

**Ministerie van Buitenlandse Zaken
Directie Azië en Oceanië (DAO/ZO)**

PBSI Departmental Proposal for:

**Land & Water Management Tidal Lowlands (LWMTL)
SOUTH SUMATRA PROVINCE**

Participatory Approach



**Rijkswaterstaat, UNESCO-IHE, ARCADIS-Euroconsult in
cooperation with Kimpraswil, Dept. Pertanian and
Local Government South Sumatra**

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1. GENERAL

A. CORE INFORMATION

- Project name: Land & Water Management Tidal Lowlands (LWMTL), Participatory Approach;
- Location: Tidal Lowlands of South Sumatra province, Kabupaten Banyuasin;
- Theme: Good governance;
- Target Group: Water User's Associations and Farmer's Groups in Tidal Lowlands;
- Submitted by: Rijkswaterstaat Bouwdienst, Prof.Dr.Ir. E. Schultz, supported by the Joint Steering Committee for the MoU between the Ministries of Human Settlement and Rural Infrastructure, and of Environment of Indonesia and the Ministries of Transport, Public Works and Water Management, and of Spatial Planning, Housing and Environment of The Netherlands and the Working Group Indonesia (CUR-F1);
- To be implemented by: Rijkswaterstaat Bouwdienst (coordinator), UNESCO-IHE, ARCADIS-Euroconsult, Kimpraswil Jakarta, Min. of Agriculture Jakarta, Prov. Government South Sumatra, Regency of Banyuasin, Local Research Institute, Sriwijaya University;
- Duration 2 years starting March 2004-February 2005;
- Total project budget: € 544089,44 Dutch Grant. Indonesian input not included yet, but multiple of Dutch Grant. (See also page 32);
- Contribution request: € 420571

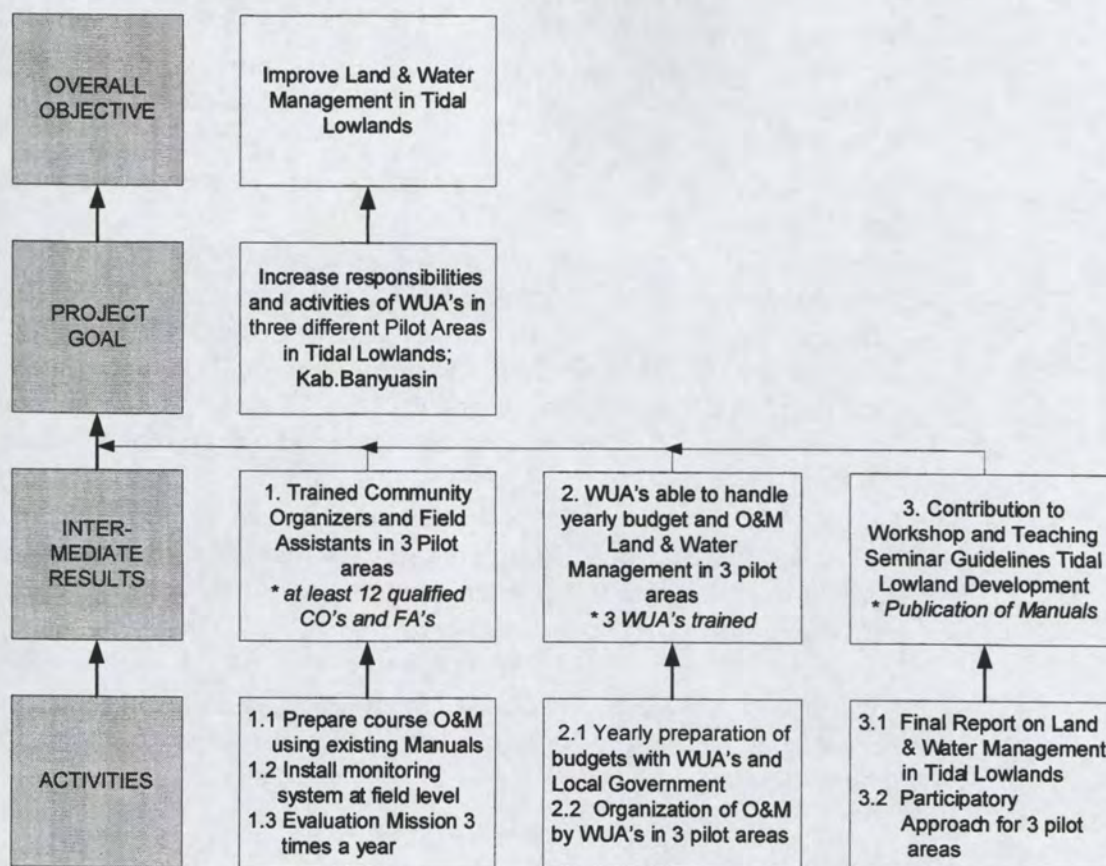
B. PROJECT SUMMARY

The LWMTL project aims to a sustainable development of Land & Water Management by transfer of knowledge and manpower development. A main objective is to improve existing Guidelines and Manuals. The project targets the Water Users Associations in respect to Water Management, Operation & Maintenance with a fully participatory approach in three Pilot Areas, with different environmental settings. It will also contribute to Planning, Budgeting and Implementation of the needed Water Control Infrastructure by Government Agencies. Together with farmers, solutions should be found for logistic and financial problems related to the technology development for mechanized food crop production aiming at two crops per year. The LWMTL project is an integrated part of the activities of the Indonesian financed Rice Estate project in Tidal Lowlands, South Sumatra province, Regency of Banyuasin, supported by Kimpraswil (Water Resources) and the Ministry of Agriculture (Agricultural Facilities, Irrigation and Water Management).

C. LOGICAL FRAMEWORK MATRIX

Project Purpose I:

O&M with Water Users Associations (WUA's)



* Measurable indicators in order to indicate whether project goals have been reached

Indicators:

Project Purpose: Manuals and Guidelines for O&M and Land & Water Management based on two years practical experience in three environments in Tidal Lowlands, in South Sumatra, also applicable to other tidal lowlands in Indonesia.

Results: Three Water User's Associations in three different environments able to handle the yearly budget and other inputs for the O&M of water control infrastructure and the Land & Water Management.

Monitoring:

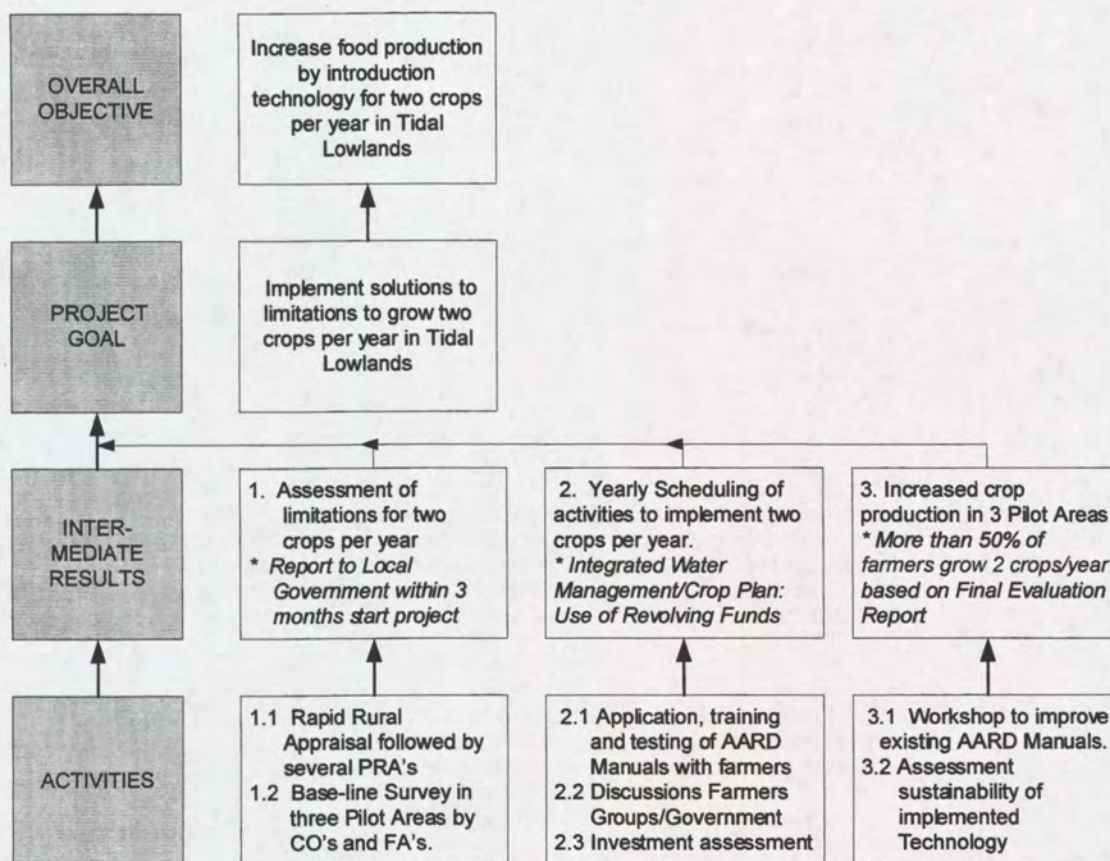
After one year at least 12 qualified CO's and FA's are able to handle and teach the three WUA's in the pilot areas in organization of O&M and Land & Water Management. Further they are able to collect and evaluate data of key indicators for the monitoring of the Rice Estate project area.

