-IND by the following objectives:

- Enhancement of food production and water use efficiency in the four Provinces of Java (West Java, Central Java, DI Yogyakarta and East Java).
- Increase economic growth, and
- Decrease unemployment.

The project components include:

- Basin water resource plan
- Basin water resource management
- Hydrology
- ISF management, and
- General advisory coordination.
- Irrigation development and turnover – IDTO which regards to the following activities, namely:
 - 1) Rehabilitation of irrigation system of >500 ha in the four Provinces of Java.
 - 2) Establishment of one irrigation system in West Java.
 - 3) Introducing O&M procedure in about 260.000 ha, and
 - 4) Rehabilitation of <500 ha irrigation system (PIK) and turnover to WUA concerning about 356.000 ha.

The project is implemented under the respective Provincial Irrigation Project Offices by technical assistance of Directorate of Binlak Wilayah Tengah, Jakarta, and a number of consulting companies (DHV Consultants in association with PT Indah Karya Bandung, PT Binatama Wirawreda Jakarta, PT Gamma Epsilon Jakarta, PT Gracia Widyakarsa Semarang).

D.1.4 Farmer Managed Irrigation System (FMIS)

This project scheme, financially assisted by ADB has tried to implement a model of farmer managed irrigation system due to the following background:

- The irrigation systems cover 1.037.000 ha (17%) irrigated land and average at about 50 ha/PID located at upland areas.
- The systems were constructed by farmers with local materials, inadequate construction, seasonally damaged, inadequate water supply, low land productivity, lack of local resource, weak O&M and lack of extension services.

Accordingly four key-result areas were considered, namely:

- Irrigation construction
- Irrigation O&M

- Training
- Institutional building

The target is to improve about 1,059 schemes with total area of 90,000 ha, with an average scheme size is 84 ha, located as follows:

Province	Area (ha)	No. of Schemes	Average size (ha)
West Java	60,000	678	88
Yogyakarta	2,000	118	17
NTB	5,000	85	57
South Sulawesi	20,000	155	130
Central Sulawesi	2,000	13	153
North Sulawesi	1,000	10	107
Total	90,000	1,059	84

The bottom-up and participatory approach were used by technical assistances of PPL, *Pengamat* and *Juru*, resulting at the following activities and expected outputs:

Key result	Activities	Output
1. Irrigation construction	Site selection, technical design, construction	Permanent irrigation construction, buildings, facilities
2. Irrigation O&M	Data collection, installation of water level control kits, planting pattern x water allocation system, debit control and sedimentation cleaning	Effective and efficient water usage, fair, equal and appropriate water allocation, seasonal planting patterns
3. Training	Training for Kabupaten & Kecamatan Government officers of water resource/irrigation and agriculture, training for farmers	Training and extension works, technical assistances
4. Institutional building	WUA promotion, stages of development	Year-1: P3A initiation, irrigation technical design, register at Kecamatan. Year-2: irrigation construction, register at Kabupaten Year-3: O&M training and implementation, register at local Court, widening WUA functions

Using self-managing vision and rural village irrigation technology and local pattern-based P3A empowerment as the principles, the implemented project is expected to arrive at the following long-term objectives:

- Enhancement of irrigation and agricultural field officers and farmers capacities
- Enhancement of irrigation development and O&M
- Improvement of irrigated land productivity for farmer income generation (see Fig.D.1.12 for the implemented project framework)

D.1.5 WUA Development Program (PTGA²)

Constraints and problems of Irrigation O&M occurred as an effect of big number and distribution of established small-scale irrigation schemes. Correspondingly the PTGA was initiated in 1983/1984 by the DGWRD.

(1) Objectives

- Adequate orientation and similar perception on water use amongst the related Government Agencies and farmers organizations in the development of tertiary/pump irrigation systems at village level.
- Enhancement of Irrigation Committee and WUA functions and related Government Agencies' coordination.

² Darismanto's paper

- Improvement of irrigation laws and regulations at Provincial and Kabupaten levels.
- Improved skills, knowledge and attitude of water user farmers in tertiary/pump/village irrigation managements.
- Preparation of long-term plan to develop an Irrigation Extension Unit at Provincial Dinas of Public Works and it's scope of works.

