Annex E:

Field Survey for Problem Identification

Table of Contents

List of Tables

List of Figures

E.1 Selection of Detailed Survey Kabupaten

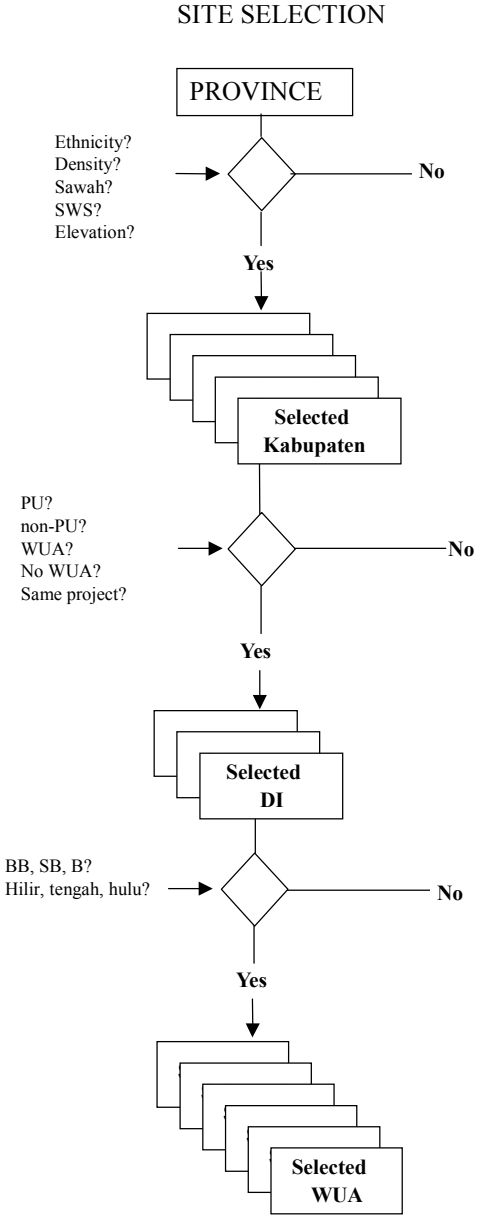
E.1.1 Necessity of Provincial Categorization

It was important to ensure the adequacy of surveyed locations in the five Study Provinces for field data collection and analysis, to achieve the study objectives and expected results of the Phase-I Study, in particular. Accordingly the surveyed locations of the five Study Provinces needed to cover the wide range of irrigation management and WUA conditions which are found.

E.1.2 Used Indicators

For categorization purposes, secondary data, available at provincial and district levels, regarding the following factors were collated and examined.

a) Ethnical group distribution, to indicate the prevailing socio-cultural characteristics of local farmers that might affect their irrigation management and WUA practices.
b) Rural population density (people per km^2), to indicate the extent of regional development progress that may affect the local farmers' behaviour and, in turn, affect their irrigation management and WUA practices.
c) Sawah and non-sawah landuse (ha, %), to indicate the extent to which sawah and non-sawah land uses may affect local farmers' income sources, and hence affect their irrigation management and WUA practices.
d) SWS (river basin unit), to indicate the existing types of water resources used for the local irrigation systems that may affect the irrigation management and WUA practices.
e) Elevation (m.a.s.l, meter above sea level), to indicate the altitude of sawah and non-sawah landuse areas that may affect the local cultivation practice, which may in turn affect the irrigation management and WUA practices.



E.1.3 Screening Parameters Used

The screening parameters for the included districts of the five Study Provinces were then established, as summarized below:

Indicator	Criteria	Code
a) Ethnic group distribution	Major ethnic group - 1 Major ethnic group - 2 Major ethnic group - 3	a1 a2 a3
b) Rural population density	< 500 people/ km^2 500-1000 people/km^2 >1000 people/ km^2	b1 b2 b3
c) Sawah landuse	>50% ha sawah area <50% ha sawah area	c1 c2
d) SWS distribution (river basin unit)	SWS – 1 SWS – 2 SWS - 3	d1 d2 d3
e) Elevation classification	<100 masl>50% area 100-500 masl >50% ha area >500 masl <50% ha area	e1 e2 e3

The categorization of Kabupatens in each Study Provinces are shown in Table E.1.1 to E.1.5.

E.1.4 Site Selection

(1) Selection Procedure

This study employed two complimentary approaches: Quantitative and Qualitative. Quantitative approach is aimed to describe general conditions of agricultural activities and irrigation system and management in the study areas. While qualitative approach is directed to deeply investigate the qualitative aspects (such as historical, process, aspiration, etc.) of the above conditions. The quantitative approach is conducted through a sample survey, whereas the qualitative one is carried out using RRA techniques. Combination of the two approaches is also aimed to facilitate triangulation in order to yield data of higher quality. Besides these two approaches, this study also collected secondary data from various related institution at different levels, from village level up to provincial level.

Unit of analysis of this study included: 1) farm households which function as a farming production unit and as a member of WUA, 2) Water Users' Association as an institution. Hence, sample of the study will included individual households and WUAs. A WUA sample was drawn through two stage selection procedure:

Stage 1: Selection of districts which represented variety of indicators such as major ethnic groups, river basin unit (or SWS – *satuan wilayah sungai*), population density, percentage area of paddy field, and altitude. Three out of five indicators showed significant variations among the selected districts. The result of the district selection in West Sumatra is presented in the following table.

Stage 2: Six out of seven selected districts selected in Stage 1 were decided to be the location for RRA. One WUA within each district was selected based on the following characteristics: area coverage of the irrigation system which varies from <150 Ha, 150-500 Ha, and >500 Ha; WUA's stage of development which varies from underdeveloped, developing, and developed; and other applicable aspects. The result of the WUA selection is presented in the following table

A household sample was drawn from the sampled WUAs. Within a sampled WUA, 3 households were selected to represent farm household at upper, middle, and down stream of the irrigation system to be

interviewed with the institutional aspects of the WUA's management. Two out of the 3 households were subsequently interviewed with general farm aspects.

(2) West Sumatera

The following table indicated differentials in some major indicators among selected districts in West Sumatera which was expected to represent the variations of the indicators in the province.

Selected Districts With Criteria In West Sumatra Province

No	Districts	Major Ethnic	SWS	Altitude
1	Pesisir Selatan	Minang	Silaut, Batanghari	>50% area >100 m asl
2	Solok	Minang	Indragiri, Silaut, Anai Sual and Batanghari	>50% area >100 m asl
3	Sawahlunto/Sijunjung	Minang	Indragiri , Batanghari`	>50% area >100 m asl
4	Padang/Pariaman	Minang and Mentawai	Indragiri, Silaut, Anai Sual	>50% area <100 m asl
5	Agam	Minang	Indragiri, Anai Sual	>50% area >100 m asl
6	50 Kota	Minang	Indragiri, Anai Sual	>50% area >100 m asl
7	Pasaman	Minang	Anai Sual	>50% area >100 m asl

Selected WUAs with Criteria for RRA in West Sumatra

No	Sub-district/District WUA/Village/	Area of coverage (Ha)	Type of Irrigation System	WUAs' level of development
1	Batu Asahan Indah/Koto Pulai/ Tarusan/Pesisir Selatan	25	Semi-technical	Under-developed
2	lam Lestari/ Maju Singkarak dan Sumani/Kota Singkarak/ Solok	146	Technical	Developed
3	Karajosamo/BukitSabalah/ Tanjung Gadang/Sawahlunto Sijunjung	15	Semi-technical	Under-developed
4	Tuah Sakato/ Lohong/ Sungai Limau/Padang Pariaman	15	Traditional	Developed
5	Tompek Harapan/ Tapian Kandis/Palembayan/Agam	35	Semi-technical	Under-developed
6	Taratak/Napar/Payakumbuh Utara/ 50 Kota	55	Semi-technical	Developed

(3) West Java

The following table indicated differentials in some major indicators among selected districts in West Java which was expected to represent the variations of the indicators in the province. Selected districts with criteria in West Java Province

DISTRICTS	MAJOR ETHNIC	SWS	SOCIO-ECONOMIC ZONE	MANAGING INSTITUTION
Bogor	Banten	Ciujung, Cisadane, Cisadea, Citarum	Botabek	PU
Tangerang	Banten	Cisadane	Botabek	PU
Indramayu	Cirebon	Citarum	Utara	PU/POJ
Karawang	Sunda	Citarum	Utara	POJ
Serang	Banten	Ciujung, Cisadane	Utara	PU
Garut	Sunda	Cimanuk, Ciwulan, Citanduy	Selatan	PU
Tasikmalaya	Sunda	Ciwulan, Citanduy	Selatan	PU
Lebak	Banten	Ciujung, Cisadane, Cisadea	Selatan	PU
Cianjur	Sunda	Cisadea, Citarum, Citanduy	Selatan	PU
Bandung	Sunda	Cisadea, Citarum, Cimanuk, Ciwulan	Tengah	PU

In West Java Province, WUA selection was based on the following characteristics: area coverage of WUA, ethnic group, area coverage, position of WUA in the irrigation scheme, WUA's level of development, and type of irrigation. The selected WUAs from each sample districts are as follows:

Selected WUAs with Criteria for Rapid Rural Appraisals in West Java Province

NAME OF WUA	LOCATION OF WUA	AREA OF COVER-AGE	ETHNIC GROUPS	POSITION OF WUA	LEVEL OF DEVELOPMENT	TYPE OF IRRIGATION
Sinar maju	Pasirtangkil, WarunggunungLebak	< 150	Banten	Up-stream	Developed	Village irrigation
Mekar Jaya	Situudik, Leuwiliang, Bogor	> 500	Sunda	Middle stream	Developing	Technical irrigation
Dewi Sri	Sukamaju, Karawang	> 500	Sunda	Down stream	Developing	Technical irrigation
Tani Mukti	Bogor, Indramayu	> 500	Cirebon	Down stream	Developing	Technical irrigation
Kelompok tani	Rancatungku, Bandung	> 500	Sunda	Down stream	Developing	Technical irrigation
Mugia-mulya	Desa Cigalontang, Tasikmalaya	150 –250	Sunda	Down stream	Under-developed	Semi-technical irrigation

(4) DI. Yogyakarta

District selection in DIY was based on three major indicators: area of WUA, type of irrigation system, and number of WUAs

Selected districts with criteria in DIY Province

DISTRICTS	AREA OF WUA	NAME OF DRAIN INLET	TYPE OF IRRIGATION SYSTEM	NUMBER OF WUAS
Gunung Kidul	< 150 Ha	Garotan Barat	Traditional	No WUA
Bantul	150 – 500 Ha	Mejing	Technical	Several WUAs
Sleman	< 150 Ha	Gayam	Traditional	1 WUA

District selection in DIY was based on three major indicators: area of WUA, type of irrigation system, and number of WUAs

Selected WUAs with Criteria for Rapid Rural Appraisals in D I Yogyakarta Province

NAME OF WUA	LOCATION OF WUA	AREA OF COVERAGE	POSITION OF WUA	TYPE OF WUA	TYPE OF IRRIGATION
Garotan Barat	Desa Bendung, Kec. Semin, Kab. Gn. Kidul	< 150	Hulu	No WUA	Village Irrigation
Satuhu	Kec. Bambang Lipuro, Kab. Bantul	150 - 500	Hulu, Tengah, dan Hilir	Several WUA (WUAF)	Technical Irrigation
Among Mitro	Desa Umbul Martani, Kec. Ngemplak, Kab. Sleman	< 150	Hilir	1 WUA	Technical Irrigation

(5) East Java

In East Java Province sample districts were selected based on the following aspects: Major ethnic group, position of WUA in the scheme, and number of WUAs

Selected districts with criteria in East Java Province

NO	DISTRICT	ETHNIC		POSITION	NUMBER OF WUAS
		1	2		
1	Jember	Jawa	Madura	Up	Non WUA
2	Pasuruan	Jawa		Down	1 WUA
3	Jombang	Jawa		Middle	Several WUA
4	Banyuwangi	Jawa	Osing	Up	No WUA
5	Sumenep		Madura	Down	1 WUA
6	Bojonegoro	Jawa		Middle	Several WUA
7	Kediri	Jawa			
8	Lumajang	Jawa			
9	Malang	Jawa			
10	Trenggalek	Jawa			

Selected WUAs with Criteria for Rapid Rural Appraisals in East Java Province

NAME OF WUA	LOCATION OF WUA	AREA OF COVER-AGE	ETHNIC GROUPS	POSITION OF WUA	LEVEL OF DEVELOPMENT	TYPE OF IRRIGATION
Non-WUA	Desa Sumber Salak, Kec. Ledokombo, Kab. Jember	150-500 Ha	Jawa, Madura	Up-stream	Under-developed	-
Sumber Makmur	Desa Kejayan, Kec. Kejayan, Kab. Pasuruan	< 150 Ha	Jawa	Down stream	Developing	-
Tani Harapan, Tirto Makmur	Desa Diwek dan Ceweng, Kec. Diwek, Kab. Jombang	< 150 Ha	Jawa	Middle stream	-	-
Tirto Agung	Desa Cantuk, Kec.Singoju-ruh, Kab. Banyuwangi	150-500 Ha	Jawa, Osing	Middle stream	Under-developed	-
Talang Makmur	Desa Talang, Kec. Saronggi, Kab. Sumenep	< 150 Ha	Madura	Down stream	Developed	-
Tirto Wono	Desa Dander, Kec. Dander, Kab. Bojonegoro	< 150 Ha	Jawa	Up- stream	Developed	-

(6) NTB

Selected kabupatens and RRA Survey Sites are shown below:

Selected Kabupaten with criteria in NTB Province

Districts	Area of WUA	Ethnic	Position	Number of WUAs
Central Lombok	150 – 500 ha	Sasak	Up stream	WUA
East Lombok	< 150 ha	Sasak	Down stream	Non WUAs
Sumbawa	> 500 ha	Sumbawa	Middle stream	1 WUA
Bima	> 500 ha	Bima/Mbajo	Middle stream	Several WUA

Selected WUAs with Criteria for Rural rapid Appraisal in NTB

Name of WUA	Location of RRA	Area of Coverage	Ethnics group	Position of WUA	Level of Development	Type of Irrigation
Mekar Sari	Labulia, Central Lombok	150 - 500	Sasak	Up stream	Developed	Technical Irrigation
Bagik Papan	East Lombok	< 150	Sasak	Down Stream	Undeveloped	Simple irrigation
Rontu	Oi Si'I Bima	> 500	Mbajo /Bima	Middle stream	Moderately Developed	Semi Technical