External condition:

The success of the Rice Estate project and willingness of the provincial government to support this project fully until 2006 is also a precondition for the success of the LWMTL Land & Water Management Tidal Lowlands project .

Project Purpose II:

Familiarization and implementation Farming System Technology



* Measurable indicators in order to indicate whether project goals have been reached

Indicators:

Project Purpose: Yearly scheduling of activities required to implement the cultivation of two crops per year.

Results: Increased crop production as more than 50% of farmers in the three pilot areas grow 2 crops/year. An increase of 25% in total yearly production of the Pilot Area Unit covering 750 ha.

Monitoring:

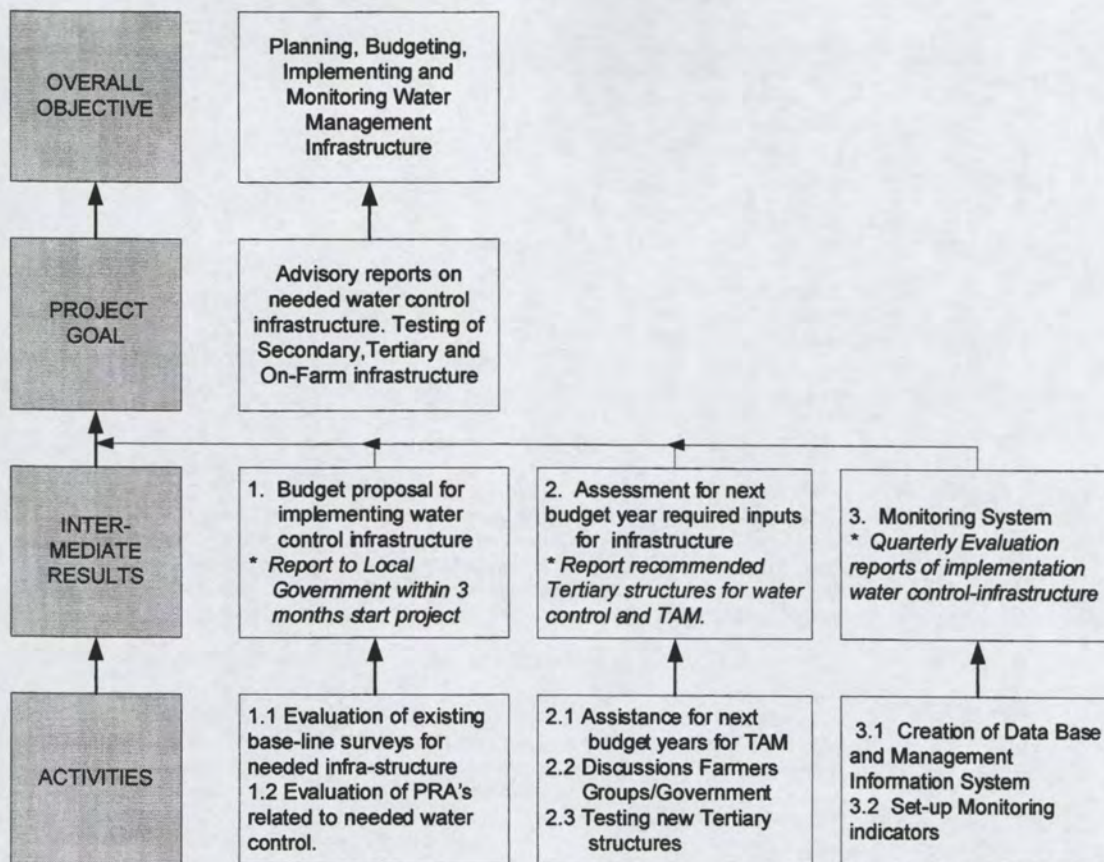
Yearly integrated Water Management and Cropping Plan for the Farmer's Groups, including the WUA's in the three Pilot areas.

External Condition:

The success of the Rice Estate project and willingness of the provincial government to support this project fully until 2006 is also a precondition for the success of the LWMTL Land & Water Management Tidal Lowlands project.

Project Purpose III:

Assessment needed water control infrastructure



TAM, Tata Air Mkro: On-Farm Water Management system

** Measurable indicators in order to indicate whether project goals have been reached*

Indicators:

Project purpose: Assessment for required inputs water control infrastructure in Rice Estate Project Area; types of needed water control structures, short/long-term, including Secondary/Tertiary structures and On-Farm Water Management system.

Results: Advisory reports to local government for direct implementation of water control infrastructure.

Monitoring:

Quarterly Evaluation reports of progress implementation water control infrastructure in Rice Estate Area.

External Conditions:

The success of the Rice Estate project and willingness of the provincial government to support this project fully until 2006 is also a precondition for the success of the LWMTL Land & Water Management Tidal Lowlands project.

2. PROJECT SETTING

A. PROBLEM ANALYSIS

Background. Indonesia avails over large Lowland areas with an estimated area of about 33.4 million ha, out of which about 20 million ha is Tidal Lowland. Almost 4 million ha of Tidal Lowlands have been reclaimed, partly by spontaneous settlers (more than 2.5 million ha) and partly by Government Schemes (about 1.3 million ha). Surveys in the past (1984) showed that in total about 9 million ha with clayey and peaty soils are suitable for agriculture. The remaining 11 million ha of Tidal Lowlands are mainly deep peat soils of which a majority is not sustainable for development.

Nearly all rice in Indonesia is produced on Java island, one of the most densely populated rice growing areas of the world. Near the cities the pressure on the rice land is high. Another problem is that the small land holdings on Java island makes increasingly rice an un-attractive crop for income generation for farmers. To become competitive, the rice cultivation will be more mechanized in the future and will grow for a major part outside Java.

Rice production on Java island will likely also decrease in the future as the Urban and Domestic requirements for water are in strong competition with the high water requirements for rice. The far biggest gain in domestic water supply will be obtained by reducing the area of rice fields and grow instead more dryland food crops on Java island.

Worldwide the Lowlands appear to be the most successful environment for rice production. Lowlands are highly suited for mechanization and often found with relatively large farm-holdings, good for an efficient rice production with competitive world market prices. There are usually also ample potentials for water supply from large rivers.

To increase rice production at competitive world market prices in Indonesia concentration for development should be on the existing reclaimed areas in Tidal Lowlands to reduce investment costs. The far biggest potential to increase rice production outside Java island is in the reclaimed Tidal Lowlands.

However rice production and development in the Tidal Lowlands is presently still at a low level at many places. Although at some places a remarkable increase of production has occurred. Lessons learned from these successes reveal that the low production levels have several causes related with each other. (ISDP, World Bank Loan 3755-IND). They are:

- * Soils are not well matured and acidity problems are still rampant in places. This problem relates to poor water management;
- * Related to this problem is a lack of investments and a severe lack of labour by lack of mechanization;
- * Different types of other problems; the most important:
 - Lack of good credit facilities;
 - Inadequate infrastructure;
 - No On-Farm Water Management system;

- No or little land preparation when planting rice;
- Bad quality rice by lack of good post-harvest management facilities;
- Pests and diseases;
- Land property problems;
- * In-adequate Operation & Maintenance.

Also based on the experience of the local Research Institute of Sriwijaya University in Palembang for the schemes in Telang area (Sumsel), the conclusion can be made that successful Tidal Lowland development requires relatively high investments in human resources and technical infrastructure. A low cost-low input approach does not work. Table 1 summarizes the required investments which emphasizes an integrated approach.

Problems to be addressed by the proposed LWMTL project. Tidal Lowlands in South Sumatra province are already developed for more than 25 years. The investment in South Sumatra is the far biggest investment the Government has made in the last 25 years in Tidal Lowlands. The Central Government, especially the Ministry of Public Works (Kimpraswil) has been deeply involved for a long time, both in research, planning and implementation in South Sumatra. However there is still a high need to improve the performance for a sustainable system of Operation & Maintenance. Further the National Research Agency for Food Crops (AARD) conducted research and developed proper farming system technologies for many years in South Sumatra between 1988 and 2001. Nonetheless there is still a need to familiarize these technologies on large scale and implement them with the farmers. These problems are mainly related to logistic and financial problems, both found with the farmers and the government. The objectives of the LWMTL project are related to:

- * the need to increase rice productivity as the main incentive for proper water management planning with farmers participation; find solutions for logistic and organizational limitations;
- * organize the Operation & Maintenance of the system with an optimum input of Farmer's Groups and the involved local Government for an integrated yearly budget planning to improve the water control system with these basic stakeholders,
- * introduce the proper mechanization techniques, fertilizer applications and post-harvest management and organize these inputs with the farmer's groups. Find solutions for financing these inputs.