(2) Organization

- By 1983 the DGWRD established Badan Pelaksana Proyek Tata Guna Air (PTGA Executing Agency) at Jakarta level which include:
 - a. PTGA Region I Cirebon
 - b. PTGA Region II Surabaya
 - c. PTGA Region III Ujung Pandang
- Five years later (1988) PTGA was changed to PIPTGA (*Proyek Induk Pengembangan Tata Guna Air*, a Central Project of PTGA) at Jakarta covering 11 Provinces (West Sumatera, South Sumatera, Lampung, West Java, Central Java, DI Yogyakarta, East Java, South Kalimantan, South Sulawesi, NTB).
- In 1991/1992 the coverage was increased to 23 Provinces with inclusion of the Provinces of DI. Aceh, North Sumatera, Riau, Jambi, Bengkulu, West Kalimantan, Central Kalimantan, North Sulawesi, Central Sulawesi, Southwest Sulawesi, Bali and NTT (see Fig. D.1.3 for the complete PTGA framework)

D.2 Participatory Rural Development Project/Programs

D.2.1 P3DT III (*Pembangunan Prasarana Pendukung Desa Tertinggal III, Pilot Proyek*)³

This Village Improvement Program (VIP) Phase III is a pilot project designed for a continuation of VIP I and II for the next 2000/2001- 2001/2002 under a cooperation of the Government (BAPPENAS – Bureau for Dati II and Rural Development) and the OECF(presently JBIC), Japan. The importance of the project scheme lays in its objectives of which the expected results cover village admin boundaries and simple mechanism of infrastructure (including irrigation) planning, financing, construction, utilization and maintenance by a participatory method. In the long-run, the project deals with balance of sustainable spatial and economic development and poverty alleviation. In the short-run the project objectives are:

- To categorize village development through strategically infrastructures prioritization system.
- To support village social-economic development.
- To strengthen village community's capacity and self-reliance, and
- To enhance institutional administration capacity at village and kecamatan levels.

The expected results:

- Establishment of Strategically Kecamatan Development Plan.
- Provision of village infrastructures and facilities, concerning:
 - Inter-villages development infrastructures: village roads, bridges, jetty etc (Category 1).
 - Economic infrastructures: village/simple irrigation, tertiary canals, seedling canter, etc (Category 2)
 - Post harvest infrastructures (rural market, storage, drying floor, etc (Category 3)
 - Public facilities (toilet, clean water supply etc (Category 4).

³ 3rd Village Infrastructure Project (VIP III, a pilot project). Source: PETUNJUK PELAKSANAAN P3DT FASE III TA 1999/2000, Tim Koordinasi P3DT Pusat. See also flow-chart summarizing this project scheme in Figure 2.3.3.4.

See flow-chart in Fig. D.2.1 presenting the overall scheme of the project. It is also important to note that two of the five study Provinces were covered by the project (namely West Sumatera and West Nusa Tenggara) as shown below.

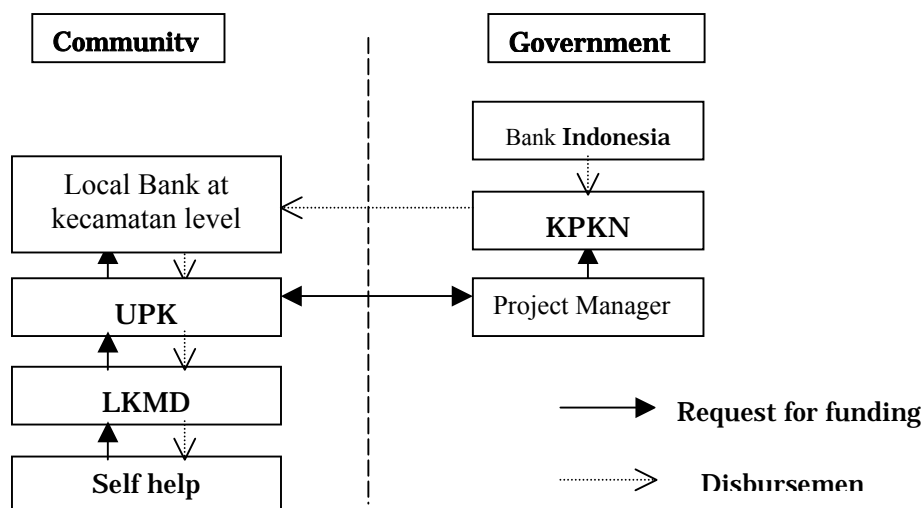
PROVINCE	KABUPATEN	KECAMATAN
1. North Sumatera		
2. West Sumatera	Tanah Datar	Sugayang, Tanjung Emas
	Limapuluh Kota	Suliki Gn Mas, Gn Mas
	M Sijunjung	Sijunjung, Sumpur Kudus
3. Kalimantan Barat		
4. West Nusatenggara	Lombok Tengah	Praya Timur, Batukliang
	Sumbawa	Alas, Lape Lopok
	Bima	Bolo, Woha
5. South Sulawesi		

D.2.2 KDP (Kecamatan Development Program)

The KDP is the third generation after IDT and P3DT schemes held by the Government (Bappenas – Bureau for Dati II and Rural Development; MOHA – DG of PMD⁴) with World Bank for three years of implementation. The scheme was firstly implemented in 1998 concerning the entire 27 (26) Provinces of Indonesia including the five Study Provinces.