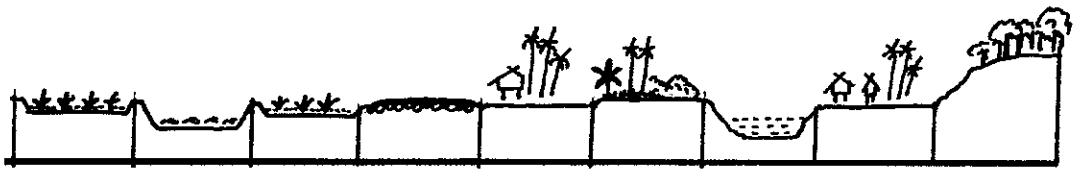
E.2 Biophysical Conditions of RRA Survey Area

(1) West Sumatera

1) WUA 'Batu Asahan Indah' District Pesisir Selatan

WUA 'Batu Asahan Indah' is situated in Village Koto Pulai Sub-district Tarusan District Pesisir Selatan. It was legally established on March 19,1991. Its area is located in Village Koto Pulai, which is 32 km north of Painan and 45 km south of Padang, the capital of West Sumatra Province. WUA 'Batu Asahan Indah'managed a semi-technical irrigation system which covered an area of 25 hectare. This area is located on 3- 150 m above sea level with an average of monthly rain fall of 133 mm. Location of paddy field under the management of this WUA is mostly located along the Batang Tarusan river-side up to the sorrounding hills. Topographic situation of this area is mainly hilly and undulating. Soil type is mainly Podzolic. Water resource for irrigation system was supplied by Batang Tarusan river (see Transect of Village Kuto Pulai below). The total area of Village Koto Pulai is about 21.8 square-kilometer which consists of paddy field (194 hectare), community estate (147 hectare), housing and public facilities (127.5 hectare). The average land-ownership is very limited (about 0.125

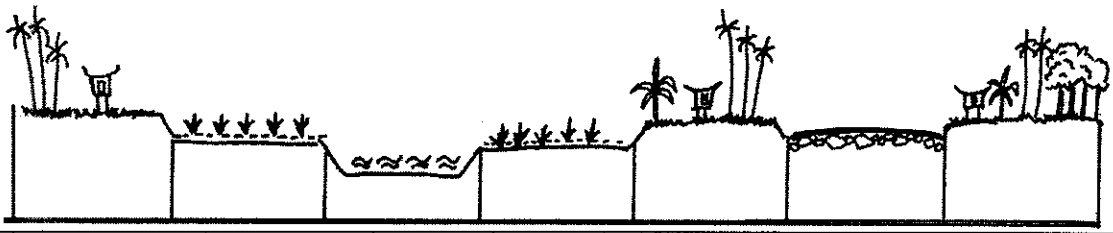
hectare of paddy field per household). Cropping patterns on paddy field is mainly paddy-paddy, paddy-bare, and a small proportion of paddy-palawija. Pigs, rats and 'pianggang' or 'walang sangit' are major pest for paddy cultivation.



Land Utilization	Paddy field	Irriga-tion canal	Paddy field	Road	Housing	Up-land	Batang Tarusan river	Housing	Secondary forrest
Vegetation	Paddy, peanut, chili	-	Paddy, peanut, chili	-	Coconut, banana, cassava	Coconut, rubber, 'gambir'	-	Coconut, mango	Wood, durian, etc
Animal husbandry	-	-	-	-	Chicken, goat, buffalo	-	-	Chicken, goat, buffalo	-
Status of land	Private	Communit y	Private	-	Private	Private, community	-	Private	Communit y
Soil types	Ultisol	-	Ultisol	-	-	Ultisol	-	-	-
Soil fertility	Low	-	Low	-	-	Low	-	-	-
Pests	Pigs, rats, pianggang	-	Pigs, rats, pianggan g	-	Rats	Pigs, rats	-	Rats	Pigs, rats

2) WUA 'Taratak' District 50 Kota

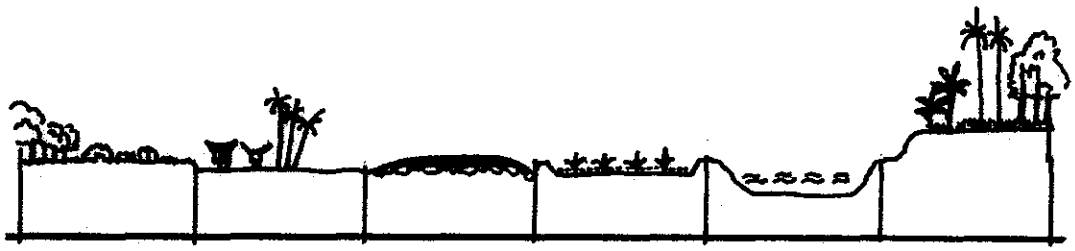
WUA 'Taratak' is situated in Village Napar Sub-district Payakumbuh Utara District 50 Kota. It was legally established on April 24, 1992. Its area is located in Village Napar, which is 120 km east of Padang, the capital of West Sumatra Province. WUA 'Taratak'managed a semi-technical irrigation system which covered an area of 55 hectare. This area is part of the Lampasi Irrigation System which covers an area of 2,600 hectare. This area is located on 514 m above sea level with an average of monthly rain fall of 165 mm. Paddy field under the management of this WUA is mostly located in a flat area along the irrigation canal of Batang Lampasi. Soil type is mainly Podzolic. Water resource for irrigation system was supplied by Batang Lampasi river (see Transect of Village Napar below). The total area of Village Napar is about 86 hectare which consists of paddy field (42 hectare), community estate (14 hectare), housing and public facilities (10 hectare). The average owned-land is limited (about 0.3 hectare of paddy field per household). Cropping patterns on paddy field is mainly paddy-paddy. Rats, 'keong mas', and 'kumbang' are found to be major pests in this area.



Land Utilization	Housing	Paddy field	Irrigation canal	Paddy field	Housing	Road	Housing
Vegetation	Coconut, banana, cassava, vegetables	Paddy, peanut, soybean, chili	-	Paddy, peanut, soybean, chili	Coconut, banana, cassava, vegetables	-	Coconut, banana, cassava, vegetables
Animal husbandry	Chicken,goat, water buffalo, cow	-	-	-	Chicken,goat, water buffalo, cow	-	Chicken,goat, water buffalo, cow
Land status	Private	Private	Communi ty	Private	Private	-	Private
Soil types	Podzolic	Podzolic	-	Podzolic	Podzolic	-	Podzolic
Soil fertility	Low	Low	-	Low	Low		Low
Pests	Rats	'Keong mas', rats, 'kumbang'	-	'Keong mas', rats, 'kumbang	Rats	-	Rats

3) WUA 'Tuah Sakato' District Padang Pariaman

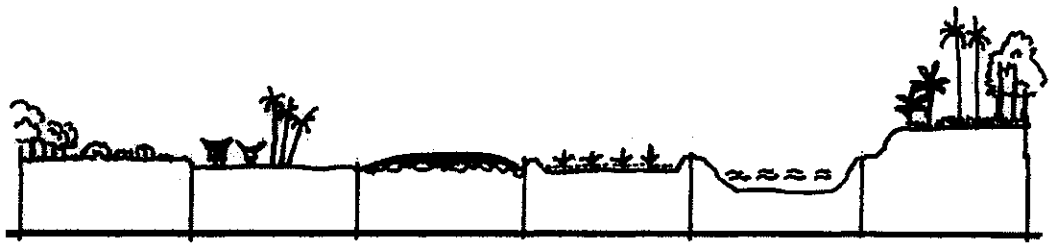
WUA 'Tuah Sakato' is situated in Village Lohong Sub-district Sungai Limau District Padang Pariaman. It was legally established on February 24, 1990. Its area is located in Village Lohong, which is 13 km north of Pariaman (the capital of District Padang Pariaman) and 73 km north of Padang, the capital of West Sumatra Province. WUA 'Tuah Sakato'managed a traditional irrigation system which covered an area of 15 hectare. This area is located on 3- 50 m amsl with an average of monthly rain fall of 314 mm with the average of 11 rainy day. Daily temperature is 25 to 30 °C. Location of paddy field under the management of this WUA is mostly located at a hilly-surrounding flat. Its topography is mostly hilly and undulating at the upstream, but relatively flat at the downstream. Soil type is mainly Alluvial. Water resource for irrigation system was supplied by the Lohong river which has its estuary in Indian Ocean (see Transect of Village Lohong below). The total area of Village Lohong is about 450 ha which consists of paddy field (62 ha), upland (54 ha), housing and public facilities (5.5 ha). The average land-owned is limited (about 0.6 ha of paddy field per household). Cropping patterns on paddy field is mainly paddy-paddy. Rats and 'wereng' are major pest for paddy cultivation.



Land Utilization	Paddy field	Road	Housing	Paddy field	Canal	Paddy field
Vegetation	Paddy	-	Coconut, banana, cassava	Paddy	-	Paddy
Animal husbandry	-	-	Chicken, goat, water buffalo, cow	-	-	-
Land status	Private	-	Private	Private	Community	Private
Soil types	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial
Soil fertility	Moderate	-	Moderate	Moderate	-	Moderate
Pests	Rats, 'wereng'	-	Rats	Rats, 'wereng'	-	Rats, 'wereng'

4) WUA 'Karajo Samo' District Sawahlunto/Sijunjung

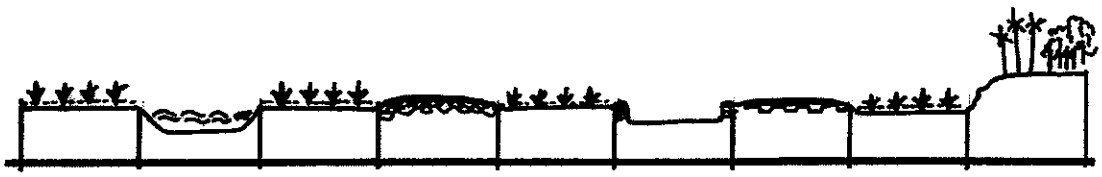
WUA 'Karajo Samo' is situated in Village Bukit Sabalah Sub-district Tajung Gadang District Sawahlunto/Sijunjung. It was legally established on January 12, 1990. Its area is located in Village Bukit Sabalah, which is 32 km South-east of Muaro (the capital of District Sawahlunto/Sijunjung) and 100 km south of Padang, the capital of West Sumatra Province. WUA 'Karajo Samo' managed a semi-technical irrigation system which covered an area of 15 hectare. This area is located on 125 m above sea level with an average of monthly rain fall of 41 mm with 7 rainy day. Daily temperature is 22 – 33 degree Centigrade. Location of paddy field under the management of this WUA is mostly located along the Batang Langsek river-side up to the sorrounding hills. Topographic situation of this area is mainly hilly and undulating. Soil type is mainly Podzolic with pH of 5 - 6. Soil fertility is moderate. Water resource for irrigation system was supplied by Batang Langsek river which has its estuary in Batang Rotan river and Batang Hari river (see Transect of Village Bukit Sabalah below). The total area of Village Bukit Sabalah is about 3,600 hectare which consists of paddy field (154 hectare) and community estate (500 hectare). The average land-ownership is very limited (about 0.23 hectare of paddy field per household). Cropping patterns on paddy field is mainly paddy-paddy-bare or paddy-bare. Pigs and 'Blast' are major pest and disease for paddy cultivation.



Land Utilization	Upland	Housing	Road	Paddy field	River	Upland
Vegetation	Rubber	Coconut, banana, cassava	-	Paddy, corn	-	Rubber, corn
Animal husbandry	-	Chicken, goat, water buffalo, cow	-	-	-	-
Land Status	Private, community	Private	-	Private, rent, share-cropping	-	Private, community
Soil types	Podzolic	Podzolic	Podzolic	Podzolic	-	Podzolic
Soil fertility	Low	Low	-	Low to moderate	-	Low
Pests and diseases	Pgs	Pigs	-	'Blast'	-	Pigs

5) WUA 'Alam Lestari' District Solok

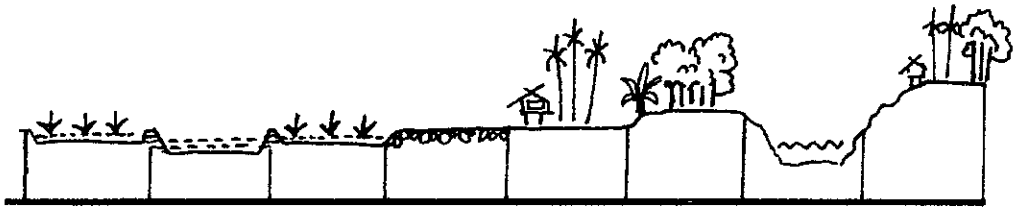
WUA 'Alam Lestari' is situated in Village Maju Singkarak and Sumani Sub-district Koto Singkarak District Solok. It was legally established in 1986 to initially manage and operate pumping system of the Sumani's irrigation system. Its service area is located in Village Maju Singkarak and Sumani which is 7 km away from Solok (the capital of District Solok) and 70 km east of Padang, the capital of West Sumatra Province. WUA 'alam Lestari' was given responsibility to manage a technical irrigation system which covered an area of 146 hectare. This area is located on 370- 450 m above sea level with an average of monthly rain fall of 147 mm. Location of paddy field under the management of this WUA is mostly located in a flat area around the Singkarak Lake. Topographic situation of this area is mainly flat. Soil type is mainly Alluvial with pH of 5 – 6.5. Soil fertility is relatively moderate Water resource for irrigation system was supplied by Batang Sumani river, which is part of the Lembang river basin (see Transect of Village Maju Singkarak below). The total area of paddy field in Village Maju Singkarak is about 381 hectare, upland 14 ha, and housing and public facilities 19 hectare. The average land-ownership is limited (about 0.58 ha of paddy field per household). Cropping patterns on paddy field is mainly paddy-paddy and paddy-palawija. Rats and 'wereng' are major pest for paddy cultivation.