The proposed project for LWMTL intends to address all these problems but will specifically address the problems for land & water management in the Tidal Lowlands as encountered in the Pilot Area of the Tidal Lowland Guidelines project, financed by Dutch Aid in cooperation with Kimpraswil, MoU (See also page 9).

The Land & Water Management in Tidal Lowlands. For mechanized double cropping in the Tidal Lowlands, special attention should be given to water control during land preparation to guarantee timely planting, essential for producing two crops per year in Tidal lowlands. Also attention is required to proper water control for broad-cast seeding and during harvesting. In Tidal Lowlands the impact of water quality control in the canals is also an important aspect, both for irrigation purposes as for the domestic water supply.

Table 1: Aspects of a successful Lowland Development Strategy

NO	PURPOSE	ACTIVITIES
01	AGRICULTURE DEVELOPMENT	<ul style="list-style-type: none"> - Mechanized agricultural development - Providing agricultural inputs (seed, fertilizers, pesticide) - Uniform cropping one secondary water management unit - Crop diversification, dry food-tree crops, aquaculture - Cropping intensity to 2x per year - Training-Extension for farmers and local government staff
02	WATER MANAGEMENT	<ul style="list-style-type: none"> - Installation/ Rehabilitation of water control structures - Operation and Maintenance of the structures - Training of OM for the farmers-local government staff - Aqua-culture development - Estate crops/ Tree crops
03	POST HARVEST HANDLING	<ul style="list-style-type: none"> - Sufficient and well distributed processing/ drying of grains/ post harvest handling - Storage - Transportation to the market - Marketing
04	REGIONAL, ECONOMIC, SOCIAL INFRASTRUCTURES	<ul style="list-style-type: none"> - Improvement of waterway facilities - Road development - Development of Market - Facilities for drinking, sanitation, education, health, religion - Spatial planning
05	INSTITUTIONAL DEVELOPMENT	<ul style="list-style-type: none"> - R & D, Training-Ext by the local research institute - Initiative action and commitment of local government - Private sector involvement - Participatory approach - Banking/ Credit mechanism
06	MANAGEMENT INFORMATION SYSTEM (MIS)	<ul style="list-style-type: none"> - Asset management - Monitoring and Evaluation - Geographical Information System - Modeling of water management
07	ENVIRONMENTAL IMPACT MANAGEMENT	<ul style="list-style-type: none"> - EIA documents (Amdal/ UKL/UPL) - Law and regulation - Conservation of natural resources

The Land & Water Management project for Tidal Lowlands will address the following problems specifically:

1. *Operation & Maintenance.* Farmers in the selected areas for the Rice-Estate program of the Government have considerably increased their resources to handle the water management requirements in Tidal Lowlands. However there

is lack of knowledge and insufficient management to organize the yearly maintenance program of the water control infrastructure. With full farmers participation the farmers can manage most of this infrastructure and can participate in the construction of the water control infrastructure for most areas;

2. *Coordination Local Government/Farmer's Group inputs.* In the newly selected areas for the coming years of the Rice-Estate program, also inputs of the Government are highly needed to improve the water control and the availability of all required agricultural inputs. Also the need to handle the increased production, that requires a precise time scheduling when growing two crops a year, needs extra inputs by the local government and farmers. Assistance to the Government and the Farmer's Groups would be needed for an integrated approach in handling these problems and coordinating the yearly budgets in cooperation with the farmer's groups.
3. *Management Information System.* The lack of knowledge and access to this knowledge for Tidal Lowlands Development is also a problem for the Government. Conflicting views are often expressed by different organizations involved with Tidal Lowland Development. Assistance in the set-up of a Management and Information System would be required to improve the processes for an integrated and coordinated approach to the development.
4. *Testing of new low cost tertiary and sub-tertiary structures.* Many areas in Tidal Lowlands still have a limited water control. The costs to install a fully controlled water management system might be considerably. There is a need, expressed by the Ministry of Agriculture, Directorate of Irrigation Water Management for a temporary solution for the rice lands at much lower costs. This requires the testing of new types of tertiary and especially sub-tertiary structures, with full farmers participation. There is also a need, expressed by the farmers, to use low-lift pumps for the second crop during land preparation. Guidelines are required for the O&M of these structures and pumps. They will be mainly used by the Water Users Associations (WUA's).
5. *Participatory O&M and Guidelines.* Presently the Watsal project of Kimpraswil (Ministry of Human Settlement and Rural Infrastructure) for water management concentrates on gravity irrigation areas in the uplands. In this program an emphasis is laid on farmers participation for water management and Operation & Maintenance. There is a high need for an adjustment of this program to the conditions in the Tidal Lowlands.

National Policies related to the project

Rice Estate Project

The local Government of South Sumatra, by means of the Dolog (Logistic Depot) will put their major input for rice production increase for this year and next coming years on the Tidal Lowlands by means of the Rice Estate project. Rice will be bought from the farmers at official rice prices and the field-dry rice will be processed by the Government through Dolog. For the first time Dolog build a rice mill in the Tidal Lowlands, which has been completed in March 2003.

The importance of these developments for the Tidal Lowlands can be judged by the visit of the President of Indonesia and the Head of Bulog (Bureau Logistic for Food crops in Jakarta) to the Rice Estate project area in Telang I Scheme on 24 March

2003. This visit was planned at the height of activities for the harvest of the first crop and the planting of the second crop.

The Central Government plans to extent the experience to other provinces for the near future. The LWMTL project will contribute to the activities of the Rice Estate project, being an integrated part of it for a number of objectives. It will also contribute to other activities within the Tidal Lowlands by Dinas PU (Public Works) and Dinas Pertanian (Agriculture) by the local government.

Kimpraswil, Provincial Public Works Department of South Sumatra

The activities for this Rice Estate project in relation to the Water Management problems and the water control infrastructure are supported by the provincial Public Works, Department of Water Resources. They will provide an input for a major maintenance of the canal system; for the first time in six years. Also major repairs will be conducted on existing tertiary and secondary structures. The Government, through Kimpraswil, supports a participatory approach, in the Operation & Maintenance of the water control infrastructure.

Ministry of Agriculture, Provincial Agricultural Department

The Ministry of Agriculture has made major inputs for a participatory On-Farm Water Management system (Tata Air Mikro, TAM) for budget years 2002, 2003 and 2004 and will support mechanization in Tidal Lowlands, including the Target Areas of the LWMTL proposal in South Sumatra. Attention by the Ministry of Agriculture for new rice development in Tidal Lowlands is focused to seven provinces outside Java, but clearly the most advanced inputs are presently made in South Sumatra, the province with the largest coverage of Tidal Lowland Schemes in Indonesia.

Regency of Banyuasin, South Sumatra

In 2003 the newly founded Kabupaten (Regency) Banyuasin, where most Tidal Lowland schemes are located, has carried out most activities on water management including TAM for the first time in these areas under their responsibility, with support of the Ministry of Agriculture. They will need technical and knowledge support especially for the problems as formulated under the previous section: The Water Management Problem.

Complementary to Dutch financed multi-lateral projects. South Sumatra province is one of the key-provinces for the WISMP project. The WISMP project, financed through the World Bank by the Dutch co-operation program for the water sector aims at improving the Water Management in the "Technical Irrigated" areas, based on the experiences on Java island with an Participatory Approach by farmer's.

However projections for the increase of rice production for the coming five years are mainly foreseen in the Tidal Lowlands by the provincial government of South Sumatra. (Dinas Pertanian SumSel). Presently the WISMP projects lacks sufficient support for the activities of the Indonesian Government in the Tidal Lowlands. It will only support Rp. 200,000,000 (about € 22,000) this year mainly to invest in the offices and office equipment for the WUA's (Water User's Associations) and local government for Tidal Lowlands in Kabupaten Banyuasin. The LWMTL project for Land & Water Management Tidal Lowlands could be considered complementary to

the WISMP activities in the province as it concentrates on a participatory approach of Land & Water Management with farmers in the Tidal Lowlands.

The experience in the WISMP project could be of great help to adjust the Guidelines of Watsal to the Tidal Lowlands. The Indonesian Government considers the Dutch experience for Water Management in Tidal Lowlands in Indonesia as vital as all multi-lateral projects, related to Tidal Lowlands development were awarded to Dutch Consultants in the past.

The Bi-lateral Tidal Lowlands Guidelines project. This Tidal Lowlands Guidelines project is a bi-lateral project between the Ministry of Human Settlement and Rural Infrastructure (Kimpaswil) Jakarta and the Ministries of Transport, Public Works and Water Management (Rijkswaterstaat) and of Spatial Planning, Housing and Environment (Netherlands). This project concentrates on workshops and teaching seminars concerning guidelines for the development of Tidal Lowlands with a special attention to Water Management and Operation & Maintenance. The activities include the monitoring of the water management in a small pilot area (16 Ha) within a Secondary Unit of 250 ha in South Sumatra. (being also part of the Rice Estate project). The Tidal Lowlands Guidelines project covers three years of bi-lateral co-operation from 2002 until 2004 and has a budget of € 173,000 in total.