PPK currently covers 727 kecamatans, 110 kabupaten in 20 provinces. Allocated budget at each kecamatan is about one billion Rupiah and is managed directly by the community.

Procedure of administration to channel the budget from Central Government to the community is shown in the figure below,



Notes:
1. UPK (Unit Pengelola Keuangan): Financial management unit at kecamatan level set up by community in the respective kecamatan.
2. LKMD (Lembaga Ketahanan Masyarakat Desa): Representative of community at village level
3. KPKN (Kantor Perbendaharaan dan Kas Negara): State cash and treasury office
4. Project Manager (Pimpro): Staff/civil servant at kecamatan office.
5. Bank Indonesia: Central Bank of Indonesia

⁴ PMD= Pembangunan Masyarakat Desa, village community development

After the process of selection of the proposed projects has been completed by the community at kecamatan level, selected projects and their proposed budgets are documented. The Project Manager and UPK approve and send the documents to KPKN. The budget from KPKN is sent to a local bank at kecamatan level, from where the Chairman of LKMD and UPK collects the budgets to implement the projects. Community meetings are held regularly to discuss, supervise, monitor and evaluate the implementation of the projects, including the disbursement of budgets.

The process shows that,

- It is administratively possible to channel Government budgets directly to the community.
- It is possible to confine the roles of the Project Manager and other government agencies (KPKN and Bank Indonesia) to ones which just serve the community by channeling funds, without them interfering in the identification and implementation of projects.
- Regular community meetings are essential for projects to succeed.

The lessons learned from the first-year implementation for our study may include:

- The central role of villagers in the local village development could be made possible in field operation by practicing the following manners:
 - Facilitating them to formulate their own Action Plan.
 - Responding their need for help on proposal basis.
- A comprehensive approval for supplementary sectorial inputs as proposed by the local groups for the implementation of Action Program could be made by considering village recommendation (Musbangdes forum⁵) from the view point of spatial and functional village & kecamatan development plan.
- Accordingly decision which regards to financial support for a recommended Action Plan could be made closer to the villagers i.e. at UDKP⁶ forum of Kecamatan level.
- Allocation of the approved financial help could be made timely by storing the fund at the included LKMD⁷'s accounts in the BRI⁸ or other bank units at kecamatan or village level.
- Trust could be established and maintained by installing an in-built control mechanism and transparency into practice.

See Fig. D.2.2 for the entire framework and the prevailing financing procedure and mechanism.

D.2.3 Others

Table D.2.1 shows the projects/program related the participatory irrigation and rural development projects/program conducted recently in Indonesia