Land Utilization	Paddy field	River	Paddy field	Road	Paddy field	Irrigation canal	Railway	Paddy field	Upland
Vegetation	Paddy	-	Paddy	-	Paddy	-	-	Paddy	Coconut, mango, banana
Animal husbandry	-	-	-	-	-	-	-	-	Chicken, goat, water buffalo
Land status	Private	Community	Private	-	Private	Community	-	Private	Private
Soil types	Alluvial	Alluvial	Alluvial	-	Alluvial	Alluvial	-	Alluvial	Alluvial
Soil fertility	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Pest and disease	Rats, 'wereng'	-	Rats, 'wereng'	-	Rats, 'wereng'	-	-	Rats, 'wereng'	Rats

6) WUA 'Tompek Harapan' District Agam

WUA 'Tompek Harapan' is situated in Village Tapian Kandis Sub-district Palembayan District Agam. It was legally established on August 31st,1995. Its area is located in Village Tapian Kandis, which is 32 km west of Lubuk Basung and 120 km north of Padang, the capital of West Sumatra Province. WUA 'Tompek Harapan'managed a semi-technical irrigation system which covered an area of 35 ha. This area is located on 102 m above sea level with an average of monthly rainfall of 183 mm and daily temperature of 25-33 degree Centigrade. Location of paddy field under the management of this WUA is mostly located in a valley which has a relatively flat topography with small proportion of hilly land. Soil type is mainly Podzolic. Water resource for irrigation system was supplied by Batang Tarusan river which has its estuary in the Indian Ocean (see Transect of Village Tapian Kandis below). The total area of Village Tapian Kandis is about 5,160 hectare which consists of paddy field (172 hectare), private estate (3,000 hectare), and upland (280 hectare). The average land-ownership is 0.9 hectare of paddy field per household. Cropping patterns on paddy field is mainly paddy-paddy. Pigs and 'wereng' are two major pest for paddy cultivation.



Land Utilization	Paddy field	Irrigation canal	Paddy field	Village road	Housing	Upland	Batang Masang river	Housing
Vegetation	Paddy	-	Paddy	-	Coconut, banana, cassava	Palm oil	-	Coconut, banana, cassava
Animal husbandry	-	-	-	-	Chicken, goat	-	-	Chicken, goat
Land status	Private	Community	Private	-	Private	Private, community	Community	Private
Soil types	Podzolic	Podzolic	Podzolic	Podzolic	Podzolic	Podzolic	-	Podzolic
Soil fertility	Low	-	Low	-	Low	Low	-	Low
Pest and disease	'Wereng' , pigs	-	'Wereng' , pigs		P0igs	Pigs	-	Pigs

(2) West Java

Transects of RRA WUAs, Sinar Maju, Mekar Jaya, Dewi Sri, Tani Mukti, Kelompok Tani,and Mugia Mulya are shown in Fig. E.2.1 to E.2.6.

(3) DI. Yogyakarta

1) DI. West Garotan

There were 36 ha of irrigated fields at DI West Garotan, Bendung Village, Kecamatan Semin, Kabupaten Gunung Kidul. Geographically, it is at 07º 52'30'' LS-03º 55' 00'' BT to 07º 50'30'' LS-03º 55' 00'' BT, with the following physical conditions:

Since all studied areas were in tropical region, their average daily temperature is around 22°C to 33.14°C. West Monsoon wind induces wet season while east-south monsoon wind brings about dry season to the region. Rainfall will affect water quantity, which in turn will affect the rates of evaporation and infiltration, and water surface condition. Rainfall data (1988 – 1999) were obtained from Beji Station, Kecamatan Ngawen (about 2,5 Km from the study area). There are only two seasons here, rainy and dry seasons. The temperature is around 23.25°C to 32.14°C. The characteristics of rainfall[1] in this region is type D. There are 4 consecutive wet months in a year starting December to April. There are also several dry months with the average rainy days is 20 days a

[1] Climate classification for agriculture purpose according to Oldeman in Kartasaputra 1993. Classification was based on consecutive wet or dry months in a year related to food crops pattern. Food crop pattern depends on water availability. Wet months have more than 200 mm rainfall whereas dry months have less than 100 mm rainfall.

year. The chief of village development affairs (Kaur Pembangunan Desa), and farmers, it was concluded that the wet season starts in November and last until March. Dry season starts in April until October. These facts affected the cropping pattern and its schedule.

Based on topography maps (scale of 1:50.000), Gunung Kidul District is Seribu mountain range, undulating with land slopes vary up to 4 classes. DI West Garotan (Bendung Village), is at 184 m amsl (above mean sea level) with a slope of 0 – 2%. The Land-use can be observed in Figure 5.6 and classified as paddy field, dry land, home plot and secondary forest.

Field area at DI West Garotan was 36 ha. About 30 ha got water directly from canal while the rest might get water only if water pump was employed since it was above the canal. There were 18 farmers there. Each farmer owned about 0.5 ha. The largest owned plot was 2 ha and the least was 0.5 ha..

At DI West Garotan, irrigation canals were modest and its water source was a small river called *Sungai Plutungo* (Plutongo River). It was part of *Oya* river basin. It was a drainage canal for home plots above and obviously, it had no upper region (*hulu*). Since 1999, main irrigation dam was concreted. The length of jacketed canal was about 40-m, and the rest was still dried ground.

The irrigation canals functioned only in wet season whereas during dry season the water didn't flow. During dry season, farmers brought the water from the dam using *gendongan* to water their plants. Today, farmers used electric water pump. They supplied the electricity from their homes. It took about 500 m to supply the electricity. The water had to be flown through 200 – 400 m hose to reach the plants.

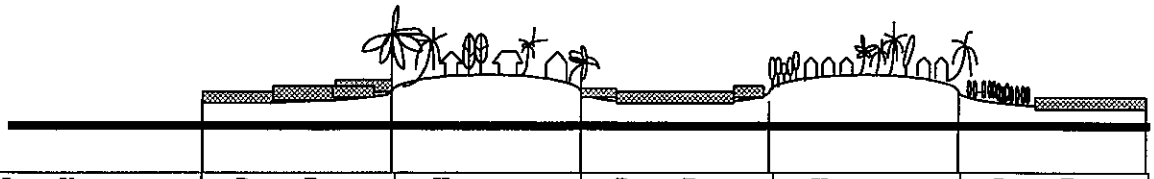
2) DI Mejing

The area at DI Mejing was about 418.93 ha covering Mulyodadi Village of 175.25 ha, Sidomulyo Village of 241.91 ha, Kecamatan Bambanglipuro and Srihardono Village of 1.77 ha, Kecamatan Pundong, Bantul District. Geographically, it is at 07º 44'04'' South latitude-110º 12' 34'' East longitude to 08º 00'27'' South latitude-110º 31' 08'' East longitude with the following physical conditions:
Rainfall data (1990 to 1999) for this area were obtained from Pundong Station, Kecamatan Pundong, which is about 0.7 km from the site of study.

Based on primary map (scale of 1:50.000), topography of this region ranged from hilly part, low land to coastal area varied at 5 classes spatial altitude as seen in Appendices.

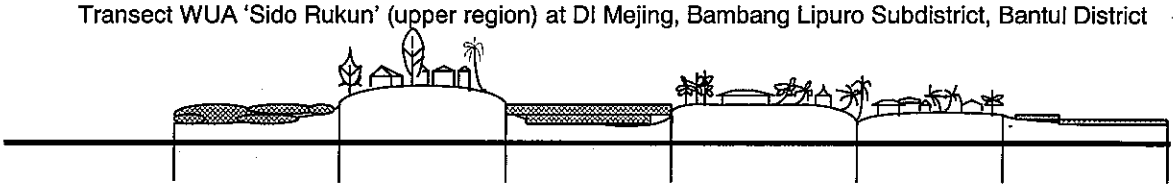
As seen in Table 5.9, the largest area was at 25 – 100 m above mean sea level. This part was in the northern part of the region. The area of DI Mejing was at 7-m above sea level, near the beach. It was obvious that there were 6 classes of slope spatially as represented in Table 5.10 and in Appendices.
Based on topographic condition, Land-use of this region were for paddy fields, dry land, home plot and secondary forest.

Slope at DI Mejing (7 m above mean sea level) was about 0 to 2%. Land-use were paddy field and dry land as seen in transect. Since this region was quite large and the physical condition of the soil was rather different, there were three transects built. The first transect was at the upper region (WUA 'Sidorukun' at MJ5 Plot), the second was at middle region (WUA 'Tirtomakmur', MJ13 plot), and the last one at lower region (WUA 'Tirto Manunggal') as seen in the following figure.



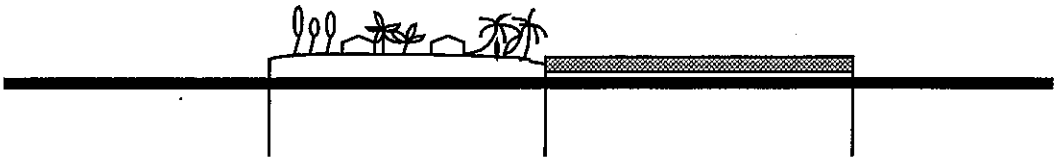
LAND UTILIZATION	PADDY FIELD	HOME PLOT	PADDY FIELD	HOME PLOT	PADDY FIELD AND DRY LAND
Soil Condition - Color - Texture - Fertility - Erosion Rate	 Dark brown Sandy loam Moderate Low	 Brown Loam Low Moderate	 Dark brown Sandy loam Moderate Low	 Brown Lempung Low Moderate	 Dark brown Sandy loam Moderate Low
Water Requirement	Moderate		Moderate		Low - Moderate
Crops	Paddy, peanut	Banana, Mango, Melinjo and coconut	Paddy, peanut	Coconut, banana, guava, and mango	Sugar cane, paddy, and peanut
Fauna	Wirok, Mole cricket, grasshoppers, and caterpillar	Cows, chicken, and Goat	Wirok, Mole cricket, grasshoppers, and caterpillar	Cows, chicken, and goat	Wirok, Mole cricket, grasshoppers, and caterpillar
Land Status	Owned	Owned	Owned	Owned	Owned and village property
Potency	Agriculture diversification	Home Industry	Agric. Diversification and intensification	Home Industry	Agriculture diversification
Problems	Many water canals were leaking and the construction was not permanent.	Hygiene and sanitation	Many water canals were leaking and the construction was not permanent.	Hygiene and sanitation	Many water canals were leaking and the construction was not permanent.

Transect WUA 'Sido Rukun' (upper region) at DI Mejing, Bambang Lipuro Subdistrict, Bantul District



LAND UTILIZATION	PADDY FIELD	HOME PLOT	PADDY FIELD	BARN	HOME PLOT	PADDY FIELD
Soil Condition - Color - Texture - Fertility - Erosion rate	 Black Sandy loam High Low	 Brownish Sandy Moderate Moderate	 Black Sandy loam High Low	 Brownish Sandy Moderate Moderate	 Brownish Sandy loam Moderate Moderate	 Black Sandy loam Low Low
Water requirement	Moderate		High			Low
Crops	paddy, soybean, peanut	Coconut, banana, melinjo, others	paddy, soybean, peanut	Banana and other fruit trees	Coconut, banana, melinjo.	Sugar cane, paddy , soybean, peanut
Fauna	Rats, Mole cricket and grasshoppers	Cow, chicken, Goat	Rats, Mole cricket and grasshoppers	cow	Cow, chicken, Goat	Rats, Mole cricket and grasshoppers
Land Status	owned	owned	owned	public	owned	Village property
Potency	Horticulture expansion			Compos production		
Problems		Hygiene and sanitation		Hygiene and sanitation	Hygiene and sanitation	

Transect WUA 'Tirtomakmur' (middle region) at DI Mejing, Bambang Lipuro Subdistrict, Bantul District



LAND UTILIZATION	HOME PLOT	PADDY FIELD
Soil condition - Color - Texture - Fertility - Erosion rate	 Light brown Loam Low Low	 Dark brown Sandy loam High Low
Water requirement		high
Crops	Banana, mango, coconut, guava	Paddy, soybean, peanut
Fauna	Cow, goat, chicken, birds	Grasshopper, rat, Mole cricket and caterpillars
Land Status	Owned	Owned
Potency	Small business and Home Industry	Agriculture development
Problems	Hygiene and Sanitation	The soil was more porous, water comes late, or water loss high.

Transect WUA 'Tirtomanunggal' (lower region)at DI Mejing, Bambang Lipuro Subdistrict, Bantul District

Soil

At Bantul District, most areas were low lands and coastal areas with seven types of soil namely Aluvial, Litosol, Regosol, Rendzina, Grumusol, Mediteran and Latosol. At irrigated area, soil type distribution tended to be uniform namely Grumosol. This soil type has solum depth around 1 to 2 m. It is sticky when wet and will be very hard when dry. It is originated from lime stone parent material cover by shale and tuff. Based on interview result, farmers used fertilizer at high dosage of (a) TSP/ SP3= 150 Kg/ha, (b) Urea= 200 Kg/ha, and (c) ZA= 100 Kg/ha. They also used animal manure.

River Basin Area

There were three river basin areas in Bantul District namely DAS Progo, DAS Opak dan DAS Oya. DAS is *Daerah Aliran Sungai* (river basin area). Several sub- DAS originated from these three DAS scattered in Bantul region. Most streams irrigated the agriculture areas. Irrigated areas Mejing get water from Winongo stream that was covered in sub-DAS Opak.

Land-use

Land-use in Bantul District were *Kampung*/Home plot, socio-culture facilities, agriculture, transportation, industries, tourism, mines, and secondary forest. Land-use at DI Mejing is presented in map and transect.

Land-Size

At DI Meting, paddy field was of 418,93 ha without any record on the number of farmers there. It was estimated more than 1.000 farmers. Therefore, the average land owned by each farmer was about 0.42 ha. Based on survey data, the least owned land was 0,2 ha while the largest was 1 ha.

Water Supplies

DI Meting was irrigated area managed by PU. In the year of 2000, there was plan to establish one WUA federation (Namely South) that has 10 WUAs through PPI Project. Water came from Wining streams, an Oak sub-DAS. Its upper part was a drainage system of Mataram canal started from Leman and drainage from Oak stream. Main building of this DI was permanent (moving dam) with the length of main canal was about 7 km, servicing 19 tertiary plots.

Cropping Pattern
Paddy was planted twice on irrigated paddy fields during wet season in Bantul region. Afterwards, the field was planted with other food crops such as, soybean, peanut, corn, chili and sugar cane. Therefore, planting started in November until March. The cropping pattern in Mejing area was similar to that in Bantul region. However, since the area was quite large, there were three different cropping patterns namely:

a) Type I (upper region), fields got enough water and the cropping pattern was paddy–paddy -other food crops.
b) Type II (middle region), Water availability was not enough to plant paddy twice. Therefore, the cropping pattern was as follows. All farmers planted paddy at the beginning of wet season. Then, some farmers planted paddy while some other planted other food crops. When dry season started, farmers planted other food crops.
c) Type III (lower region), unlike the other two parts, this region got the least water and the soil was porous since it was close to coastal area. In this region, paddy was planted at the beginning of wet season, then it follows by other food crops.