The Guidelines project is considered an important contribution to the development of the Tidal Lowlands in its knowledge transfer, but lacks the budget to transfer this knowledge to farmers and to monitor its effects at field level, especially for the Water User's Associations. The LWMTL project for Water Management Tidal Lowlands could improve on this serious shortcoming.

Other Bi-lateral cooperation. The Dutch Government supported in the past a bi-lateral cooperation in 1986 in the project for Lowland Development in Indonesia, involving an extensive cooperation between Institutes and Government Organizations from Indonesia and the Netherlands. Further the Dutch financed bi-lateral Research Project in Tidal Lowlands (LAWOO) was located in South and Central Kalimantan provinces from 1988-1992. The main executing agency of the LAWOO project was AARD of the Ministry of Agriculture. The influence of this project can still be felt as presently AARD has located its main Research Station for Tidal Lowlands in South Kalimantan. AARD is also a major contributor to the Tidal Lowland Guidelines project during the Workshops and Teaching Seminars. The Directorate of Irrigation Water Management of Dep. Pertanian, Directorate Pemanfaatan Air Irigasi (Agriculture) is directly involved in the Working Committee of the Tidal Lowlands Guidelines project.

B IMPLEMENTING PARTNERS AND TARGET GROUP

Target Group and beneficiaries. Water User's Associations (WUA's) are the main Target Group. These Farmers Groups have a Legal Status in Indonesia. They will be in the future fully responsible for the Water Management in the Tidal Lowlands in all its aspects of Operation & Maintenance. However at present they take only care for the operation of the infrastructure in the Tidal Lowlands at tertiary and sometimes secondary level and are further only responsible for routine maintenance at tertiary

level. It is expected that by a combination of training and higher incomes of the farmers in the Tidal Lowlands (by double rice cropping) they will be able to organize the O&M of the water control infrastructure more and better themselves. The direct beneficiaries will be the WUA's in the selected pilot areas for LWMTL and the government organizations and agencies involved in the LWMTL.

Qualifications of Implementing Organizations. Involved in the activities will be (1) Kimpraswil, Water Resources. (Departemen Pemukiman dan Prasarana Wilayah, Ditjen. Sumber Daya Air), (2) the Ministry of Agriculture (Ditjen Bina Sarana Pertanian, Dir. Pemanfaatan Air Irigasi), (3) local government at Provincial and Kabupaten level (SumSel and Banyuasin) and the (4) Lowland-Wetland and Coastal area Data and Information Center (Pusat Data dan Informasi Rawa dan Pesisir). From the Dutch side the leading partner will be (1) Rijkswaterstaat, assisted by (2) UNESCO-IHE, Delft; and (3) ARCADIS-Euroconsult, Arnhem.

Indonesian Implementing Organizations

1. Kimpraswil, through Directorate Bina Teknik with SubDit Penyiapan Kebijakan dan Strategi and SubDit Irigasi, Air Tanah, Rawa & Pantai, will concentrate on the adjustments for the existing Guidelines for Water Management and Operation & Maintenance for Tidal Lowlands, based on practical experience with the Farmer's groups. These adjustments will be based on the new experiences at field level with full farmers participation as envisaged in the proposed LWMTL project. Directorate Bina Teknik will also be the main advisor for the local provincial and kabupaten in respect to the inputs for water management and Operation & Maintenance in Tidal Lowlands;
2. The Ministry of Agriculture, through Directorate Pemanfaatan Air Irigasi (Irrigation water management) assists in the adjustments of the Guidelines required for On-Farm Water Management. They are also the main Agency for technical support at farmers level, including trials at field level to install tertiary and sub-tertiary structures, the use of the most efficient hand tractors and low-lift pumps. They also play an important role in the proposals for the yearly budgets of the government in Tidal Lowland Development through the Ministry of Agriculture;
3. The Local Government is involved through Dolog, Dinas Pertanian, Tingkat I&II (provincial and regency Agriculture Services), P2DR (Public Works Project Implementation for Drainage and irrigation), Dinas PU Tingkat I&II (provincial and regency Public Works Services). These agencies are involved presently with the Rice Estate project in the Tidal Lowlands of the Provincial Government of South Sumatra province;
4. Pusat Data dan Informasi Rawa dan Pesisir (Local Research Institute; Data and Information Centre for Tidal Lowlands) in Palembang provides training and monitoring of the activities in the field through their Community Organizers and Field Assistants. The Local Research Institute is presently deeply involved in all activities as a provincial and kabupaten (regency) coordinator of the Rice Estate program of Dolog. They are also executing the monitoring in the pilot area of the bi-lateral project of the Tidal Lowlands : Guidelines for Development . Most of its staff relates to the UNSRI University of Palembang (Sriwijaya University).

Dutch Implementing Agencies

All four Dutch implementing organizations with Rijkswaterstaat as the leading partner are involved in the Tidal Lowlands Guidelines project. This project is mainly based on workshops and teaching seminars. All four Dutch organizations have been involved for a long time with Tidal Lowland Development in Indonesia, including Consultancy in Design and Operation & Maintenance and Appraisal Missions for World Bank and ADB in Tidal Lowlands.

Cooperation between Indonesian and Dutch Implementing Organizations.

Cooperation between the Indonesian and Dutch implementing organization exists for more than 20 years in the Tidal Lowlands development. Both parties are convinced that the 2 million ha already developed Tidal Lowlands will become the major source for food crop production in the country. A view particularly presently expressed by the Ministry of Agriculture. Recently (June 2003) also the Minister of Kimpraswil presented an official request to the Dutch Ambassador in Jakarta for an Indonesian-Netherlands cooperation in Tidal Lowland Development.

3. OBJECTIVES

Project Goal. Sustainable development of Land & Water Management by transfer of knowledge and manpower development to contribute to the technology development for the mechanized food crop production of two crops per year in the developed Tidal Lowlands.

Project Targets:

1. Increase of the responsibilities and activities of the Farmers Groups based on their own yearly budgets in respect to Land & Water Management in three different Pilot Areas of South Sumatra province, Kabupaten Banyuasin, as a contribution to the Rice Estate Project of Dolog, Provincial Government;
2. Increase of production for food crops in the project area by addressing the limitations for two crops per year at farmer's level;
3. Planning, Budgeting and Implementation of Water Control Infrastructure by Government Agencies involved in Tidal Lowland Development. Cooperation between the stakeholders in these activities. The Monitoring of progress;
4. Testing and improvement of existing Manuals and Guidelines related to O&M, Water Management, Farming System technology and On-Farm Water Management in three Pilot Areas of different environmental settings in the Tidal Lowlands.

The Project Targets can be only reached when there is an integrated approach to the Project Targets. They depend on each other to be successful.

4. APPROACH

The three Pilot Areas

Most activities will concentrate on three Pilot Areas located in the selected Rice Estate project area and representative for the different conditions in the Tidal Lowlands.

1. *Pilot area I.* The first environment will be in locations with a complete presence of structures at Secondary and Tertiary level, including TAM (On-Farm Water management with flooding Type A/B (tidal flooding potential) and complete water control (Telang I, Primary 6);
2. *Pilot Area II.* The second environment will be in areas with flooding type C/D (no tidal flooding potential) but with complete water control by structures (Saleh and Telang II);
3. *Pilot Area III.* The third environment will be in areas with flooding type A/B with no structures and increasing flood problems by subsidence of the rice lands. (Telang I, Primary 8).

The total area of the three pilot areas will cover about 750 ha.

- A. Activity: O&M with Water User's Associations (WUA's).** Improvement of Land & Water Management in Tidal Lowlands. This will be a contribution by Community Organizers (CO) from the NGO: Pusat Data dan Informasi Rawa dan Pesisir in Palembang in cooperation with Field Assistants (FA) at location. Foreign and Indonesian Experts through Rijkswaterstaat will give short-term advise and training to the CO's and FA's.

The Guidelines and Manuals used will be based on the existing Guidelines as prepared by the Tidal Lowland Guidelines project. The guidelines for Water Management and Operation & Maintenance will be tried out in practice and monitored by the CO's and FA's. Proposed changes will be discussed with the farmers based on their practical application. These discussions should determine the limitations for the development. It will require also additional inputs of female Community Organizers to discuss the programs with the women to determine more clearly all limitations and potentials for a full participatory approach in water management.

It is further important that a monitoring system will be installed at farmer's level to have a tool to evaluate the progress in Land & Water management. Water levels will be measured at various levels in the system of water control infrastructure.

The increase in responsibilities and activities by the WUA's is the main aim of the activities. For that reason an important activity of the Community Organizers will be the training given for financial and operational management of the Water Users Associations to ensure sustainability of the project and its impact on the farmers. Monthly meetings (PRA's) with the WUA's, including Transect Walks through the area with the stakeholders.

Three times a year the activities will be evaluated by and discussed with the Indonesian and Foreign Experts. Rapid Rural Appraisals (RRA's) will be

conducted. Also training in the evaluation and analysis of the collected data will be given in a short-term course at IHE, Delft. Halfway the LWMTL project in 2004 a workshop under auspices of the Tidal Lowlands Guidelines project will be required to improve the existing Manuals with new information, based on the conclusions of the Evaluation Missions and the analysis of the monitoring data. At the end of the Tidal Lowlands Guidelines project in 2004, a Teaching Seminar is proposed to familiarize the results to a wide group of stakeholders, also from other provinces.