⁵ Musbangdes = Musyawarah Pembangunan Desa

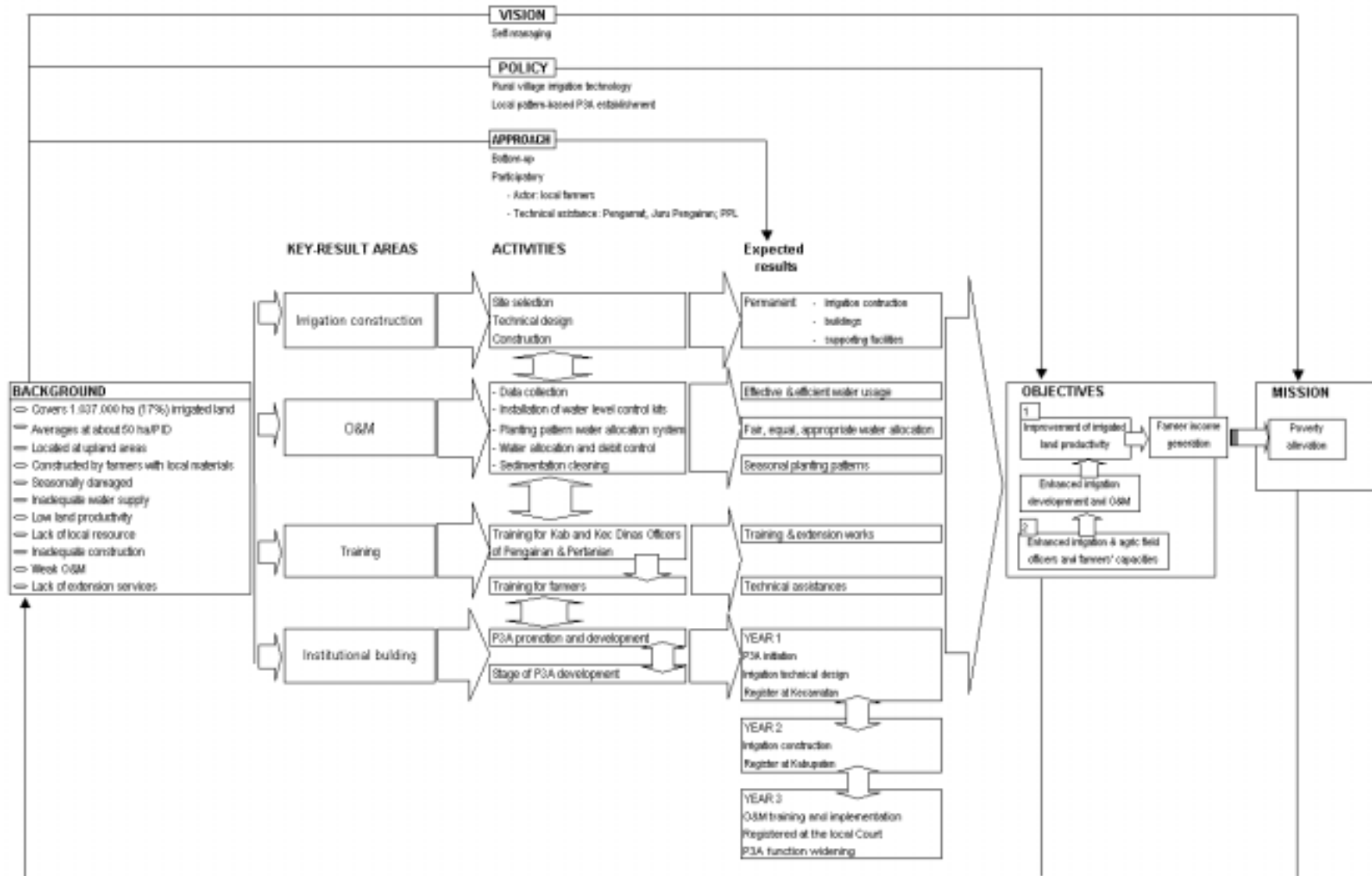
⁶ UDKP = Unit Daerah Kerja Pembangunan

⁷ LKMD = Lembaga Ketahanan Masyarakat Desa,

⁸ BRI = Bank Rakyat Indonesia

Table D.2.1 Participatory Programs in Brief

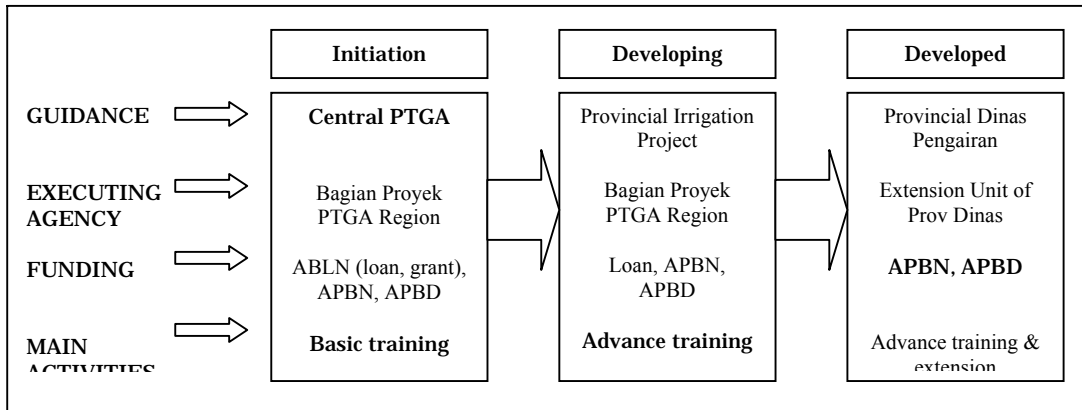
Project/Activity	Activities conducted	Notes
HPSIS: High Performance Sederhana Irrigation Systems Project	Experimented with the use of community organizers to facilitate participation in construction and utilization of small schemes	USAID early 1980's
Medium Project-Farmer participation	Facilitated by community organizers, in planning and implementing rehabilitation of a joint-managed irrigation system in East Java	
SSIMP-I: Small scale Irrigation Management Project	Developed procedures for consultation with farmers in planning and construction of joint-managed irrigation systems	USAID/OECF, ISPAN (Irrigation Support Project for Asia and Near East)
Starter – OFWMDP: On Farm Water Management Development Project	Provided agricultural training and construction materials to simulate improvement of farmer-managed irrigation systems, carried out by farmers	
WUTP: Water Users Training Program	Trained larger numbers of government officers at provincial, district and local levels, as well as farmers, about water management and water users associations. Follow-up activities were conducted at some sites, with village level training and activities to improve irrigation O&M	
Turnover- Turnover of Small Irrigation System to WUAs	Participatory planning of improvements to small system smaller than 500 ha, listed as “government” systems, which were turned over to WUA	
ISF – Irrigation Service Fee	Introduction of fees for irrigation service on government (joint-managed) irrigation systems larger than 500 ha, with institutional mechanisms for farmer voice through participation of WUA in identifying O&M needs during walkthroughs and representation of WUA federation leaders on district bodies, BAMUS, overseeing utilization of fees	
FMIS: Farmer Managed Irrigation Systems Project	Methodology for providing farmers with technical advice and materials for improving infrastructure, management and agriculture in existing irrigation systems. Pilot technical assistance synthesized approaches from turnover, starter and other earlier projects. Project started since 1996.	
Village Irrigation Project (PID)	Improvements to farmer-managed irrigation schemes, implemented by state companies with some construction of farmers during in design and construction by paid farmer labour	