Based on these cropping patterns, the farmers planted paddy field while the other food crops were peanut and soybean. Recently, some farmers tried to plant chili peppers and tomato during dry season.

3) DI Gayam

The area at DI Gayam was about 26 ha covering Umbul Martani Village, Kecamatan Ngemplak, Sleman District. Geographically, it is at 07º 34'04'" South latitude -107º 15' 30" East longitude to 07º 47'30" South latitude -110º 28' 30" East longitude with the following physical conditions:

Rainfall
Rainfall data (1990 to 1999) for this area were obtained from Pundong Station, Kecamatan Pundong, which is about 0.7 km from the site of study. There are 4 consecutive wet months in a year starting December to April. There are also several dry months with the average rainy days is 20 days a year. Based on semi-structured interview with several key sources, such as the head of the village (kepala desa), chief of village development affairs (KaUr Pembangunan Desa), and farmers, it is concluded that the wet season starts in November and last until March. Dry season starts in April until October. These facts affected the cropping pattern and its schedule.

Topography
Based on primary map on a scale of 1:50.000 in Bantul District, there were high land (Merapi hill side) and other 4 classes spatially different areas.It was obvious that the area with 100 – 499 m amsl was the largest and in the northern part of the region. DI Gayam region was at 210 m amsl, with the slope of 2 to 5%, in the hill side of Merapi Mount. According to topographic conditions, land-uses were paddy field, dry land, home plot, and secondary forest.

Soil
In general, there were 4 types of soil namely, Litosol, Regosol, Grumusol, and Mediteran. Irrigated area tended to have Regosol type of soil. According to Darmawidjaya (1970) in Jauhari (1996), this soil is crumb soil with sandy loam texture, well drained, easily entrap the water, low erodibility, with solum thickness of 95 – 120 cm. It is affected by young volcanic sediment. The study also reveals that fertilizers utilization was quite high at the amount of: 1) TSP/SP3 = 150 Kg/ha; 2) Urea = 200 Kg/ha; 3) ZA = 100 Kg/ha. In addition, another kind of fertilizer, such as animal manure, was also applied.

River Basin Area
There were two DAS (river basin areas) namely DAS Progon and DAS Opak which provided several sub-DAS (S. Krasak, S. Bulu, S. Putih, S. Pakem, S. Sarang, S. Konteng, S. Bedog, S. Dengung, S.

Boyong, S. Opak, S. Winongo, S. Pelang, S. Buntung, S. Klanduhan, S. Sembung, S. Kuning, S. Tepus, S. Gawe, S. Gede) flowing from the northern part to the southern part. Besides irrigating the agriculture plots, water from these rivers was also used for other needs.

Land Utilization

Generally, Land-use in Sleman District were for home yard, paddy field, dry land, secondary forest, bare land, bushes, and others such as for cemetery, rivers and roads

Land-Size

There were 38 ha paddy field in DI Gayam with 48 farmers. Therefore, the average land ownership is about 0.79 ha/farmer. The least plot owned by one farmer was 0.3 ha while the largest was two ha.

Water Supplies

DI Gayam is village irrigation system having only one WUA called 'Among Mitro'. Water comes from Gede River, which is a sub-DAS Opak stemmed from Merapi Mount. The main construction is concrete with the length of around 1.5 km.

Cropping Pattern

Generally in Sleman region, the cropping pattern is as follows. Paddy field is cultivated twice in irrigated fields during wet season from October to March followed by other food crops such as soybean, peanut, and corn. They planted paddy field, peanut and soybean. Recently, there was an attempt to improve the farmer income by crop diversification, such as chili and tomato during dry season.

(4) East Java

Transect of RRA WUA area, Desa Sumber Salak, Sumber Makumur, Tani Harapan/Tiro Makumur, Tirto Agung, Talan Makumur and Tirto Wono, are shown in Fig. E.2.8 to E.2.13.

(5) NTB

Transect of RRA WUA area of Makar Sari, Bagik Papan and Rontu are shown in Fig. E.2.14 to E.2.16.

E.3 WUA Questionnaire Survey Area

The WUA Questionnaire Survey Site in each provinces are shown in Table E.3.1 to E.3.5.

Table E.1.1 Categorization of Kabupaten in West Sumatera Province

Code No.	District (Kab)	Province x District x abcde Categorizations												Total 6 Cat
		1	2	3	4	5	6	7	8	9	10	11	12	
		a1b1c1	a1b1c1	a1b1c1	a1b1c1	a1b1c1	a1b1c1							
		d24e2	d1234e2	d14e2	d13e2	d123e1	d3e2							
no.	name	y/n	y/n	y/n	y/n	y/n	y/n							y/n
PROVINCE : WEST SUMATERA														
01	Pesisir Selatan	1	-	-	-	-	-							1
02	Solok	-	1	-	-	-	-							1
03	Swl/Sijunjung	-	-	1	-	-	-							1
04	Tanah Datar	-	-	-	1	-	-							1
05	Pd. Pariaman	-	-	-	-	1	-							1
06	Agam	-	-	-	1	-	-							1
07	50 Kota	-	-	-	1	-	-							1
08	Pariaman	-	-	-	-	-	1							1
	Municiparity													
09	Padang	-	-	-	-	-	-							-
10	Solok	-	-	-	-	-	-							-
11	Sawahlunto	-	-	-	-	-	-							-
12	Pd. Panjang	-	-	-	-	-	-							-
13	Bukittinggi	-	-	-	-	-	-							-
14	Payakumbuh	-	-	-	-	-	-							-
Total	West Sumatera	1	1	1	3	1	1							8

Sources :
1. West Sumatera in Figures 1998
2. Ensiklopedi Suku Bangsa di Indonesia, M. Junus Melalatoa, Ministry of Education and Culture 1995
3. Review Satuan Wilayah Sungai (SWS) di Indonesia, PT DDC Consultant 1997
4. Luas Wilayah menurut kemampuan tanah (Ketinggian) Propinsi Jawa Barat, Kanwil BPN Prop. Jawa Barat tahun 1999

Table E.1.2 Categorization of Kabupaten in West Java Province

Code No.	District (Kab)	Province x District x abcde Categorizations															Total 15 cat
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
		a3b1c1	a1b3c1	a1b1c1	a1b2c1	a1b1c1	a1b2c1	a2b2c1	a2b3c2	a2b2c1	a2b2c2	a1b2c1	a1b3c2	a1b3c1	a3b3c1	a3b2c1	
		d3e1	d3e1	d2e2	d3e1	d3e2	d3e2	d2e1	d2e1	d3e1	d3e1	d2e1	d2e1	d2e1	d2e1	d3e1	
no.	name	y/n	y/n	y/n	y/n	y/n	y/n	y/n	y/n	y/n	y/n	y/n	y/n	y/n	y/n	y/n	y/n
PROVINCE : WEST JAVA																	
	District																
01	Pandeglang	1														-	1
02	Lebak	1															1
03	Bogor		1														1
04	Sukabumi			1													1
05	Cianjur				1												1
06	Bandung					1											1
07	Garut						1										1
08	Tasikmalaya						1										1
09	Ciamis				1												1
10	Kuningan							1									1
11	Cirebon								1								1
12	Majalengka									1							1
13	Sumedang				1												1
14	Indramayu										1						1
15	Subang				1												1
16	Purwakarta											1					1
17	Karawang												1				1
18	Bekasi													1			1
19	Tangerang														1		1
20	Serang															1	1
	Municipality																
21	Bogor																-
22	Sukabumi																-
23	Bandung																-
24	Cirebon																-
25	Tangerang																-
26	Bekasi																-
	Sawah uses of Kodya were not included																
Total	West Java	2	1	1	4	1	2	1	1	1	1	1	1	1	1	1	20

Source :
1. West Java in Figures 1998, CBS
2. Ensiklopedi Suku Bangsa di Indonesia, M. Junus Melalatoa, Ministry of Education and Culture 1995
3. Review Satuan Wilayah Sungai (SWS) di Indonesia, PT DDC Consultant 1997

Table E.1.3 Categorization of Kabupaten in DI Yogyakarta Province

No. Kode	Kabupaten	a	b			c			d	e		kab x ketrisikokepadatan penduduk x sawah x SWS x elevasi					
		kab x etnik	kab x kepadatan penduduk			kab x sawah			kab x SWS	kab x elevasi		a1 b2 c1	a1 b2 c2	a1 b3 c1	a1 b3 c2	a1 b3 c2	Total 4 cat
		a1	b1	b2	b3	c1	c2	c3	d1	e1	e2	d1 e1	d1 c2	d1 c1	d1 e1	d1 e2	
		Jawa	< 500 jiwa/km^2	500-1000 jiwa/km^2	> 1000 jiwa/km^2	< 25%	25-50%	> 50%	Progo	> 50% <100 mdpl	> 50% >100 mdpl						
01	Kulon Progo	1	0	1	0	1	0	0	1	1	0	1	0	0	0	0	1
02	Bantul	1	0	0	1	0	1	0	1	1	0	0	0	0	1	0	1
03	Gunung Kidul	1	0	1	0	1	0	0	1	0	1	0	1	0	0	0	1
04	Sleman	1	0	0	1	0	1	0	1	0	1	0	0	0	0	1	1
05	Kota Yogyakarta																
Total	DI Yogyakarta	4	0	2	2	2	2	0	4	2	2	1	1	0	1	1	4

Sources :
1. DI Yogyakarta in Figures 1998, CBS
2. Ensiklopedi Suku Bangsa di Indonesia, M. Junus Melalatoa, Ministry of Education and Culture 1996
3. Review Satuan Wilayah Sungai (SWS) di Indonesia, PT DDC Consultant 1997

Table E.1.4 Categorization of Kabupaten in East Java Province

Code No.	District (Kab)	Provence x abcde Categorizations																					Total
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
		a1b1	a1c2	a1b1	a1b3	a1b2	a1b2	a1b1	a1b2	a1b1	a1b1	a1b2	a1b3	a1b2	a1b2	a1b3	a1b1	a1b1	a1b2	a2b1	a2b2	a1b3	
		c1d1e1	c2d2e1	c1d1e2	c1d2e2	c1d2e3	c1d3e1	c1d3e2	c2d2e2	c1d2e1	c1d2e3	c2d2e1	c2d3e1	c2d3e2	c2d3e2	c2d1e3	c2d3e1	c2d1e1	c3d3e1	c1d4e1	c1d4e1	c2d3e2	
no.	name	y/n	y/n	y/n	y/n	y/n	y/n	y/n	y/n	y/n	y/n	y/n	y/n	y/n	y/n	y/n	y/n	y/n	y/n	y/n	y/n	y/n	
PROVINCE : EAST JAVA																							
	District																						
1	Pacitan	1																					1
2	Ponorogo		1																				1
3	Trenggalek			1																			1
4	Tulungagung				1																		1
5	Blitar					1																	1
6	Kediri																						1
7	Malang						1																1
8	Lumajang							1															1
9	Jember								1														1
10	Banyuwangi									1													1
11	Bondowoso										1												1
12	Situbondo									1													1
13	Probolinggo									1													1
14	Pasuruan											1											1
15	Sidoarjo												1										1
16	Mojokerto												1										1
17	Jombang												1										1
18	Nganjuk													1									1
19	Madiun														1								1
20	Magetan															1							1
21	Ngawi																1						1
22	Bojonegoro																	1					1
23	Tuban																		1				1
24	Lamongan																			1			1
25	Gresik		1																				1
26	Bangkalan																				1		1
27	Sampang																				1		1
28	Pamekasan																					1	1
29	Sumenep																				1		1
30																							
	Municipality																						
31	Kediri																						
32	Blitar																						
33	Malang																						
34	Probolinggo																						
35	Pasuruan																						
36	Mojokerto																						
37	Madiun																						
38	Surabaya																						
Total	East Java	1	2	1	1	1	1	1	1	3	1	1	3	1	1	1	1	1	1	1	3	1	29

Sources :
1. East Java in Figures 1998, CBS
2. Ensiklopedi Suku Bangsa di Indonesia, M. Junus Melalatoa, Ministry of Education and Culture 1996
3. Review Satuan Wilayah Sungai (SWS) di Indonesia, PT DDC Consultant 1997

Table E.1.5 Categorization of Kabupaten in West Nusa Tenggara Province

Code no.	District (Kab)	Province x District x abcd Categorizations					Total 6 Cat
		1	2	3	4	5	
		a1b1c1 d2	a1b2c1 d2	a2b1c1 d2	a2b1c1 d2	a1b3c1 d1	
no.	name	y/n	y/n	y/n	y/n	y/n	y/n
PROVINCE: WEST NUSA TENGGARA							
01	Lombok Barat	1	-	-	-	-	1
02	Lombok Tengah	-	1	-	-	-	1
03	Lombok Timur	-	1	-	-	-	1
04	Sumbawa	-	-	1	-	-	1
05	Dompu	-	-	-	1	-	1
06	Bima	-	-	-	1	-	1
	Municipality						
07	Mataram						

Source:
- Review Satuan Wilayah Sungai (SWS) di Indonesia, PT DDC Consultant 1997
- Ensiklopedi Suku Bangsa di Indonesia, M Junus Melalatoa, Ministry of Education and Culture 1995
- NTB in Figures 1998

Table E.2.1 Results of RRA Survey concerning Farmers' Perspectives in West Sumatera Province

No.	Kodya/Kabupaten Kecamatan Desa/Kelurahan	No. WUA, status	Name of WUA	Main issues/problems
1	Agam Palembayan Tapian Kandis	1	Tompek Harapan	• No rules concerning water management/allocation; officials not active. • Farmers do not feel they are part of WUA. • Extension guidance lacking.
2	Kodya Payakumbuh Payakumbuh Utara Napar	1	Taratak	• Tertiary canal broken and cracked, and operation and maintenance along secondary and tertiary canals not optimal; results in leakages and water shortages • No coordination between different WUAs in irrigation system, results in poor water allocation. • WUA officials not active; human resources not optimal. • Water demand for each WUA not clear. • Farmers do not feel they are part of WUA, and are not motivated. • No rules concerning water use and water charges, and extension guidance is not coordinated.
3	Padang Pariaman Sungai Limau Lohong	1, reverted back to traditional system.	Tuah Sakato	• Responsibilities for irrigation management not clear, causes conflict over water allocation if dry season is long. • WUA and officials not active; reverted back to traditional organization. • Farmers do not feel they are part of WUA and are not motivated; incomes too low. • Extension guidance not well planned and is very infrequent.
4	Solok Sepuluh Koto Singkarak Maju Singkarak Sumani	1	Alam Lestari	• Secondary canal broken in many places, causes water losses. • Cropping plan is not well implemented and water demands for each block are not calculated; blocks differ in size. • Farmers are not prepared to pay operational charge, resulting in no budget to run the pumps • No sanctions for farmers who do not pay water charges. • Human resources low. • Extension guidance is not well planned and is too sporadic.
5	Sawah Lunto Sijungjung Tanjung Gadang Bukit Sabala	1	Karojo Samo	• Water in short supply, especially during dry season, causes conflicts over distribution of water and failed harvests. • WUA officials not active. • O&M is piecemeal. • Farmers do not feel they are part of WUA and are not motivated; incomes too low. • Extension guidance is not well planned and is too sporadic.
6	Pesisir Selatan Sebelas Koto Tarusan Koto Pulai	1	Batu Asahan	• Weir and canals broken; O&M not optimal. • Water allocation and water management rules are not clear; some areas do not receive water. • WUA officials not active; human resources not optimal. • Farmers not involved in O&M decisions and are not prepared to pay operational charge; incomes too low • Extension guidance not coordinated and is not well planned.