It is proposed that all the activities for the LWMTL project cover two years (spring 2004 to spring 2006). Most of these activities will be performed in the three Pilot Areas in three different environments in areas overlapping the selected areas for the Rice Estate program.

Results: O&M with Water User's Associations (WUA's). The most obvious measurable impact of the project will be seen when the WUA's in the three Pilot Areas are able to handle the yearly budget and O&M for Land&Water Management by themselves. The second important impact will be the publication of improved Manuals for O&M and Land & Water Management. This result is closely related to the training of the Community Organizers of Pusat Data dan Informasi Rawa dan Pesisir (NGO). This latter impact will be best visible when the Manuals and Guidelines become part of the training courses at Sriwijaya University in Palembang. There are close relations between the NGO and the University. It is thought that the Teaching Seminar at the end of the project will be attended by representatives of all Agencies and Provinces involved in Tidal Lowland Development.

- B. Activity: Familiarization and implementation Farming System Technology.** Increase of food production by introduction of the technology to cultivate two crops per year in Tidal Lowlands. This activity will be also a contribution by the Community Organizers (CO) from the NGO: Pusat Data dan Informasi Rawa dan Pesisir in Palembang in cooperation with Field Assistants (FA) at location. Foreign and Indonesian Experts through Rijkswaterstaat will contribute to the Rapid Rural Appraisal and will provide training for the Participatory Rural Appraisals conducted by the CO's and FA's.

The limitations for two crops per year mostly relate to three factors:

1. Lack of proper water management caused by absence of pump irrigation during land preparation for the second crop, giving problems for hand-tractor use;
2. Limited potentials and resources to find sufficient fertilizers (especially TSP or other phosphate fertilizers) and limited potentials for high quality mechanized post-harvest management to obtain high quality milled rice for good farmgate rice prices;
3. Delays in planting second crop causing extra hazards for rat attacks later in the season. These delays may be caused by limitations as found under point 1-2.

The Base-line Survey in the three Pilot Areas, together with the RRA's and PRA's are aimed to assess the limitations to grow two crops per year. Close contacts to

the farmers and understanding their problems are essential to define the limitations and determine possible solutions to the limitations.

The use of Revolving Funds in the project is highly recommended. AARD concluded in their Final report for the ISDP (Integrated Swamp Development Project , IBRD loan 3755-IND) that lack of funds by Farmer's Groups and accessibility to loans from local Banks is a major limitation to the progress in Tidal Lowlands and the widespread implementation of the required technology. The ISDP project provided Revolving Funds, but they were badly managed by lack of transparency and knowledge how to operate the funds. The use of Community Organizers will contribute to solve organizational problems and to get local Banks interested for investment by opening Banks at location.

Existing Manuals of the AARD will help to solve the problems in discussions with farmers. AARD conducted for a long period research trials for two crops in the area and developed the Farmer's System technology. It is essential that the Local Government will be involved in these discussions as they might play a major role in providing solutions and contribute to the required investments to improve infrastructure and provide funds for physical improvements.

At the end of the LWMTL project there will be a need to have a workshop to improve the existing AARD manuals and other manuals of the Ministry of Agriculture based on the results and experience in the LWMTL project in the Pilot areas. It will be essential that the results of the activities for O&M with Water User's Associations will be integrated with the results of the activities for familiarization and implementation Technology Development.

Results: Familiarization and Implementation Farming System Technology.

This project activity will result at the initial stage of the LWMTL project in an initial report after three month project at the beginning of the LWMTL project. This report will emphasize the limitations in the three pilot areas for the cultivation of two crops. This report is mainly based on the RRA' and PRA's in the area, combined with the Base-line survey.

The discussions between Farmer's Groups and Local Government with the Community Organizers will make it possible to prepare by the CO's in cooperation with all stakeholders a yearly Integrated Water Management and Cropping Plan for each Pilot area. A main objective of these yearly Work Plans is to formulate and assess required investments for the Work Plans, both by the Farmer's Group themselves as by the local government. This will also relate with the activities for needed water control structures formulated under Project Purpose III.

The main aim of these activities is to increase food production in the three pilot areas by double cropping over large areas. It is expected that the activities will result an increase such that more than 50% of farmers will grow two crops per year in the three pilot areas on a sustainable bases. (At the moment only a small minority of farmers). The Final Evaluation Report concerning Project Purpose II will include the recommendations for improvements of the existing manuals for Tidal Lowland Development of the Ministry of Agriculture.

C. Activity: Planning, Budgeting and Implementation of needed Water Control Infrastructure. Testing of tertiary structures in selected areas.

For this purpose a base-line surveys is carried out by the NGO: Pusat Data dan Informasi Rawa dan Pesisir in cooperation with Dolog. This NGO is also one of the Indonesian Implementing Organizations for the LWMTL project. This NGO has close relations with Sriwijaya University in Palembang. Foreign and Indonesian Experts through Rijkswaterstaat will provide short-term assistance and will relate the inputs with the activities for a Management Information System (MIS) at the office of the NGO.

There is already a large analogue system for data and information concerning Tidal Lowlands available at Palembang. This system needs to be computerized for a more easy access. There is also needed a computerized system to monitor the activities in the field and determine the requirements and limitations for inputs. This will include a computerized system of operation rules for hydraulic structures in Tidal Lowlands.

The system will be installed at the office of Pusat Data dan Informasi Rawa dan Pesisir, being the best location for installation and accessibility for all stakeholders involved.

Priorities will be determined for infrastructure development. The government has a limited budget and can not make all investments required on the long-term at present. A close cooperation with Dolog, the local Dinas Pengairan PU and Dinas Pertanian will be essential to determine the required budgets. The activities should be coordinated with the results of the PRA activities of the Community Organizers in the field. Adjustments of the present design of the Secondary and Tertiary structures might be required and tested during the two year of LWMTL inputs. It is thought that the cheapest, short-term available system for water control at field level can be obtained by Tertiary structures. However on the long-term Secondary structures will be required for full water control in the units for areas presently without water control structures.

An evaluation of the existing base-line surveys will be needed at the beginning of the project in May/June 2004 to support the presently available budget for this year on all water control infrastructure in the Rice-Estate project areas. New base-line surveys will be required to select the areas for next year budget proposals. In Sept/Oct 2004 the budget for water control infrastructure should be re-evaluated with the actual available budget and assistance should be given by means of a workplan for activities in 2005. In Sept/Oct 2005 again a final advisory report will be provided for the budget of 2006.

The local government at Kabupaten Banyuasin through the Ministry of Agriculture will install for 2004 an On-Farm Water Management system (Tata Air Mikro, TAM) with a budget for 4,500 ha TAM. Guidelines for implementation would be recommended and existing guidelines will be evaluated. The LWMTL project will recommend for which areas new TAM implementation will required as an essential input for full water control at Farmer's level.

A new proposed Tertiary structure design will be tested in cooperation with the Research Unit of Water Resources in Bandung (Kimpraswil) and the Directorate of Irrigation Water Management, Min. of Agriculture. The present designs suffer from break-downs or do not fully support the needs of the farmers for water control.

Results: Planning, Budgeting and Implementation of needed Water Control Infrastructure. Testing of tertiary structures in selected areas.

The evaluation of the existing base-line surveys by the Indonesian and Foreign Experts within the LWMTL project will result in an Evaluation Report within 3 months after the start of the project. In this report the base-line survey methods will be also evaluated and its efficiency to assess the needs and budget plans for implementing new water control infrastructure and to carry out major maintenance inputs by the government.

New base-line surveys should be conducted for next year budget proposals. The techniques for the base-line surveys will include PRA's with the involved Farmer's groups and especially the WUA's.

The results of the testing of new Tertiary structures in cooperation with the research unit of DG. Water Resources of Kimpraswil in Bandung (Puslitbang Sumber Daya Air) will be reported by the LWMTL project to the local government. Also the assessing of the needs for implementation of an On-Farm Water management system in the Rice Estate project areas by means of the base-line survey and the PRA's will result in a report for recommendation for implementing Tertiary structures and TAM, the locations and the quantities required.

The creation of the Management Information System in addition to the assessment and implementation of indicators for monitoring the water control infrastructure will result that a valuable system for monitoring and a tool for yearly Planning, Budgeting and Implementation will be available to the local Government.

5. INDICATORS FOR MONITORING OF ACTIONS AND RESULTS

Indicators for the implementation of the project could be found in the Logical Framework Matrixes for the three Project Purposes (See Section 1, C.) and the Bar-Charts with the activities below. They consist mainly of reports, but also includes ability of the WUA's in the three Pilot areas to handle the yearly budgets for O&M and the yearly Water Management and Cropping Plan. Further it expects that more than 50% of the farmers, covering more than 50% of the fields, will grow two crops per year on a sustainable basis.