Source: FMIS: Pedoman Operasi dan Pemeliharaan Jaringan Irigasi Desa, Mei 2000 (No project location mentioned so far) - June 9, 2000.

Fig.D.1.1 Concept of Farmer Managed Irrigation System

Scheme of activities



Training

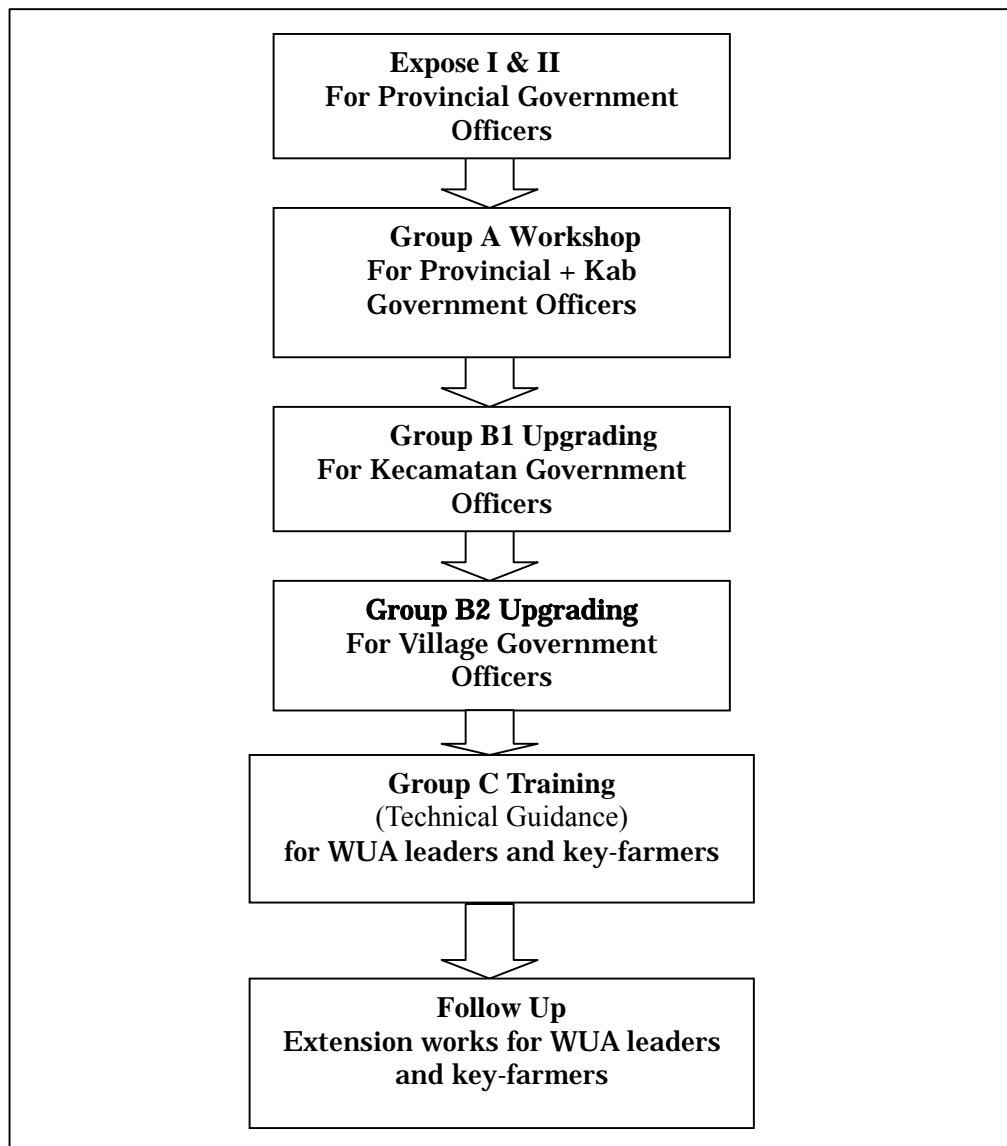


Fig. D.1.2 Scheme Activity and