Table E.2.2 Results of RRA Survey concerning Farmers' Perspectives in West Java Province (1/2)

No.	Kodya/Kabupaten Kecamatan Desa/Kelurahan	No. WUA, status	Name of WUA	Main issues/problems
1	Lebak Warunggunug Pasir Tangkil	Being developed, village scheme <150 ha	Sinar Maju	• Ranking of main problems: 1. many leaks from weir gates and canals; 2. division/off-take gates broken; 3. water insufficient during dry season; 4. many farmers do not pay water charge/not able to pay; 5. input prices not in balance with *gabah* price. • Mid-stream and downstream areas receive small flow, experience water shortages in dry season. • O&M not optimal, farmers not able to pay for high cost of maintenance because production from *sawah* is low, farmers consider that Government should be responsible for maintenance/repair.
2	Bogor Cibungbulang Situ Udik	Being developed, technical scheme >500 ha	Mekar Jaya	• Ranking of main problems: 1. crop pests; 2. low price of *padi*; 3. inactivity of extension officials; 4. farmers do not want to maintain canals because they feel canals do not belong to them; 5. all field channels leak, water not distributed smoothly. • Water gates broken, replaced by bamboo – this affects water availability. • Water is also used for livestock and fisheries — this causes water allocation problems. • Knowledge about O&M and water charge responsibilities is still low, budget for maintenance not available (water charge not paid), farmers consider that Government should be responsible for maintenance.
3	Karawang Jatisari Sukamekar	Being developed, technical scheme >500 ha	Dewi Sri	• Water is increasingly harder to obtain, particularly in downstream area (far from source); some people get water from pumps. • O&M dependent on WUA; if farmer pays water charge he does not want to participate in *gotong royong* for maintenance. • Many canals leak, canals built by contractors quickly break. • *Ulu-ulu*/block heads not satisfactory. • Water charge revenue about 60%, not well organized. • Farmers who live outside village not disciplined in paying, • Income of farmers is low (*low price of gabah*); input costs not in balance with *gabah* price. • Farmers complain there are too many taxes levied by village government.
4	Bandung Pameungpeuk Rancatungku	Being developed, technical scheme >500 ha (previous WUA failed in 1984)	Kelompok Tani	• Ranking of main problems: 1. leaks from canals; 2. water shortages in downstream part; 3. seeds not available; 4. wages for labour are high; 5. fertilizer is expensive. • Annual floods. • Water is increasingly harder to obtain because of competition for water from PDAM and industry; pollution from industrial effluents. • Many leakages along several canals. • Water distribution is not uniform in downstream area. • O&M is not optimal; only some farmers near canals help with maintenance. • Canals built by PU (contractors) not used because of poor quality (quickly break) and are not in accordance with farmers' wishes; such canals have many rat holes. • *Ulu-ulu* not diligent, even though he has received some payment (stipend). • Water charge not organized, only collected when there is a need for canal repair; farmers do not want to pay water charge again because *ulu-ulu* is not diligent. • Farmers who live outside village are generally not disciplined in paying water charge. • Farmers' income relatively low, and *sawah* area is small; input costs not in balance with *gabah* price. • Farmers complain there are too many taxes levied by village government.

Table E.2.2 Results of RRA Survey concerning Farmers' Perspectives in West Java Province (2/2)

No.	Kodya/Kabupaten Kecamatan Desa/Kelurahan	No. WUA, status	Name of WUA	Main issues/problems
5	Indramayu Sukra Bogor	Being developed, technical scheme >500 ha	Tani Mukti	• Farmer income is low because of high cost of inputs, low price of *gabah*, rats and non-functioning KUD. • During dry season sometimes water supply not enough, especially in downstream area, depends on *juru pengairan*. • Parts of *sawah* can never get dry because irrigation canal never made dry at certain periods, schedule for drying not right – because of collusion between *juru pengairan* (PU) and duck farmers; farmers suffer as a result. • Water distribution not uniform on one of the blocks of *sawah*. • Maintenance of secondary canals not optimal, canals getting narrower, water getting less. • Collection of water charge not in order; a small number of farmers do not want to pay water charge for *ulu-ulu*. • Conflict between duck farmers and *sawah* farmers. • Farmers do not want to contribute to *gotong royong* for canal repair, *ulu-ulu* and block heads cannot repair/maintain canals because of limited labour and funds.
6	Tasikmalaya Cigalontang Sirnaputra	Not yet developed, semi-technical scheme 150-200 ha	Mugiamulya	• Natural forest replaced by pine trees, results in droughts in dry season and floods in wet season; if there is no rain for 7 days, there is no irrigation water. • Canal has been pierced in many places and is broken, so water is uncontrolled (often there is no water in midstream and downstream areas), division gates too high. • *Gotong royong* happens for major repairs like landslides (which happen often). • There are many fish ponds, no payments for water. • Water charge for *andir* is too small, only 20% of farmers pay water charge. • Ranking of main problems: 1. canal dries up if there is no rain for a week; 2. collapse of canal banks causes closures; 3. most farmers do not pay water charge, income too low; 4. pine trees (in catchment area) are thought to cause droughts; 5. canal from Ciparai does not yet reach the village. • Not enough financial resources for O&M. • Participation of community is low.

Table E.2.3 Results of RRA Survey concerning Farmers' Perspectives in DI Yogyarata Province

No.	Kodya/Kabupaten Kecamatan Desa/Kelurahan	No. WUA, status	Name of WUA	Main issues/problems
1	Sleman Ngemplak Umbul Martani	1, Gayam irrigation system, 38 ha	Among Mitro	• Water availability limited in dry season (in dry season water is 'borrowed' from higher up). • Sanitation. • Environment. • Crop pests and diseases. • Farmers are poor. • Commercial crops not widely developed. • Many canals are not yet lined, some canals leak.
2	Bantul Bambanglipuro/Pundong Sidomulyo/Mulyodadi/Srihardono	WUA federation (10 WUA), DI Meijing, 396 ha	Satuhu (Gabungan P3A Meijing)	• Sanitation. • Environment. • Water availability limited in downstream area. • Some canals are broken, and leak. • Soil is very porous (sandy) in downstream part. • Crop pests and diseases. • Credit not smooth (being developed). • Farmers are poor, farm holdings are very small. • Difficult to find organic fertilizer. • Commercial crops not widely developed.
3	Gunung Kidul Siman Bendung	No WUA (being developed), Garotan Barat village scheme 36 ha	-	• Water availability from spring source is limited. • Conveyance canal not optimal. • Erosion. • Salinity. • Threat of land becoming non-arable. • Crop pests and diseases. • Supply of agricultural inputs not smooth, difficult to find organic fertilizer, place to buy seeds is far away, pesticides are expensive. • Farmers are poor. • Commercial crops not widely developed.

Table E.2.4 Results of RRA Survey concerning Farmers' Perspectives in East Java Province

No.	Kodya/Kabupaten Kecamatan Desa/Kelurahan	No. WUA, status	Name of WUA	Main issues/problems
1	Bojonegoro Dander Dander	> 1	Tirto Wono	• Shortage of water (dry season), due to deforestation in watershed, use of source (spring) also for domestic supply, and abstraction by pumps in upstream part. • Floods in wet season, caused by deforestation. Effects of deforestation felt from 1960s. • Broken canals and siltation, causing leaks and distribution problems; canals break quickly because they are also used for other purposes (bathing, washing, toilet) and nobody takes care. • Water shortages most felt in downstream part (no water at all) and downstream farmers are suspicious of those upstream (some of whom abstract water from canals by pumps). Downstream farmers mainly rely on rainfall for crops. • Land in upstream part higher than water level in canal (poor canal design). • Farmers are reluctant to pay water charge, particularly in downstream area because of water shortages and poor condition of irrigation system upstream • Income from water charges insufficient to cover O&M costs. • If farmer pays water charge, consider WUA is responsible for O&M; there is no incentive to assist with maintenance (*gotong royong*). • Farmers have no 'sense of ownership' of irrigation infrastructure.
2	Jombang Diwek Diwek/Ceweng	>1 (2)	a. Tirto Makmur (Ceweng), no longer active (reverted to old system pre-WUA) b. Tani Harapan (Diwek), become non-active in 1997	• Dry season water shortages (Aug-Oct), causes conflicts. • Relationship of farmers with *juru pengairan* (government employee) who has been accused of unfair water management/distribution practices, particularly when water is in short supply (Aug-Oct). • In some years water is not available when needed. • Poor state of tertiary systems (mostly tenant/sharecropper farmers who don't care about maintenance). • Water charge no longer paid, because farmer incomes are low and unpredictable. • During dry season and sugar cane milling season (Aug-Oct), effluent from sugar factory (PG Cukir?) is hot and black, affects crops. • There is no division gate at sugar factory discharge to divide flow between Jatirejo village and Diwek/Ceweng/Balongbesuk villages, and because bottom limit is at different heights much more water flows to Jatirejo. • WUA not motivated, lack of human resources.
3	Pasuruan Kejayan Kejayan	1	Sumber Makmur	• Appointment of WUA chairman (newly appointed chairman does not want post and wants to hand back to previous chairman). • WUA not active in southern part of area which experiences water shortages (Sidorejo) where no water charges collected. Sidorejo farmers do not want to be organized by WUA. • Water allocation in downstream part. • Canal system in need of repair.
4	Jember Ledokombo Sumber Salak	WUA no longer active	-	• Some water shortages in downstream area during dry season. • Sedimentation in canals in downstream area; erosion and flooding. • Farmers in upstream area not active in regulating water (farmers in middle and downstream parts active). • Water charges are not used for O&M (no attention is given to canals).
5	Banyuwangi Singojuruh Cantuk	1, reactivated	Tirto Agung	• Water shortages experienced in one small area (Turus Kiri).
6	Sumenep Saronggi Talang	1, mainly for 3 deep wells, formed cooperative.	Talang Makmur	• Low returns from *padi* and *palawija*. • Agricultural inputs expensive, even for tobacco (main source of income). • Canals repaired by Government not in accordance to farmers' wishes. • No surface water in dry season, floods in wet season (rely on deepwell pumps). • Deepwell pumps getting old.

Table E.2.5 Results of RRA Survey concerning Farmers' Perspectives in West Nusa Tenggara Province

No.	Kodya/Kabupaten Kecamatan Desa/Kelurahan	No. WUA, status	Name of WUA	Main issues/problems
1	Lombok Tengah Jonggat Labulia	>1 (WUA federation)	Mekarsari (in Gabungan P3A Batujai Hilir)	• Located in downstream area of Jurang Sate weir (DI Batujai), water shortages in dry season, conflicts over unequal distribution of water. • Water service charge collected, but no money available for repair of canals (money used for rehabilitation works in mid-stream and upstream parts of irrigation system).
2	Lombok Timur Pringgabaya Bagik Papan	No WUA	-	• Water from spring Telaga Murni 50 l/s, also used for PDAM supply. • No water service charge collected.
3	Bima Rasanae Rontu	1 (DI Wawo)	Oi Si'I	• Water flow insufficient during dry season, especially Aug-Oct. • Headworks is old (Rontu weir), never been rehabilitated; it leaks and is covered with landslide debris. • Irrigation canal not lined, high infiltration. • Water distribution is not uniform. • No water service charge, farmers not able to pay, hence no funds for maintenance/repair. • Labour is limited.