Monitoring will be conducted at three levels:

- The CO's and FA's will monitor the progress in the field on a daily basis for two years. They also will conduct the Base-line Surveys and will collect data for monitoring, produce reports based on the collected data and the regular PRA's with the farmers (at least each two month a PRA). Further they will produce quarterly reports concerning the progress of the implementation of the needed water control infrastructure;
- The Evaluation Team will evaluate the inputs and collected data of the CO's and FA's. That will include the set-up of a data evaluation system and MIS. They will also responsible for the inputs of the workshops;
- The Teaching Seminar at the end of the project with all stakeholders involved, including the Local Government and the Central Government involved in Tidal Lowland Development.

The Bar-Charts below for the three Project Purposes indicate the implementation plan for the entire duration of the project.

Bar Chart Activities: Project Purpose I: O&M with Water User's Associations(WUA's)

O&M with WUA's	2004				2005				2006			
	Mar/ April	May/ June	July/ Aug	Sep/ Oct	Nov/ Dec	Jan/ Feb	Mar/ April	May/ June	July/ Aug	Sep/ Oct	Nov/ Dec	Jan/ Feb
<i>1. Trained CO's and FA's</i>												
1.1 Prepare O&M training course based on existing Manuals for at least 12 CO's and FA's	—											
1.2 a) Install monitoring system at field level in 3 pilot areas	—											
1.2 b) Collect data for monitoring		—	—	—	—	—	—	—	—	—	—	—
1.3 a) Training staff								—			—	
NGO/University in evaluation and analysis monitoring data at UNESCO-IHE, Delft												
1.3 b) Visit Evaluation Mission	—	—		—			—			—	—	—
<i>2. WUA's able to handle yearly budget and O&M + Land & Water Management in 3 pilot areas</i>												
2.1 a) Training of WUA's in budget handling				—								
2.1 b) Yearly preparation of budgets with WUA's and Local Government				—	—	—						
2.2 a) Planning of O&M for the cropping season	—			—						—		
2.2. b) Organization of O&M during cropping season	—	—	—		—	—	—	—	—	—	—	
<i>3. Contribution to Workshop and Teaching Seminar Guidelines Tidal Lowlands</i>												
3.1 a) Workshop and Teaching Seminar concerning Water Management and O&M manuals of Guidelines project Tidal Lowlands							—					—
3.1 Final Report on O&M/Land & Water Management in Tidal Lowlands											—	
3.2 PRA's with farmers for O&M and Water Management in 3 Pilot areas	—	—	—	—	—	—	—	—	—	—	—	—

Bar Chart Activities: Project Purpose II: Familiarization and Implementation Farming System Technology

2006

2005

2004

Technology Development	Mar/ April	May/ June	July/ Aug	Sep/ Oct	Nov/ Dec	Jan/ Feb	Mar/ April	May/ June	July/ Aug	Sep/ Oct	Nov/ Dec	Jan/ Feb
1. Assessment limitations for two crops per year. Report within 3 months after start project												
1.1 Rapid Rural Appraisal by Evaluation Team followed by several PRA's conducted by CO's and FA's	—	—										
1.2 a) Base-line Survey in 3 Pilot areas by CO's and FA's	—	—										
1.2 b) Reporting to Local Government by NGO		—										
2. Yearly Scheduling of activities to implement two crops per year. Integrated Water Management/ Cropping Plan for each year												
2.1 Training in AARD Manuals			—	—	—	—						
2.2 a) Discussions with Farmer's Groups Local Government. Regular PRA's with stakeholders	—	—	—	—	—	—	—	—	—	—	—	
2.2 b) Design of Integrated Water Management / Cropping Plan	—			—			—			—		
2.3. Budgeting and assessment needed investments by Farmer's Groups and local Government. Use of equipment required for two crops/year	—	—		—	—		—	—		—		
3. Increased crop production. More than 50% of farmer's grow 2 crops/year												
3.1 Workshop to improve existing AARD Manuals and TAM Manuals of Min. of Agriculture												—
3.2 a) Visit Evaluation Mission	—	—		—			—			—		—
3.2 b) RRA and Assessment sustainability of Implemented technology												—

Bar Chart Activities: Project Purpose III: Assessment needed water control infrastructure

Implementing needed Water Control Infrastructure	2004						2005						2006	
	Mar/ April	May/ June	July/ Aug	Sep/ Oct	Nov/ Dec	Jan/ Feb	Mar/ April	May/ June	July/ Aug	Sep/ Oct	Nov/ Dec	Jan/ Feb	Jan/ Feb	Jan/ Feb
1. Advisory proposal for implementing water control infrastructure in 2004, inclusive testing new tertiary structures														
1.1 Evaluation of existing base-line surveys for needed water control infrastructure	■	■■■■■■■■												
1.2 a) Assistance in design of PRA's and base-line survey related to needed water control infrastructure	■													
1.2 b) Evaluation of PRA's and base-line surveys related to needed water control in Rice Estate project.	■	■■■■■■■■												
2. Assessment and reporting for required inputs water control infrastructure in near future														
2.1 Assistance for next budget years in relation to inputs for TAM		■	■	■	■	■	■	■	■	■	■	■	■	■
2.2 a) Discussions, PRA's Farmers and Local Government		■							■					
2.2 b) Reporting needs for required water control infrastructure								■						
2.3. Implementation, Monitoring and Testing use of new Tertiary structures		■	■	■	■	■	■	■	■	■	■	■	■	■
3. Monitoring system for implementation water control infrastructure														
3.1 Creation and updating of data base and MIS system for monitoring implementation water control infrastructure. Preparation Quarterly Evaluation Reports .	■	■	■	■	■	■	■	■	■	■	■	■	■	■
3.2 a) Set-up Monitoring system with key indicators in field	■			■										
3.2 b) Visit Evaluation Mission	■	■		■			■					■	■	■

6. PROJECT MANAGEMENT

The Project Management is divided in three levels 1) the Supervising Committee, 2) The Task Force and the NGO. Only the Task Force and the NGO will be paid a fee for their inputs.

The input of the Supervising Committee is important for the project and they should be consulted and informed regularly in relation to the progress of the Project. The Committee will also receive all reports and will contribute to the workshops and Teaching Seminar at the end of the project in February 2006. The Supervising Committee plays also the main role to meet the needed External Conditions for the Land & Water Management Tidal Lowlands project. These External Conditions include that the Local Government will make the necessary inputs during the project period to perform major maintenance works for the water control infrastructure in the Rice Estate project area. This might include the also the construction of new water control infrastructure including tertiary structures and on-farm water management systems in the Rice Estate area, in close coordination with the activities of the LWMTL project for Land & Water Management Tidal Lowlands.

Supervising committee	Name	Function	Organization
Responsibility: Supervision of the activities for the Project and the main persons in charge to facilitate the needed external conditions to succeed the Project.	Ir.Sri Nurumi	Head Bintek	Water Resources Kimpraswil, Jakarta
	Ir. Hilman Manan	Director Irrigation and Water Management	Min. of Agriculture, Jakarta
	Ir. H.Amiruddin Inoed	Bupati Kab. Banyuasin	South Sumatra Province
	Ir. Anwar Arifin	Head Dinas PU Pengairan	South Sumatra Province
	Ir. Sapri	Head P2DR Irrigation/ Swamps	South Sumatra Province
	Dr. Robiyanto	Coordinator Rice Estate Project	South Sumatra Province
	Prof.Dr.Schultz	Senior Advisor	Rijkswaterstaat

Responsibility of the Task Force:

The Task Force has the main responsibility for Monitoring, training and guidance of the activities as defined in the Log-Frames and Bar-Charts. The Task Force includes all members of the *Evaluation Team*. (See the Bar-Charts)

Task force	Name	Function	Organization
General Manager and Financial Supervisor of Project	Schultz	Senior Advisor and Professor Land & Water Development	Rijkswaterstaat, UNESCO-IHE
Water Management with Water User's Associations.	Suryadi	Senior Specialist Water Management	UNESCO-IHE
Assessment needed water control infrastructure and O&M with Water User's Associations. Testing of water control infrastructure.	Houterman	Senior Specialist O&M and water control infrastructure Tidal Lowlands	ARCADIS-Euroconsult
Coordination and Supervising Community Organizers and Field Assistants, Base-line surveys	Robiyanto	Head of Local Research Institute and Senior Advisor local government for Tidal Lowland Development Teacher Sriwijaya University	Lowland-Wetland and Coastal Area Data and Information Center; Sriwijaya University, Palembang
Water Management training and assessment needed water control infrastructure with Water Users Associations.	To be named	Senior Specialist O&M and supervisor implementation water control infrastructure	Free-Lance Consultant
Familiarization and Implementation Farming System Technology in relation to Training, Monitoring & Evaluation, assistance to CO's and FA's in their responsibilities	Eelaart	Senior Land & Water Management Specialist, On-Farm Water Management	ARCADIS-Euroconsult
Water Management and O&M with Water User's Associations. Testing of water control infrastructure.	Hollanders	Lecturer integrated land and water development	UNESCO-IHE
Monitoring system Water Management and MIS implementation needed water control infrastructure	To be named	MIS expert and monitoring expert O&M Tidal Lowlands	Free-lance Consultant
Water Management and O&M with Water User's Associations	Momon	Land & Water Management	NGO: Lowland-Wetland and Coastal Area Data and Information Center; Sriwijaya University, Palembang

Responsibility of the NGO: Pusat Data dan Informasi Daerah Rawa dan Pesisir (Lowland-wetland and Coastal Area Data and Information Center) They will organize the Community Organizers and Field Assistance at location. This long-term staff that will be employed during the whole period of the project will include women to guarantee a complete integrated approach to the activities with the farmer's groups. It is expected that at least 12 CO's and FA's will be employed during the project.