Training Program of FIMSP

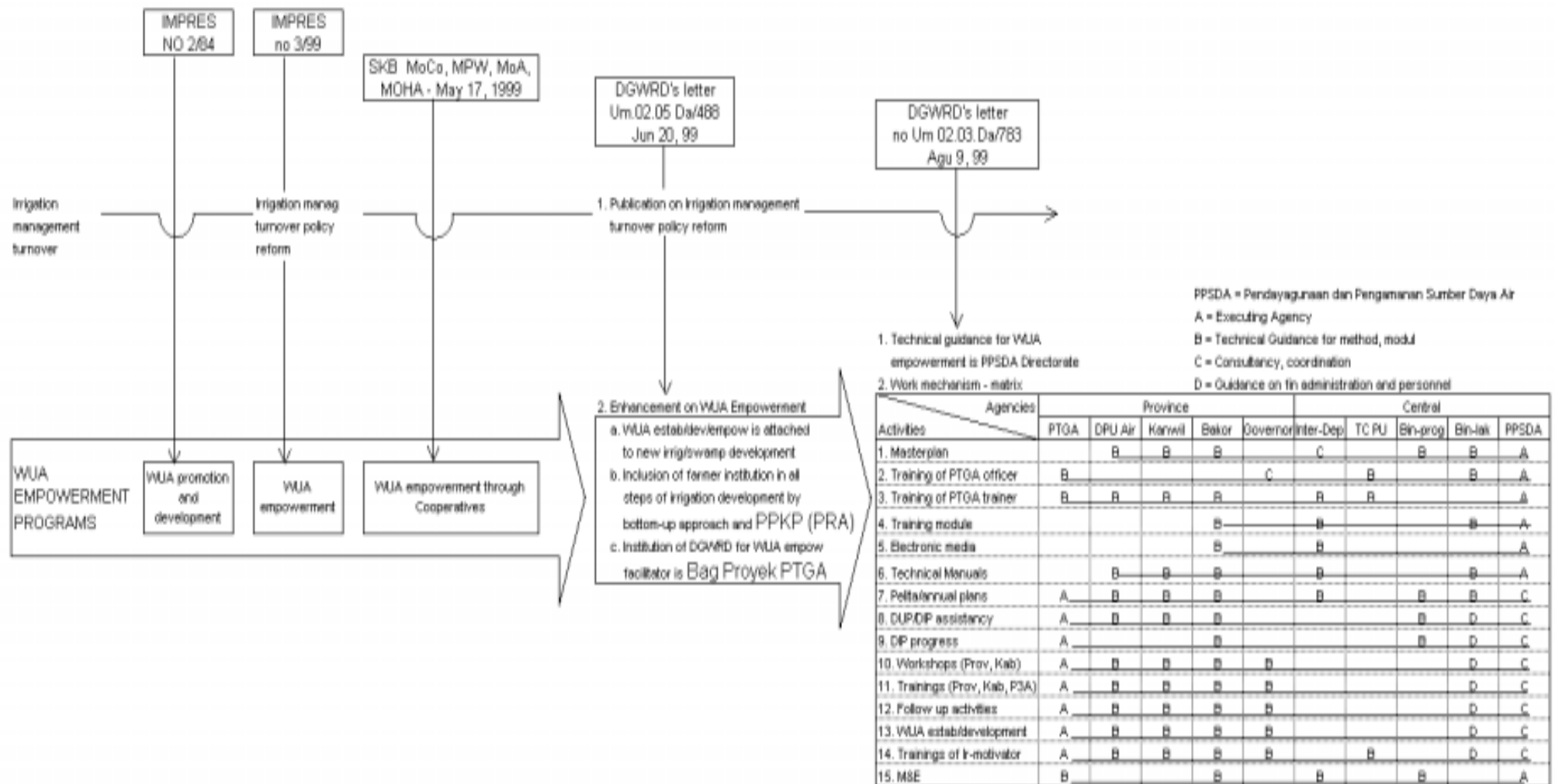
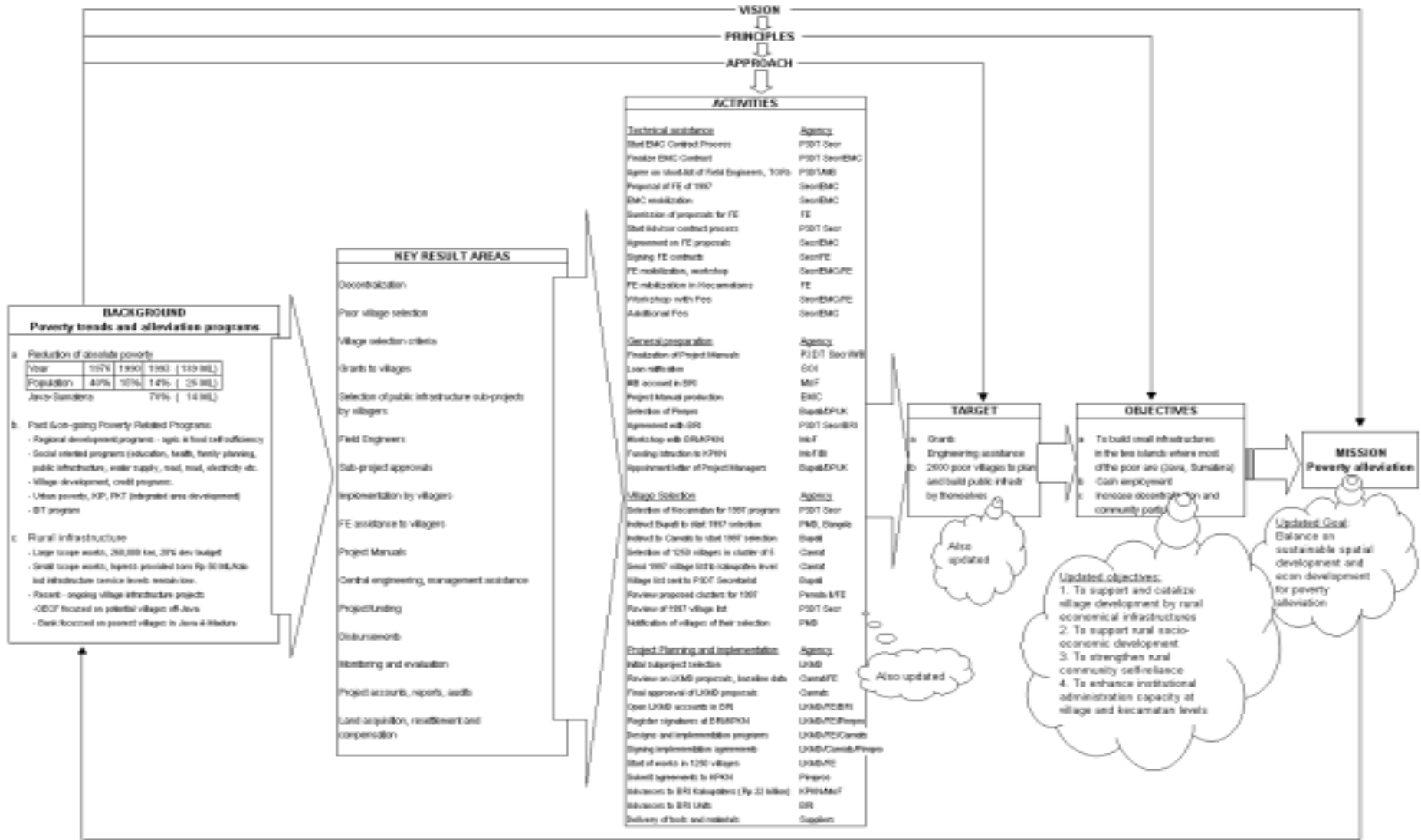
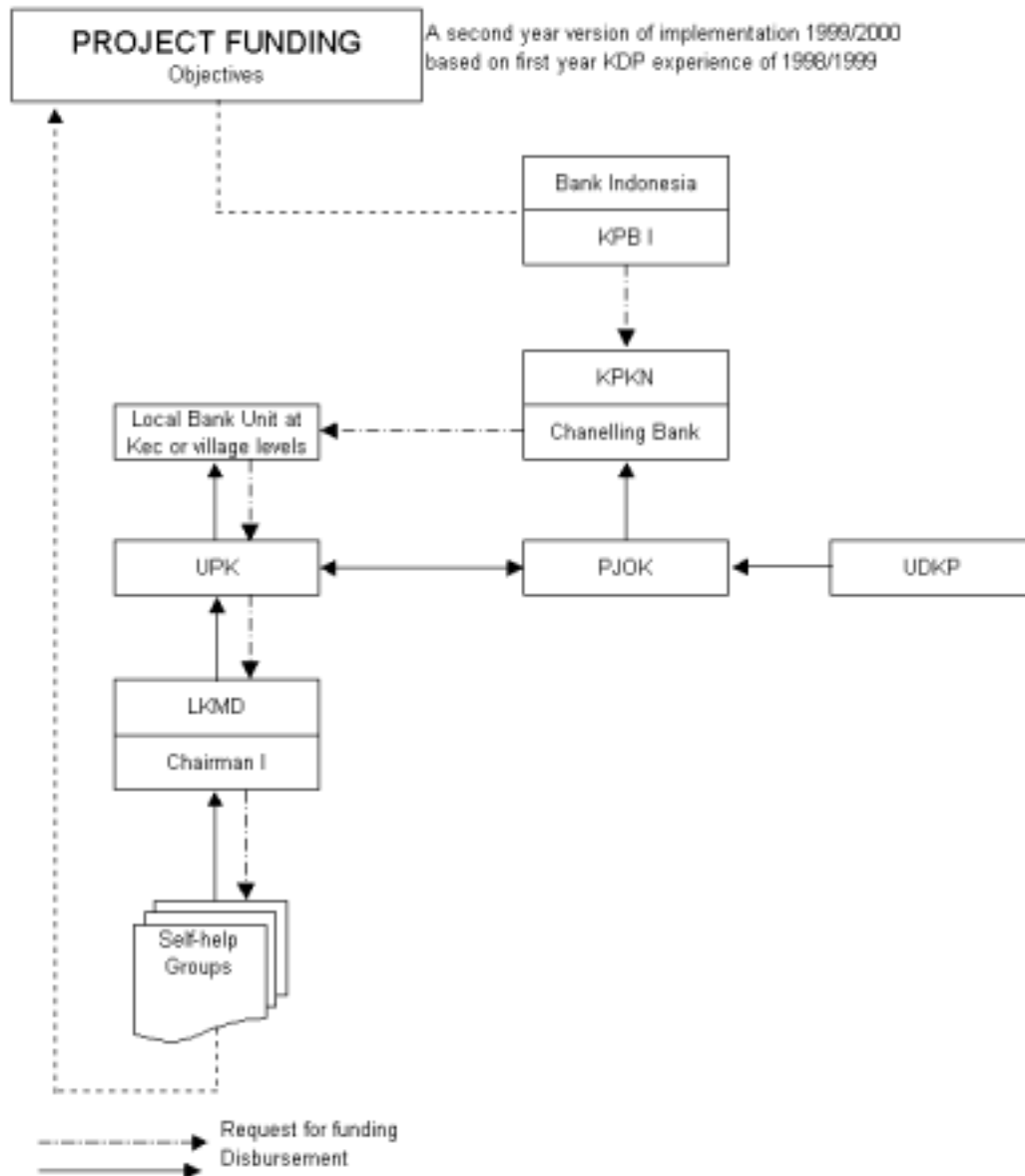