Table E.3.1 List of Selected WUA Areas for Questionnaire Survey in West Sumatera Province (1/2)

No	Kabupaten	Daerah Irigasi (DI)					Jumlah WUA dalam DI 2)	Petak Tersier		Kecamatan	Desa	WUA terpilih		Posisi 3)	Tingkat Perkembangan 4)			No.
		Nama	Luas			Status 1)		Nama Petak Tersier	Luas (ha)			Jumlah	Nama		SB	SDB	BB	
			<150 ha	150-500 ha	>500 ha													
1	Pesisir Selatan	Ambacang Gata	V				1			IX Kt. Tarusan	Talau	1	Lembah Guo		V			
		Swh.Iwh. Tarusan		V			2			IX Kt. Tarusan	Duku	1	Kt. Dusun				V	
		Koto Pulai	V				1			IX Kt. Tarusan	Koto Pulai	1	Batu Asahan		V			
		Sungai Tanang		V			3			Bayang	S. Tanang	1	S. Tanang				V	
		Btg. Inderapura			V		17			Pancung Soal	Hilalang	1	Tj. Sepakat		V			
		Btg. Inderapura	V							Pancung Soal	Kasai	1	Tj. Ampera				V	
		Btg. Inderapura	V							Pancung Soal	Kudo-kudo	1	Tj. Bahagia		V			
		Btg. Inderapura	V							Pancung Soal	Hilalang	1	Pandakian -Jaya				V	
2	Solok	Bdr. Bunian	V				1			JJg. Sirih	Perumahan	1	Usaha Bahagia		V			
		Bdr. Swh. Luar		V			1			JJg. Sirih	Merapi	1	Bkt. Indah				V	
		Bdr. Pompa I		V			1			X Kt Singkarak	Sumani	1	Alam Lestari		V			
		Bdr. Pompa VI					1			X Kt Singkarak	Pol. Bilbng	1	Alam Saiyo				V	
		Bdr. Kuluih	V				1			Bkt. Sundi	Bwh. Manggis	1	Saiyo Prantibun		V			
		Bdr. Guguk Mangolek	V				1			Bkt. Sundi	Koto Panjang	1	Ladang Padi				V	
		Bdr. Swh. Laweh		V			1			Bkt. Sundi	Koto Gadang	1	Angku Lambung				V	
		Bdr. Lolo (BS)	V				1			Bkt. Sundi	Kinari Barat	1	Sinar Timbulun		V			
3	S. Lunto S.U	Bt. Lansek TL	V				1			Tjg. Gadang	Bkt. Saibela	1	Kanajosamo				V	
		Bt. Lansek SL	V				1			Tjg. Gadang	Talang	1	Sggn Harapan		V			
		Sawah Guguk	V				1			B. Kuplitan	Pol. Sibusuk	1	Bawah Guguk				V	
		Ampang Nagari	V				1			B. Kuplitan	Pol. Sibusuk	1	Piruko Saiyo		V			
		Batang Palengko					1			Pt. Punjung	Kp. Baru	1	Karya Utama		V			
		Batang Palengko					1			Situng	Piruko	1	Budi Mulyo				V	
		Batang Mimpi					1			Pt. Punjung	S. Dareh	1	Sepakat		V			
		Bandar Situak		V			1			Pt. Punjung	Silabau	1	Situah Indah				V	
4	Pd. Pariaman	Sei. Talang	V				1			Sungai Limau	Lohong	1	Tuah Sakato		V			
		Lbk. Batung	V				1			Sungai Limau	Duku	1	Titian Sukses				V	
		Sibaruah	V				1			Sungai Limau	Sibaruah	1	Dua Saudara		V			
		Bdr Lb.Gasan Gadang	V				1			Per. S. Limau	Koto Muaro	1	Citra Subur				V	
		Bdr. Baru I		V			1			Perw. VII Kt S. Sarik	Pulau Air	1	Kami Saiyo				V	
		Bdr.Swh. Laweh	V				1			Sda	Kp. Tjg	1	Tani Makmur			V		
		Bdr. Paraman Jmb	V				1			Sda	G. Srg Gagak	1	Pincuran J			V		
		Bdr. L/N Panjang	V				1			Sda	Lareh Panjang	1	Paraman Cumarak			V		
5	Agam	Padang Bamban		V			1			Palembayan	Bamban	1	Bamban Saiyo		V			
		Gunarang BG		V			1			Sda	Gunarang	1	G. Jaya				V	
		Tompwk	V				1			Sda	Tapian Kandi	1	T. Harapan				V	
		Silungkang	V				1			Sda	Silungkang	1	Setia Murni		V			
		Jembatan Besi	V				1			Til. Kamang	Tigo Kpg	1	Alam Makmur		V			
		Brb. III Lurah (BBT)	V				1			Til. Kamang	Gantiang	1	Pandan M				V	
		Brb. III Lurah (TP)	V				1			Til. Kamang	V S. Timur	1	Tapian Jaya		V			
		Batu Mandi	V				1			Til. Kamang	VII Nagari S	1	Palango				V	
6	50 Kota	Tadah Air Sirah	V				1			Kapur IX	P. Sialang	1	Air Sarasah		V			
		Bendung Air Tabek	V				1			Kapur IX	Lubuk Alai	1	Air Tabik				V	
		Sei. Gemuruh	V				1			Kapur IX	P. Sialang	1	Sinar Gemuruh		V			
		Bukit Rimbo Putus	V				1			Kapur IX	Koto Tangah	1	Beringin Sakti				V	
		Batang Lampasi	V				1			Payakumbuh	Piobang	1	Saiyo Sakato		V			
		Batang Lampasi	V				1			Pyk Utara	Napar	1	Tarabak				V	
		Bendung Beringin	V				1			Payakumbuh	Simalanggang	1	Beringin				V	
		Batang Lampasi		V			1			Pyk Utara	Pol. Kaduduk	1	Baruh		V			

Table E.3.1 List of Selected WUA Areas for Questionnaire Survey in West Sumatera Province (2/2)

No	Kabupaten	Daerah Irigasi (DI)					Jumlah WUA dalam DI 2)	Petak Tersier		Kecamatan	Desa	WUA terpilih		Posisi 3)	Tingkat Perkembangan 4)			No.
		Nama	Luas			Status 1)		Nama Petak Tersier	Luas (ha)			Jumlah	Nama		SB	SDB	BB	
			<150 ha	150-500 ha	>500 ha													
7	Pasaman	Bt. Sopan		V			1			Talamau	Timbo Abu	1	Bt. Sopan				V	
		Bt. Sopan					1			Sda	Sda	1	Lembah Sopan	V				
		Pungai Bawah					1			Talamau	Sinurut Salyo	1	Salyo	V				
		Bungo Tanjung	V				1			Sda	Tg. Baruang	1	Bungo Tanjung				V	
		Bt. Tongar			-		1			Pasaman	Pdg Tujuh	1	Karya Utama	V				
		Bt. Tongar			-		1			Sda	Sda	1	Suka Karya				V	
		Bt. Tongar			-		1			Sda	Sukamenanti	1	Biluan	V				
		Bt. Tongar			-		1			Sda	sda	1	Harapan Karya				V	
JUMLAH WUA												56						

Keterangan :

1) diisi : PU7PID/PK/Desa).

2) tuliskan jumlah seluruh WUA dalam DI yang bersangkutan

3) diisi : hulu/tengah/hilir

posisi ini ditentukan dari letak WUA terhadap saluran sekunder. WUA terdekat dengan saluran sekunder adalah WUA hulu, dst.

4) diisi : SB = sudah berkembang/ SDB = sedang berkembang/ BB = belum berkembang/ BDB = belum dibentuk

5) diisi : S = sudah diserahkan/ B = belum diserahkan

Dalam Setiap Kabupaten, WUA yang terpilih harus mewakili DI dengan luasan > 500, 150-500, dan <150 hektar.

Untuk DI dengan luas >500 ha, dipilih 3 (tiga) WUA dengan letak hulu,tengah, hilir

Pada DI dengan luas 150-500, dipilih 1- 2 WUA, letak WUA tidak ditentukan

Pada DI dengan luas <150, dipilih 1-2 WUA, letak WUA tidak ditentukan

Table E.3.2 List of Selected WUA Areas for Questionnaire Survey in West Java Province (1/2)

Kabupaten		Daerah Irigasi (DI)			Jumlah WUA dalam DI 2)	Petak Sekunder/DI			Kecamatan	Desa	WUA terpilih		Posisi 3)	Tingkat Perkembangan 4)	Penyerahan 5)
		Nama	Luas	Status 1)		Nama petak Sekunder/DI	Nama Petak Tersier	Luas (ha)			Jumlah	Nama			
1 Lebak	>500	Cisangu Atas	535	PU	5	Cisangu Atas	Sukaraja	40	Warung Gunung	Sukaraja	3	- Selaras Jaya	Hulu	BB	B
							Cibuah	155	Warung Gunung	Cibuah		- Karya Bakti	Tengah	SB	S
							Sindang Sari	95	Warung Gunung	Sindang sari		- Sri Mukti	Hilir	BB	B
		Cipanas	538	PU	4	Cipanas	Banjar Irigasi	88	Cipanas	Banjar Irigasi	3	- **Tirta Mukti**	Hulu	SB	S
							Cilurah	268	Cipanas	Cilurah		- Mekar	Hilir	SB	S
							Sipayung	34	Cipanas	Sipayung		- Karya Bakti			
	150-500	Bunut	232	Desa	1	Bunut	Sukatarja	232	Warung Gunung	Sukatarja	1	- Karya Bakti	–	SB	S
		Cimarga	176	PU	1	Cimarga	Kalanganyar	176	Rangkasbitung	Kalanganyar	1	- Tirta Jaya	–	SB	S
	<150	Cidurian	94	Desa	1	Cidurian	Guradog	94	Maja	Guradog	1	- Guradog	–	BB	B
		Kosarun	68	Desa	1	Kosarun	Girilaya	68	Cipanas	Girilaya	1	- Jaga Jaya	–	SDB	S
		Sondol	108	Desa	0	Sondol	Cibeureum	108	Maja	Cibeureum		-	–	-	-
2 Bogor	>500	Cidurian Sdg	1167	PU	6		Sipak	141	Jasinga	Sipak	3	- Tanung Mekar	Hulu	BB	B
							Cikopomayak	58	Jasinga	Cikopomayak		- Subur Makmur	Tengah	BB	B
							Bojong	544	Jasinga	Bojong		- Sinar Harapan	Hilir	BB	B
		Cianten-Cigaeel	616	PU	3		Ciburuan	81	Cibungbulang	Ciburuan	3	- **Subur Tani**	Hulu	SDB	B
							Ciburuan	78	Cibungbulang	Ciburuan		- Tani Karya Tani	Tengah	SDB	B
							Barengkok	455	Leuwiliang	Barengkok		- Sugih Tani	Hilir	SDB	S
	150-500	Cisarantén	288	PU	1		Wangu Jaya	288	Leuwiliang	Wangu Jaya	1	- Taman Jaya	–	SB	S
		Cimapag II	203	Desa	1		Hambaro	203	Leuwiliang	Hambaro	1	- Sukaluyu	–	SB	S
		Leuwi Makam	208	Desa	1		Leuwi Makam	208	Leuwiliang	Cibomara	1	- Saleha		BB	B
	<150	Leuwisurug	73	PU	1		Tegal Waru	73	Ciampea	Tegal Waru	1	- Bina Karya	–	SB	S
		Toblongan	58	PU	1		Cimanggu II	58	Cibungbulang	Cimanggu II	1	- Tani Mukti	–	SB	S
		Reungit	108	Desa	1		Reungit	108	Leuwiliang	Gn. Picung	1	- Karya Mekar		BB	B
		Cikaramat	148	Desa	0		Cikaramat	148	Leuwiliang	Cisadhan					
3 Cianjur	>500	Cipanyusuhan	908	PU	5		Panyusuhan	185	Cisanjang	Panyusuhan	2	- Sauyunan	Hulu	SB	B
							Sukamulya	278	Cisanjang	Sukamulya		- Baktimulya	Hilir	SDB	B
		Ciradon	749.5	PU	7		Sukagalih	161	Cikalong Kulon	Sukagalih	3	- Mekar Wangi	Hulu	SB	S
							Gudang	107	Cikalong Kulon	Gudang		- Mekar	Tengah	SDB	B
							Warudoyong	148	Cikalong Kulon	Warudoyong		- Saluyu	Hilir	SB	B
	150-500	Cibeleng	194	PU	4		Cisarandi	47	Warung Kondang	Cisarandi	1	- Cipta Mukti I	–	SDB	B
		Cibalagung	385	PU	5		Bobojong	79	Mande	Bobojong	1	- Mekar Saluyu	–	SDB	B
	<150	Mandu	141	Desa	1		Manda	141	Warung Kondang	Jambudipa	1	- Tenuo Maju	–	SB	S
		Nyunghil	158	PU	1		Nyunghil	158	Mande	Majalaya	1	- Panembong	–	SDB	B
4 Bandung	>500	Ciasea	1371	PU	12		Citeulang	102	Ciparay	Citeulang	2	- Sariwangi II	Hulu	SB	S
							Sumbersari	108	Ciparay	Sumbersari		- Sumber Jaya	Hilir	SB	S
		Citerang	2648	PU	27		Cangkuang	138	Banjaran	Cangkuang	2	- **Cibolerang**	Hulu	SB	S
							Rancatungku	82	Pameungpeuk	Rancatungku		- Sirna Mukti	Hilir	SB	S
	150-500	Karasuyeuh	288	PU	2		Sangkan Hurip	178	Katapang	Sangkan Hurip	1	- Banyu Mukti	–	SB	S
		Pataia	334	Desa	1		Pataia	334	Banjaran	Sindang Tanon	1	- Tirta Saluyu	–	SB	S
		Cadas Gantung	302	Desa	1	Cadas Gantung	Cadas Gantung	302	Cisangkuy	Lamajang		- Cadas Gantung		BB	B
	<150	Barso	65	PU	1		Barso	65	Cisangkuy	Bojong Kunci	1	- Arumsari	–	SB	S
		Kiangroke	63	Desa	1		Kiangroke	63	Cisangkuy	Kiangroke	1	- Tirta Cae	–	SB	S
		Cimedal	118	Desa	1		Cimedal	118	Cisangkuy	Jatisari		- Jatisari		SDB	B
		Baru Petak	95	Desa	1		Baru Petak	95	Cisangkuy	Tri Bakti Mulya		- Bakti Mulya		BB	B
5 Garut	>500	Cibuyutan Utara	601	PU	3	Cibuyutan Utara	Margacinta	118	Leuwi Goong	Margacinta	3	- Sekar Asih	Hulu	SDB	S
							Sindangsari	208	Leuwi Goong	Sindangsari		- Ikuth	Tengah	SB	S
							Leuwi Goong	281	Leuwi Goong	Leuwi Goong		- Mekar Bakti	Hilir	SDB	S
		Cimanuk	788	PU	8	Cimanuk	Sirnagalih	127	Bayongbong	Sirnagalih	3	- Mekargalih	Hulu	SB	S
							Hegarmanah	58	Bayongbong	Hegarmanah		- Hegarmanah	Tengah	SB	S
							Mangkurakyat	222	Bayongbong	Mangkurakyat		- Cihideung	Hilir	BB	B
	150-500	Perigi	388	PU	3	Perigi	Banyuresmi	171	Banyuresmi	Banyuresmi	1	- Padasuka		BB	B
		Ciruam (cimanuk)	221	PU	1	Ciruam	Muara Sanding	221	Garut Kota	Muara sanding	1	- Karya Mekar		SB	S
	<150	Cibuyutan Selatan	108	PU	1	Cibuyutan Selatan	Sukamukti	108	Banyuresmi	Sukamukti	1	- Hegarmanah		SB	S
		Situ Sari	138	Desa	1	Situ Sari	Sukarame	138	Leles	Sukarame	1	- Pandanwangi		BB	B
6 Tasikmalaya	>500	Cikunten II	5802	PU	54		Cipakat	108	Singaparna	Cipakat	3	- Darma Bakti	Hulu	SDB	B
							Cigatl	135	Singaparna	Cigatl		- Rapih	Tengah	SDB	B
							Cipari	108	Kawalu	Cipari		- Sami-sami	Hilir	SDB	B
		Cikunten I	3502	PU	33		Cinwang	175	Leuwisari	Cinwang	3	- Tani Mukti	Hulu	SB	B
							Sari Wangi	85	Leuwisari	Sari Wangi		- Sugih Mukti	Tengah	SDB	B
							Linggamulya	218	Leuwisari	Linggamulya		- Sauyunan	Hilir	SDB	B
	150-500	Mekar	305	Desa	1		Pusparaja	305	Cigalontang	Pusparaja	1	- Sugih Mukti		BB	B
		Cipatahunan	177	Desa	1		Sirna Putra	177	Cigalontang	Sirna Putra	1	- Mugia Mulya		BB	B
	<150	Susukan Anyar	108	Desa	1		Cidugaleun	108	Cigalontang	Cidugaleun	1	- Karya Makmur		SDB	B
		Cikiray	104	Desa	1		Cikeusal	104	Tanjung Jaya	Cikeusal	1	- Lembur Sawah		SDB	B