They will responsible for the training of the farmers, and Water User's Associations ('WUA's), conduct the regular Participatory Rural Appraisals (PRA's) with the Farmer's Groups, collect the data for the base-line surveys, collect the data for the monitoring system for O&M and Water Management and prepare the Quarterly Evaluation Reports for implementation water control-infrastructure.

Responsibility for Implementation: The responsibility for the implementation of the Project, as described in the Logical Framework Matrixes and the Bar-Charts, is awarded to Prof.Dr.Ir. E. Schultz in close cooperation other members of the Task Force.

Responsibility for Finance: Prof. Schultz is also responsible for the distribution of the budgets funds allocated according the Budget Plan. This activity to organize the financing of the project will be in close cooperation with the CUR.

Responsibility for Reporting:

Report inputs	Task force	NGO team
Project Purpose I:		
Reports Guidelines O&M and Water Management	X	----
Final report O&M and Land&Water Management in three pilot areas	X	----
Quarterly Reports PRA's for O&M and Water Management	-----	X
Project Purpose II:		
Reporting to Local Government within 3 months by NGO, assistance of Task Force	X	X
Workshop to improve existing AARD Manuals and TAM Manuals	X	----
Report RRA and assessment sustainability of Implemented Farming System Technology	X	----
Project Purpose III:		
Advisory proposal report for implementing water control infrastructure, inclusive recommendations testing of new tertiary structures within 3 months start Project	X	X
Assessing and Reporting needs for required water control infrastructure in Rice Estate area. Recommended structures	X	X
Quarterly Evaluation reporting monitoring implementation needed water control infrastructure	-----	X

X = Implementing and responsible

---= Not involved and responsible

Internal monitoring is conducted by setting up a monitoring system at the NGO and by the reports produced by the Project. Reports will be presented to the Supervising Committee and the Final Evaluation of the project will be made during the Teaching Seminar at the end of the project. Participants of the Teaching Seminar will include representatives of the Implementing Organizations, the Supervising Committee and

representatives of other provinces and central government involved in Tidal Lowland Development.

External monitoring is intended to be conducted by the Working Group CUR and the Joint Steering Committee MoU.

7. RELEVANCE

By its participatory approach with the Farmer's Groups making use of local Community Organizers and Field Assistants through a local NGO the project envisages its need for social transformation, a basic objective of LWMTL. This NGO, being the most important local implementing local partner of the LWMTL project is already presently responsible for coordination for the integrated inputs of the local government for the Rice Estate project of Dolog (provincial Logistic Bureau for Rice Milling and Marketing) in South Sumatra province

The proposed LWMTL project is also important for knowledge transfer and manpower development to local government, beside its aim of the strengthening of the Water Users Associations. This objective is highly required now to support the central government in its efforts to give more autonomy to local government. The project is also an important contribution in the efforts of the central government to increase the rice production and the assessment of required inputs outside Java.

The need to receive assistance in this process by the Dutch experience in Lowland Development showed in the special request of the Minister of Kimpraswil made to the Netherlands Ambassador in Jakarta for assistance in Tidal Lowland development in Indonesia. Rijkswaterstaat in cooperation with the other Dutch implementing organizations in the LWMTL project proposal have a more than 20-year experience in Indonesia with Lowland development.

The relevance of the LWMTL project can be also expressed by its multiplier effects. Its experience and conclusions can be used by the Indonesian Government, the World Bank and ADB to formulate the scope of intended poverty alleviation activities for the farmer's population in Tidal Lowlands. Besides it will be a contribution of finding practical solutions for the special environment of Tidal Lowlands to the ongoing support program of the Ministry of Agriculture as well as for the World Bank funded project to develop a new Management Irrigation Reform Policy (PKPI). The results of LWMTL project in general will be also a contribution to improve the livelihood of the population in the Tidal Lowlands.

The Indonesian Government at central (Kimpraswil, Agriculture, Bulog), provincial and district level for other Tidal Lowland Agricultural areas in South Sumatra province and extend this experience to other provinces. (See Annex A) In addition cooperation has been established with the Rice Estate project of Dolog. According the Ministry of Agriculture, Directorate of Irrigation and Water Management, they have planned already inputs in Tidal Lowland Schemes for 7 provinces in 2004. The Guidelines produced by LWMTL can therefore be of great help.

The World Bank is willing to make new investments in Tidal Lowlands, but the Bank admits that it is in first instance in great need to find solutions and policies to improve sustainability of past Tidal Lowland Development projects (cq. ISDP, Integrated Swamp Development Project, 1995-2000). The LWMTL project will be of major assistance in this respect as it will tackle such problems.

ADB is presently in a process to formulate and investigate the possibilities of a new Telang-Saleh II Tidal Lowlands project in South Sumatra as a succession of IISP (Integrated Irrigation Sector Project, 1993-1997). Early cooperation with ADB will be sought by the LWMTL Team.

The potential risks of the project mainly relates to the required investments to be made by the Indonesian Government. Because the LWMTL project does not make any infrastructural investments, the project success almost completely depends on these required investments to be made by the local government. For budget year 2004 there is no such a problem and potential risks to the project are considered low now. The local government has expressed its assurance that needed infrastructure improvements will be made and coordinated for the LWMTL pilot areas, based on available budgets for this year (see page 32). For year 2005 this budget will remain unsure, but it is an advantage that most required infrastructure investments for LWMTL are made in 2004.

Further a change of policy by the local government in relation to Tidal Lowland Development is highly unlikely, viewing the increased budgets for Tidal Lowland development in the last two years in South Sumatra and the new recent attention of the Multilateral Aid Banks to Tidal Lowlands.

The required contribution and inputs by the farmers are expected to give no problems. The Pilot areas are situated within the successful Rice Estate project of Dolog and/or are part of the previous ADB financed IISP Telang-Saleh I project. Recent and past experience shows that these farmers are highly motivated for implementation of improvements the farmers trust to be helpful. This will be the challenge for the LWMTL Team to make the project a success.

8. FEASIBILITY AND SUSTAINABILITY

The involvement of the farmers and the district government in the LWMTL project is a basic requirement for achieving the objectives and envisaged results. Provincial government has the objective to increase rice production in South Sumatra province and expects that this will be mainly achieved in the Coastal and Near Coastal Lowlands. (Provincial Department of Agriculture, Food Crops and Horticulture in its latest 5-year planning report). This goal of the provincial government is the major factor in support of the LWMTL project.

For the commitment of local authorities reference is made to the Letters of Support of the Bupati of the regency Banyuasin, where the LWMTL pilot areas are situated, the Head of Provincial Public Works Water Resources and the Head of Provincial Department of Agriculture for Food Crops and Horticulture. The letters assure full support and coordination of inputs with LWMTL

Achievement of the objectives and sustainability of LWMTL shows in its three Project Purposes to be implemented for three pilot area locations with different conditions:

- Improvement of Land & Water management in Tidal Lowlands and Operation & Maintenance (O&M) by Water Users Associations (WUA's). The project aims to be a major step for the WUA's at Scheme level on their way to become analogous with the Dutch "Waterschap" in the polder areas;
- Finding solutions for the limitations to grow two rice crops per year by familiarization and implementation of required existing Farming System technology. The aim of increased sustainable production is of major relevance to make the required inputs by the Water Users Associations viable and to guarantee full farmer's participation for Water Management and O&M also in the future;
- Assessment of needed water management infrastructure by assisting local government in Planning, Budgeting, Implementation and Monitoring.

In this approach it is important that the most important beneficiaries, the farmers, will have the possibilities to continue at the achieved level of production after project completion. Only in this way they will be able financially to continue the required inputs for Operation & Maintenance (O&M) by themselves. The LWMTL will aim to ensure a lasting impact of the project by Strengthening of the Farmer's Groups and the WUA's. Contracts for O&M works with WUA's during LWMTL will help in this respect to improve solvency.

Bank Credit facilities in the Tidal Lowlands are not yet available. LWMTL will look how the government could be encouraged to establish local Banks (Bank Rakyat Indonesia = Indonesian Peoples Bank) in the area. The government will make available equipment to improve mechanization in general and post-harvest facilities in particular through the Ministry of Agriculture. However, this is so far not sufficient to cover the need in the pilot areas. In discussion with the Indonesian Ministry of Agriculture it will be attempted to find a solution for this. Revolving funds in cooperation with the WUA's are a possibility to organize these financial inputs.

For sustainability and lasting impact of the project it is also essential that proper attention is given by LWMTL to farm-gate rice price guarantees in the future and improvements of local conditions (transport facilities) and how local government can contribute here. Cooperation will be established with Dolog in Palembang to address this important aspect. Also training of the WUA's and Farmer's Groups in planning, budgeting and finances their organizations by LWMTL will be an important aspect for sustainability.