Fig.D.1.3 Frameworks of TPGA Program



Source:
1. "Second Village Infrastructure Project, The World Bank, Report No. 15467-ND, Infrastructure Operations Division, Country Department II, East Asia and Pacific Region, September 10, 1996
2. "Petunjuk Pelaksanaan Pembangunan Programata Pendukung Desa Tertinggal (POOT)", POOT Phase II, Tim Koordinasi POOT Pusat TA 1099/2080

Fig. D.2.1 The Third Village Infrastructure Project (VIP-III)



LKMD = Lembaga Ketahanan Masyarakat desa

Kec = Kecamatan

Infrastr = infrastructures

UPK = Unit Pengelola Keuangan, financial management unit at Kecamatan level responsible to UDKP

PJOK = Penanggungjawab operasional kegiatan, pimpro, project manager at Kecamatan level acted by Kasi PMD

UDKP = Unit Daerah Kerja Pembangunan, Kecamatan community forum for development

KPKN = Kantor Perbendaharaan dan Kas Negara, state cash and treasure office

KPB I = Kantor Pajak dan Bendahara Negara I, provincial office of taxes and state treasurer

Source:

- 1 PPK, Program Pengembangan Kecamatan, Tim Koordinasi Program Peng Kecamatan, 2000
- 2 Petunjuk Pelaksanaan Program Pengembangan Kecamatan (PPK) TA 1999/2000, Tim Koordinasi 1999
- 3 Petunjuk Teknis Operasional Program Pengembangan Kecamatan (PPK) TA 1999/2000, Tim Koordinasi 1999
- 4 Manual Teknis PPK, Tim Koordinasi PPK Pusat 1998

Fig.D.2.2 Flow Chart of Kecamatan Development Project