Table E.3.2 List of Selected WUA Areas for Questionnaire Survey in West Java Province (2/2)

Kabupaten		Daerah Irigasi (DI)			Jumlah WUA dalam DI 2)	Petak Sekunder/DI			Kecamatan	Desa	WUA terpilih		Posisi 3)	Tingkat Perkembangan 4)	Penyerahan 5)	
		Nama	Luas	Status 1)		Nama petak Sekunder/DI	Nama Petak Tersier	Luas (ha)			Jumlah	Nama				
7 Indramayu	>500	Salamdarma		RJ	24	Sal. Sek. Sukra	Su.1 ki.1	28	Anjatan	Dlanakal	3	- Tani Mukti	Hulu	BB	B	
							Su.6 ki	33	Sukra	Sukra		- Sesar Kejang	Tengah	SDB	B	
							Su.11 ka	202	Sukra	Tegal Taman		- Prabakeca	Hilir	BB	B	
							Su.3 ki.2	58	Sukra	Bogor	0					
		Salamdarma		RJ	9	Sal.sek. Lang Buaya	Lby.1 ki	61	Sukra	Sukra Wetan	3	- Sri jaya	Hulu	SDB	B	
							Lby.2 ka.1	77	Sukra	Sumuradem		- Titta Adem	Tengah	BB	B	
							Lby.3 ka	110	Sukra	Sumuradem		- Sebar Kejang	Hilir	BB	B	
	150-500	Salamdarma		RJ	2	Sal. Sek. Penanggul	Pnl. Ki.1	88	Blongas	Cipaldi	1	-Sri Murni II		SDB	B	
		Cipapan		RJ	2			99	Haur Geulis	Wanakaya	1	- Domongi		SDB	B	
	<150	Dan Mansih	32	RJ	1		Rancamalya	32	Gabus Wetan	Rancamalya	1	- Sri Mulya		SDB	B	
6 Tarogong	>500	Cioadane	2061	RJ	9	Sal. Induk Utara	Kiri (BCU. 4)	26	Telak Naga	Bl. Renget	3	- Sejahtera	Hulu	BB	B	
										Telak Naga						
							Kiri (BCU. 6)	68	Telak Naga	Kebon Cau		- Harapan Mukti	Tengah	BB	B	
										Kp. Melayu Barat						
							Kri 2 (BCU. 10)	114	Telak Naga	Tegal Angus		- Sumber	Hilir	BB	B	
							Kanan (BCU. 9)	52	Telak Naga	KP Besar	0					
		Cioadane	738	RJ	8	Sal. Ind Barat Laut	Kiri (BBL. 2)	221	Sepatan	Kantil	3	- Bina Karya	Hulu	SDB	S	
										Mekar Jaya						
										Sepatan						
							Kanan 2 (BBL. 3)	74	Sepatan	Lebak Wangi		- Tani Mukti	Tengah	SDB	S	
										Pondok Jaya						
							Kanan (BBL. 5)	71	Sepatan	Hayu Agung		- Kayu Agung	Hilir	BB	B	
										Kayu Bengkok						
	150-500	Cioadane	178	RJ	2	Sal. Sek. Ketapang Barat	Kiri (BKPB. 1)	128	Mauk	Tgl. Kunir Lor	1	- Karya Bakti		BB	B	
										Ketapang						
										Mauk Timur						
		Cioadane	247	RJ	1	Sal. Sek. Sukadiri	Tengah (BSD. 2)	108	Mauk	Intanga Mulya	1	- Bina Tani		SB	S	
	<150	Cioadane	48	RJ	1	Sal. Sek. Pagedangan	Kiri (BPg. 1)	48	Mauk	Rancalabuh	1	- Sri Mulya		BB	B	
		Cidurian	67	RJ	1	Sal. Sek. Bende	Kanan (Bbe. 1)	31	Balaraja	Cikande	1	- Tri Murni		BB	B	
8 Serang	>500	Ciujung		RJ			Timm	128	Ciruas	Timm	3	- Kumtum Mekar	Hulu	BB	B	
							Bumi Jaya	159	Ciruas	Bumi Jaya		- Tani Jaya	Tengah	SDB	B	
							Singamerta	338	Ciruas	Singamerta		- Mekar Tani	Hilir	SB	S	
		Ciujung		RJ			Duluuh	128	Kragilan	Duluuh	3	- Mekar Tani	Hulu	BB	B	
							Penatang	96	Kragilan	Penatang		- Tani Maju	Tengah	SDB	B	
							Onder Andil	147	Kragilan	Onder Andil		- Harapan Maju	Hilir	BB	B	
	150-500	Ciblik		RJ			Pageragung	260	Walantaka	Pageragung	1	- Abadi		SDB	B	#
		Sibugang		RJ			Ciwat	269	Kragilan	Ciwat	1	- Tani Mekar		SDB	B	
	<150	Ciwuzal		RJ			Ciwuzal	126	Ciwuzal	Ciwuzal	1	- Harapan		SB	S	
		Jelawe		RJ			Kasoreangan	77	Walantaka	Kasoreangan	1	- Tunas Mekar		SDB	B	
10 Kabupaten	>500	Tarum Timur	>500			Tarum Timur	TT22KI/24KI	127	Pabolebusi	Cibening	2	Titta Mulya	hulu	SDB	B	
		Tarum Timur				Tarum Timur	TT24KA/26KA	121	Pabuaran	Situmon		Tani Maju	hilir	SDB	B	
	150-500	Pawelutan				-	Pwtl.1KA	68	Blinong	Cibogaya	2	Sri Jaya	hulu	SDB	B	
		Pawelutan				-	Pwtl 21 KA	113	Blinong	Cibogaya		Sri Asem	hulu	SDB	B	
	<150	Gadung	150-500			Subamsih	Sm-Ki4	24	Blinong	Rancaudik	2	Tri Sakti	tengah	SDB	B	
		Gadung				Subamsih	Sm/Ba/Gbi	21	Blinong	Rancaudik		Jaya Tani	tengah	SDB	B	
		Salam Dharma				Dogdog	Dd 1 KA	130	Pamanukan	Rancahilir	1	Tani Mukti	-	SDB	B	
		Salam darma	<150				Dd1 KA	129	Pamanukan	Blongas	1	Tani Mukti	-	SDB	B	
	>500	Salam Dharma				Walas	Wa 1 ki	113	Compreng	Melusajaya	1	Sri Bakti	Hilir	SDB	B	
		Salam darma					Wa 1 ka	148	Compreng	Melusajaya	1	Tani Mukti	Hilir	SDB	B	
JUMLAH WUA											96					

Keterangan :
1) diisi : PU/PEMPROV/Desa/
2) tuliskan jumlah seluruh WUA dalam DI yang bersangkutan
3) diisi : hulu/tengah/hilir
4) diisi : SB = sudah berkembang/ SDB = sedang berkembang/ BB = belum berkembang/ BDB = belum dibentuk
5) diisi : S = sudah diserahkan/ B = belum diserahkan

Dalam Setiap Kabupaten, WUA yang terpilih harus mewakili DI dengan luasan > 500, 150-500, dan <150 hektar.
Untuk DI dengan luas >500 ha, dipilih 3 (tiga) WUA dengan letak: hulu,tengah , hilir
Pada DI dengan luas 150-500, dipilih 1 (satu) WUA, lebak/ WUA tidak ditentukan
Pada DI dengan luas <150, dipilih 1 (satu) WUA, lebak/ WUA tidak ditentukan

Table E.3.3 List of Selected WUA Areas for Questionnaire Survey in Yogyakarta Province

Nomor	Kabupaten	Kecamatan	Nama DI/DI / Bendung/Kecamatan	Luas potensial (ha)	Nama Desa	Luas WUA (ha)			Kondisi irigasi			Kapabilitas tokoh			Status		WUA yang ada		Sejarah WUA		Kondisi WUA			WUA Sacasoe		Posisi WUA sacasoe		
						< 150	150 - 500	>500	Teknis	1/2 teknis	Sederhana	I	II	III	WUA	Non-WUA	Jumlah	Nama-nama	Lama	Baru	Berkembang	Sedang	Belum	Jumlah	Nama	Hulu	Tengah	Hilir
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
1	Bantul	Sewon	Matang Jawan	23,39	Bangunharja	V									V		1	Bangun Tani (23,39 ha)		1998			V	1	Bangun Tani (23,39 ha)			
		Sewon	Tangsing	65,67	Panggungharjo	V									V		1	Tirta Adil (65,07 ha)		1994		V		1	Tirta Adil (65,07 ha)			
		Bambang Lipuro &	Mejing	280,469	Mulyodadi,	V			V						V		9	Reja Mulyo (37,9475 ha)		1998		V		2	Reja Mulyo (37,9475 ha)	V		
		Pundong			Sidomulyo, &													Sedyo Mlyu (29,94 ha)		1998		V						
					Srihardono													Tirta Mulyo (55 ha)		1995		V						
																		Tri Bakti (17,0 ha)		1995		V						
																		Her Cancreja (66,6765 ha)		1998		V			Her Cancreja (66,6765 ha)		V	
																		Tirta Lumintu (30,345 ha)		1998	V							
																		Tirto Makmur (34 ha)		1998			V					
																		Tirto Martani (58 ha)		1998		V						
																		Tirto Manunggal (42 ha)		1998	V				Tirto Manunggal (42 ha)			V
2	Gunung Kidul	Semin	Gerobak Hilir	10	Bendang	V					V					V		-		-				1				
		Semin	Gerobak Hulu	10	Bendang	V					V					V		-		-				1				
		Ponjong	Kemo	686	Gesahan,	V			V						V		13	Sari Tirtamulyo A (26 ha)		1998	V			3	Sari Tirtamulyo A (26 ha)	V		V
		Karang Mojo, &			Sidorejo,													Sari Tirtamulyo B (40 ha)		1998	V							
		Semanu			Karang Mojo,													Ngudi Makmur (27 ha)		1998	V							
					Ngipuh, Ngawis,													Sedyo Makmur (46 ha)		1998	V				Sedyo Makmur (46 ha)			
					Dadapgrejo,													Tirto Rahayu (30 ha)		1998	V					V		V
					Kelor, Umbulrejo													Tirto Rahayu (65 ha)		1998	V							
																		Gagahrejo (16 ha)		1998	V							
																		Sida Maju (28 ha)		1998	V				Sida Maju (28 ha)			
																		Sido Makmur (32 ha)		1998	V							
																		Ngudi Rejeki (21 ha)		1998	V							
																		Sumaroki (7 ha)		1998	V							
																		Amrih Lestari (21 ha)		1998	V							
																		Ngudi Makmur (68 ha)		1998	V							
3	Sleman	Ngemplak	Gejuran	6,8	Umbulmartani	V					V					V	-							1				
		Ngemplak	Cire	24	Widodomartani						V					V	-							1				
		Ngemplak	Singolan	82	Umbulmartani	V					V				V		1	Ngupaya Makmur (62 ha)		1998			V	1	Ngupaya Makmur (62 ha)			
		Berbah	Sremayangan	275,8/24	Jogotirto	V			V						V		2	Tirto Mulyo (29,7867 ha)		V		V		2	Tirta Mulyo (29,7867 ha)	kanan	kanan	kanan
							V		V						V			Tirto Tani (248,1362 ha)		V		V			Tirta Tani (248,1362 ha)	kiri	kiri	kiri
4	Kulon Progo	Girimulyo	Penggung	32	Girijurwo	V					V				V		1	Tani Rukun (26 ha)		1992			V	1	Tani Rukun (26 ha)			
		Girimulyo	Kayangan	40	Pendoworejo	V					V					V		- (40 ha)	-	-				1	- (40 ha)			
		Lendah, Galur, &	Kapoh	1917	Jatirejo, Bunirejo,	V			V						V		37	Ganis Tirta (74 ha)		1991		V		3				
		Panjatan			Wahyuharjo,													Tirto Aji (28 ha)		1998		V			Tirto Aji (28 ha)			V
																		Wiji Mulyo (80 ha)		1994		V						
																		Bumirejo III (23 ha)		1991		V						
																		Bumirejo IV (31 ha)		1991		V						
																		Bumirejo V (36 ha)		1991		V						
																		Guyub Rukun (91 ha)		1991		V			Guyub Rukun (91 ha)			
																		Pulo Tirta (18 ha)		V		V						
																		Sri Rejeki (39 ha)		1998		V						
																		Sumber Rejeki (63 ha)		1991		V						
																		Sumber Dadi (74 ha)		1998		V						
																		Tirta Mulyo (44 ha)		1993		V						
																		Mantadi Luhur (28 ha)		1993		V						
																		Tirta Jaya (76 ha)		1998		V						
					Brosot, Banaran,													Cipta Boga (84 ha)		1994		V						
					Kranggan,													Tani Makmur (66 ha)		1993	V							
					Nomporejo,													Sido Makmur (63 ha)		1991			V					
					Karangpawa,													Tegal Mulyo (82 ha)		1998			V					
					Pandowan,													Ngudi Makmur (78 ha)		1993			V					
					Titorahayu,													Sawo Rukun (32 ha)		1993		V						
					Karonsan, Bugel,													Rowo Tirto (26 ha)		1994		V						
					Krembangan,													Ngudi Rukun (22 ha)		1998		V						
					Cerme, Panjatan,													Ngudi Rahayu (71 ha)		1991		V						
					& Gotekan													Sri Dadi I (50 ha)		1993		V						
																		Sri Dadi II (41 ha)		1993		V						
																		Sida Luhur (41 ha)		1998		V						
																		Margo Mulyo (78 ha)		1991			V					
																		Sri Rahayu I (48 ha)		1998		V						
																		Sido Makmur (59 ha)		1998	V							
																		Mekar (70 ha)		1991		V						
																		Dermoh Rejeh (76 ha)		1998		V			Dermoh Rejeh (76 ha)			V
																		Subur Sempalur (61 ha)		1998		V						
																		Sumber Makmur (50 ha)		1998		V						
																		Tani Makmur (40 ha)		1998		V						
																		Tirto Sari (49 ha)		1998		V						
																		Ngudi Lanas (34 ha)		1998		V						
																		Sri Rahayu II (36 ha)		1998		V						

Table E.3.4 List of Selected WUA Areas for Questionnaire Survey in East Java Province (1/2)

Nomor	Kabupaten	Kecamatan	Nama DI/Bendung/Kecamatan	Luaspotensial(ha)	Nama Desa	Luas WUA (ha)			Status		WUA yang ada		Kondisi WUA			WUA Sasaran		Posisi WUA sasaran		
						< 150	150 - 500	>500	WUA	Non-WUA	Jumlah	Nama-nama	Berkembang	Sedang	Belum	Jumlah	Nama	Hulu	Tengah	Hilir
1	2	3	4	5	6	7	8	9	16	17	18	19	22	23	24	25	26	27	28	29
1	Malang	Singosari	Singosari	994	Tamanharjo	V(78)			V		1	Sukowarno		V		1		V		
					Purwoasri	V(116)			V		1	Tirtosari		V		1			V	
					Watsgede	V(131)			V		1	Sumberlancar	V			1				V
					TunjungTirto		V(269)		V		1	Binatirta		V		1			V	
																1				
		Pakis	Kali Pakis	851	Sbr. Pasir		V(217)		V		1	PasirJaya			V	1		V		
					Banjarejo		V(244)		V		1	Amongtani		V		1			V	
					Sukosanyar		V(243)		V		1	DewSri		V		1				V
					Kl. Pakis	V(147)				V										
		Lowok Waru	Sengkaling	449	Mojolangu	V(97)			V		1	Binatirta		V		1		V		
					Tasikmadu		V(193)		V		1	Madutirto	V			1			V	
					Tunggulwulung		V(159)		V		1	Tirtakencana	V			1				V
2	Kediri	Gurah	Pojok	230	Bogem	V(106)			V		1	Sidomakmur			V	1		V		
					Bimbing	V(124)			V		1	Sbr.Makmur		V		1			V	
			Kendal	583	Tiru Lor		V(371)		V		1	Tani Maju		V		1			V	
					Bangkok		V(212)		V		1	SriRejeki		V		1				V
		Pagu	Siman	711	Bangsongan		V(187)		V		1	TirtoMulyo			V	1		V		
					Mukuh		V(286)		V		1	DewSri		V		1			V	
					Sendan		V(238)		V		1	Tani Subur		V		1				V
		Plare	Kr. Anyar	259	Darungan	V(90)			V		1	Tirtomili		V		1				V
					Gedongsewu		V(169)		V		1	Melati			V	1		V		
			Sidorawuh	339	Sbr. Bendo		V(162)		V		1	Tirtotawangsari			V	1			V	
					Sambirejo		V(177)		V		1	Rukuntani		V		1				V
3	Jember	Silo	Garahan	663	Sempolan		V(290)		V		1	Karyatani		V		1		V		
					Garahan		V(373)		V		1	Sembodotani		V		1			V	
			Kb. Gunung		Sbr. Danti		V(499)		V		1	Sbr.Tani		V		1				V
					Silo		V(206)		V		1	Andalan		V		1			V	
		Kalisat	Sbr. Pakem	1291	Sbr. Kalong		V(297)		V		1	Sbr. Jaya			V	1		V		
					Kalisat		V(309)		V		1	Tirtosari			V	1			V	
					Pelalangan		V(391)		V		1	Sbr. Makmur			V	1				V
					Sukorejo		V(295)		V		1	TirtoKencono		V		1			V	
		Mayang	Sbr. Nangka	1442	Mayang		V(446)		V		1	Sbr. Agu		V		1		V		
					Tegalwaru		V(413)		V		1	Tirtoasri		V		1			V	
					Merawan		V(294)		V		1	Gumuksari		V		1		V		
					Sbr. Kejayan		V(289)		V		1	TirtaJaya		V		1				V
4	Sumenep	Ambuten	Tambak Agung	418	AmbutenTimur	V(74)			V		1	Amb. Timur			V	1		V		
					AmbutenTengah	V(136)			V		1	Amb. Tengah			V	1		V		
					TambakAgung	V(57)			V		1	Tbk. Agung			V	1				V
					Camporbarat	V(152)			V		1	Cmp. Barat			V	1				V
		Ganding	PID Ganding	398	Ketawanglao	V(112)			V		1	Khw. Lao			V	1		V		
					Betaalbarat	V(70)			V		1	BetaalBarat			V	1			V	
					Ganding		V(216)		V		1	Ganding			V	1				V
		Dasuk	PID Dasuk	950	Semaan		V(227)		V		1	RukunKarya			V	1		V		
					KertaTimur		V(223)		V		1	Kertajaya			V	1			V	
					Kerta Barat		V(207)		V		1	Tarunajaya			V	1			V	
					Dasuk Barat		V(293)		V		1	Kambajaya			V	1				V
5	Jombang	Perak	Kanto Kediri I	940	Cangkring Madu	V(140)			V		1	Makmur		V		1		V		
					Gading Mangu	V(145)			V		1	Tirto Lancar		V		1			V	
					Kepuh Kajang		V(214)		V		1	Tetap Jaya		V		1			V	
					Pager Wojo	V(158)			V		1	Tani Mulyo		V		1				V
		Mojowarno	Sbr. Grogol	64	Gondek	V(21)			V		1	RukunMakmur		V		1			V	
					Kedungpari	V(43)			V		1	Banguntirto	V			1			V	
		Diwek	Bareng	754	Balongbesuk	V(139)			V		1	Sbr. Makmur	V			1		V		
					Ceweng	V(137)			V		1	TirtoMakmur	V			1			V	
					Jabon		V(214)		V		1	SariAsih		V		1			V	
					Sambongdukuh		V(264)		V		1	Tani Makmur		V						V

Table E.3.4 List of Selected WUA Areas for Questionnaire Survey in East Java Province (2/2)

Nomor	Kabupaten	Kecamatan	Nama DI/Bendung/Kecamatan	Luas potensial(ha)	Nama Desa	Luas WUA (ha)			Status		WUA yang ada		Kondisi WUA			WUA Sasaran		Posisi WUA sasaran		
						< 150	150 - 500	>500	WUA	Non-WUA	Jumlah	Nama-nama	Berkembang	Sedang	Sekat	Jumlah	Nama	Hulu	Tengah	Hilir
1	2	3	4	5	6	7	8	9	16	17	18	19	22	23	24	25	26	27	28	29
6	Bojonegoro	Bojonegoro	PID Bojonegoro	317	Campureja	V(54)			V		1	Tirtomakmur		V		1		V		
					Kalireja	V(140)			V		1	Tirtomulyo	V			1			V	
					Sukorejo	V(123)			V		1	SidaTirto	V			1				V
		Kapas	Prang	925	Kedaton	V(127)			V		1	Tirtosumberlestari	V			1		V		
					PadangMentoyo	V(120)			V		1	PadangTirto	V			1		V		
					Plesungan		V(162)		V		1	tirtosumberrejeki			V	1			V	
					Tjirharjo		V(287)		V		1	Tirtokaryatani	V			1			V	
					Bendo		V(229)		V		1	Hartotirta	V			1				V
		Dander	Dander		Mojorosu		V(189)		V		1	Raos Tirto		V		1		V		
					Ngumpakdalem		V(466)		V		1	IrtaMargomulyo	V			1			V	
					Sumbertawah		V(480)		V		1	Sumber Tirto			V	1				V
	Pasuruan	Purwosari	Pertolon	365	Martapuro	V(87)			V		1	Tani Makmur			V	1		V		
					Bakalan	V(84)			V		1	Bina Tirta		V		1			V	
					Sirnut		V(194)		V		1	Bina Tirta	V			1				V
		Wonorejo	Bakalan	1068	Gejatlangar		V(464)		V		1	Jalita			V	1		V		
					Pakisangan		V(161)		V		1	Pasjama			V	1			V	
					Sambisirah		V(252)		V		1	Sambisirah		V		1				V
					Cobanblimbing		V(191)		V		1	Bina Tirta		V		1			V	
		Kejayan	Licin	353	Kadonnangan	V(139)			V		1	Sbr Makmur	V			1		V		
					Wratni		V(268)		V		1	TirtaBisana		V		1			V	
					Randugong		V(256)		V		1	Bina Tirta			V	1				V
8	Trenggalek	Watulimo	PID Watulimo	309	KarangGandu	V(95)			V		1	Tirtomakmur			V	1		V		
					Pengi	V(80)			V		1	Sumbermakmur		V		1			V	
					Tasik Madu	V(60)			V		1	Ngudimakmur		V		1			V	
					Sawahan	V(64)			V		1	Sukomakmur	V			1				V
		Munjungan	PID Munjungan	513	KarangTuri	V(76)			V		1	KarangTuri			V	1		V		
					Masaran		V(264)		V		1	Masaran			V	1			V	
					Tawing		V(173)		V		1	Tawing			V	1				V
		Trenggalek	Prambon	348	Dawuhan	V(112)			V		1	Tentrem			V	1			V	
					Sukorejo	V(108)			V		1	Seger			V	1		V		
					Sbr Gedang	V(128)			V		1	Tirtoagung		V					V	
9	Lumajang	Jatiroto	PID Jatiroto	845	Kalibito Lor		V(162)		V		1	Tirta Yasa	V			1		V		
					Kalibito Kidul		V(201)		V		1	Tirta Sari	V			1			V	
					Rojopolo		V(313)		V		1	Mitratani	V			1			V	
					Banyuputih Kidul		V(352)		V		1	Tirta Kencana	V			1				V
		Pasirian	PID Pasirian	2095	Nguter			V(867)	V		1	Karya Tani	V			1		V		
					Pasirian			V(540)	V		1	TirtaRahayu	V			1		V		
					Bago			V(578)	V		1	Tani Maju	V			1			V	
		Lumajang	Curah Manjanggar	1010	Mojosari		V(272)		V		1	Sidomulyo			V	1		V		
					Boneng		V(230)		V		1	Sriredono	V			1			V	
					Darisk		V(258)		V		1	Sidomakmur	V			1				V
					Jogotrunan		V(250)		V		1	Karyatani	V			1				V
10	Banyuwangi	Singojuruh	PID Singojuruh	1792	Lemahbangkulon	V(133)			V		1	Tanimakmur		V		1		V		
					Singojuruh		V(330)		V		1	Singabekti		V		1			V	
					Gunisiti		V(483)		V		1	Santbumi		V		1				V
					Kemiri			V(648)	V		1	Setiamasa		V		1			V	
		Glagah	PID Glagah	898	Kamp. Anyar		V(228)		V		1	Tirtosari	V			1		V		
					Licin		V(276)		V		1	Tirtoagung	V			1			V	
					Tamansuruh		V(394)		V		1	Tirtoroto	V			1				V
		Rogojampi	Gembleng	1306	Kaotan	V(148)			V		1	Sidorukun	V					V		
					Karingbanda		V(383)		V		1	Sidomakmur	V						V	
					Blimbingsari		V(264)		V		1	Santani	V							V
					Watukebo			V(511)	V		1	Sumberstoma		V						V

Catatan Pengisian

Kolom Nomor: 6; 18; 19; 26 di isi

Kolom Nomor: 10; 11; 12; 13; 14; 15; 16; 17; 20; 21; 22; 23; 24; 30; 31; 32; 33 cukup di conteng (silang) pada posisi yang benar

Untuk kolom nomor 25 yang berjumlah 0 (nol) dapat diisi dengan lokasi Non WUA
dengan syarat lokasinya berdekatan dengan lokasi lainnya dan yang berjumlah 3 diturunkan menjadi 2 dengan menjadikan posisi tengah

Table E.3.5 List of Selected WUA Areas for Questionnaire Survey in NTB Province

No.	Kabupaten	Kecamatan	Nama DI/ Bendungan/ Kecamatan	Luas Potensial (Ha)	Nama Desa	Kondisi Irigasi			Status WUA		WUA yang ada		Kondisi WUA			WUA Sasaran		Posisi WUA Sasaran		
						Luas WUA			WUA	Non-WUA	Jumlah	Nama-nama	Ber-kembang	Sedang	Belum	Jumlah	Nama	Hulu	Tengah	Hilir
						<150	-500	> 500												
1	2	3	4	5	6	7	8	9	16	17	18	19	22	23	24	25	26	27	28	29
1	Lombok Tengah	Batukliang	Mesone	140	Aik Darek	V			V			Beriuk Damai		V		1				
		Batukliang	Gule Liat	210	Air Bukaq				V			Pade Rasa	V			1				
		Jonggat	Batujai	380	Labulia		V		V			Mekar Sari	V			1				
		Kopang	Bisok Bokah	931	Kopang Rembiga		V			V		Beriuk Sadar				1				
		Batukliang	Gede Bongoh	2,644	Mantang			V	V			Ingin Sejahtera		V		2		V		V
					Barabali			V	V			Sumber Tani						V		V
2	Lombok Timur	Aikmel	Mamben	75	Mamben Lauk	V			V			Papak Jaya			V	1				
		Pringgabaya	WD. Kembar	367	Ketangga		V		V			Mulai Sadar		V		1				
		Pringgabaya	Songgen	238	Wanasaba		V		V			Songgen Takwa		V		1				
		Aikmel/Pringgabaya	Kukusan	2,864	Pohgading			V	V			Pohgading I		V		1		V		V
		Aikmel	Kukusan	2,258	Apit Aik			V		V		Paok Dendek	V			2		V		V
					Bagik Papan							Telaga Murni								
3	Bima	Rasanae	Dam Sangga	130	Kendo	V			V			Oi Witi		V		1				
		Rasanae	Rontu	500	Rontu		V		V			Oi Si'l		V		1				
		Monta	Parado	337	Sakuru		V		V			Samanggawa I		V		1				
		Woha	Kalate	68	Kalampa			V	V			Tembasari		V		1		V		V
		Wawo	PID wawo	1,739	Raba			V		V		Ompu Fifa			V	2		V		V
					Sambinae							Sarinci Oi								
4	Sumbawa	Alas	Lekong	4,469	Lekong		V		V			Brang Penawar		V		1				
		Taliwang	Kalimantong I	434	Kalimantong	V			V			Taruna Ngadang I			V	1				
		Alas	Tiu Bulu	998	Mapin Kebak			V	V			Lenang Kukin		V		2				
					Mapin Rhea			V	V			Santong		V				V		V
		Taliwang	Kalimantong II	2,500	Dalam	V			V			Saling Asih		V		2		V		V
					Tepas			V	V			Batu Nganga		V						