The intensive cooperation with the local NGO: Lowland-Wetland and Coastal Area Data and Information Center as a major implementing organization of the LWMTL project and its close relation with Sriwijaya University in Palembang will ensure its lasting impact of the project in the province. It is highly likely that the experience and Guidelines produced in the LWMTL will be a major source for teaching and training at this University. The NGO plays also an essential role in the coordination of the activities in the Tidal Lowlands of South Sumatra by the Regency and Department of Public Works and Agriculture, together with Dolog (provincial logistic Bureau for Rice milling and marketing). In addition the Lowland-Wetland and Coastal Area Data and Information Center will keep the whole Data Base and Monitoring System (hardware & software) created during the project for further applications and other projects. Also the website <http://tidal-lowlands.org> will be continued after the project has completed.

It is also highly likely that the project will be an important contribution to encourage financiers to invest in Tidal Lowlands. The Rice Estate project already shows that Asian investors of mechanizing agricultural equipment, are highly motivated to focus on the Tidal Lowlands in Indonesia as the most promising resource for future sales in Indonesia. Tidal Lowland Development in the already reclaimed lands will support the Central Government's efforts for rice crop production increase outside Java. The developed Tidal Lowlands in Indonesia are the major resource to solve the Indonesian problem of decreased rice production.

9. RESOURCES

The main input for the project are the inputs for human resources. An Evaluation Mission will monitor the progress of the project and will give training and organize workshops. They will visit the area 3 times a year for about 1 month. This Evaluation Mission Team will include Dutch and Indonesian Experts for Land & Water Management and they will address the objectives for all three Project Purposes. The main Indonesian human resource input consists of Community Organizers and Field Assistants. They will be permanently for two years involved in the organization and implementation of the activities together with the farmers at location. One Indonesian Water Management and O&M expert will monitor and guide the Community Organizers and Field Assistants. For two years an Indonesian Specialist will be employed for the implementation of an O&M and Water Management monitoring system, including a Management Information System for implementation and progress of the project. Most training will be given in Indonesia, but there will be a possibility for short course training in the Netherlands, mainly in water management.

Hardware inputs will includes divers (Automatic water level recorders), a computer and software for monitoring purposes, trials with new experimental fiberglass tertiary structures at farmers level, and the use of revolving funds for implementing the needed Farmers System Technology with the Farmer's Groups and to train them to handle these funds on a sustainable base.

The funds by LWMTL for costs on human resources include for the expat experts travel costs, DSA's, local transport, including transport by boat to the project areas from Palembang. For the Indonesian experts and staff possible travel costs , DSA 's and local transport are included in the fees. Costs for training in the Netherlands include travel costs and DSA for short courses. Costs for Training in Indonesia include the costs for PRA's (Participatory Rural Appraisal) and farmers group meetings at location. All hardware costs will be funded by the LWMTL.

The contribution by the submitting party consists of a full payment of the fee , travel and DSA of the Rijkswaterstaat Expert and payment of about 30% of the usual Internal Fees for Consultancy by UNESCO-IHE and ARCADIS-Euroconsult. The target group, the Farmers Groups (Kelompok Tani, P3A) are a highly motivated group with a main interest in improving their income by introduction of the new Farming System Technology.

Provincial Budget for Rehabilitation and Upgrading water control infrastructure in Tidal Lowlands South Sumatra Province
For years 2002-2004

No	Location of works	Yearly budget (RP)		
		TH 2002	TH 2003	TH 2004
1	Delta Telang I	640.475.000	2.321.292.000	4.800.000.000
2	Delta Telang II	-	884.398.000	1.920.000.000
3	Karang Agung Hilir	1.340.960.000	-	900.000.000
4	Karang Agung Tengah	-	645.002.000	900.000.000
5	Air Senda	1.662.423.000	-	-
6	Air Padang Kumbang	2.500.240.000	-	-
7	Delta Sugihan Kiri	-	-	4.840.000.000
8	Delta Sugihan Kanan	-	-	1.920.000.000
Total		6.144.098.000	3.850.692.000	15.280.000.000

Source: *Proyek Irigasi dan Rawa Andalan Sumsel: Momon Sodik Imanudin, MSc. NIP: 132 158 702*

The Indonesian Local Government contribution to the project is a multiple of the Dutch contribution: Major maintenance and repairs water control infrastructure in and outside the pilot areas. Construction of new structures for upgrading the system. (Rp.15.280.000.000 = € 1.591.000). Further there will be assistance in agricultural inputs; pumps, box-driers etc. In absence of an On-Farm water management system Dept. Pertanian, Dir. Pemanfaatan Air Irigasi (Irrigation and water management) will support in the costs for implementation together with the Kelompok Tani. (Farmers Group) through Local Government.

Agricultural Inputs by Min. of Agriculture for FY 2004 in Tidal Lowlands:

No	Province	TAM (ha)	Hand tractor (unit)	Water pump (unit)	Box-dryer (unit)
1	Riau	2,000	20	20	10
2	Jambi	3,000	30	30	15
3	South Sumatra	5,000	50	50	25
4	Lampung	2,000	20	20	10
5	KalBar	2,000	20	20	10
6	KalTeng	2,000	20	20	10
7	KalSel	4,000	40	40	20
Total		20,000	200	200	100

Source *Min. of Agriculture; DG Agricultural Facilities, Dir. Irrigation Water Management*

The inputs by the Min. of Agricultural are a remarkable increase of inputs in Tidal Lowlands in comparison with previous years. For instance the development plan for TAM in Tidal Lowlands for FY 2002 were covering 4,500 ha in 3 provinces (KalBar,

Jambi and SumSel and concentrated to the Guidelines for Surveys SI , SID and Construction of TAM in Tidal Lowlands. For FY 2003 this was increased to 9,100 ha in 7 provinces and included 69 hand-tractors and 67 water pumps. In FY 2004 this will increase to 20,000 ha including 200 hand-tractors, 200 pumps and 100 box-driers.

The Central Government at Jakarta through Kimpraswil (Public Works) and Dept. Pertanian (Min. of Agriculture) will mainly contribute in manpower inputs, travel and transport for workshops and for supervising the progress of the LWMTL project being part of the Rice Estate project and the activities of Dinas PU Sumsel and P2DR Sumsel in the Tidal Lowlands.

10 BUDGET**Summarized Bar-Chart of Activities:****(See for more detail the Bar-Chart Activities on pages 20-22)**

Activities	2004		2004/2005	2005		2005/2006
	Mar-Jun	Jul-Oct	Nov-Feb	Mar-Jun	Jul-Oct	Nov-Feb
Initial Phase						
Visits Evaluation Mission. Activities include: Training CO's and FA's. Install monitoring system. PRA's and discussions for O&M, cropping plan, water management, required infrastructure, Budget planning. Baseline Surveys.						
Implementation Phase						
Visits Evaluation Mission. Activities include: Training for budget handling of WUA's. Training and Evaluation Monitoring data O&M. Evaluation water management and cropping plan. Evaluation required water control infrastructure. Evaluation Monitoring MIS system						
Progress reports activities						
Financial reports						
Completion Phase						
Visit Evaluation Mission. Activities include: Final report Land&Water Management Tidal Lowlands; Teaching Seminar Manuals O&M, water management, AARD Manuals, On-Farm water management (TAM)						
Final report activities						
Final Financial report						
Community Organizers and Field Assistants						
Monitoring System						
Workshop Guidelines Indonesian stakeholders and Training UNESCO-IHE						

CO = Community Organizer; FA = Field Assistant; PRA = Participatory Rural Appraisal, MIS = Management Information System

For Liquidity Planning: See next page.

The Progress reports including the Financial reports are scheduled resp. October 2004, March 2005, September 2005 and the Final activity report and the Final Financial report in April 2006.

Liquidity Planning

Instalment schedule	Amount	
1 st instalment payable when grant agreement has been approved and despatched	140.000	EUR
2 nd instalment: date (month/year) November/2004	41.000	EUR
3 rd instalment: date (month/year) April/2005	90.000	EUR
4 rd instalment : date (month/year) October 2005	90.000	EUR
10% final payment available after final reports have been approved	41.226	EUR

Summarized budget

Code	Type of Costs	Year 1	Year 2	Total amount
300	Human resource costs	149498,03	165062,27	314560,30
400	Purchase	22050,00	8200,00	30250,00
500	Operational costs	3000,00	3000,00	6000,00
600	Training	5400,00	10680,00	16080,00
800	Contingencies (5%)	8997,40	9347,11	18344,52
900	Subtotal overhead (7,5% + Preparation costs)	21315,53	14029,67	35336,20
	Total	210260,96	210310,05	420571,01
	Applicants own contribution	61135,62	62382,81	123518,43
	Total LWMTL costs including costs Dutch Implementing Organizations			544089,44

The Indonesian contribution to the project is a multiple of the Dutch contribution. Major maintenance and repairs water control infrastructure in en outside pilot areas. New structures. On-Farm water management system. Further they provide assistance in agricultural inputs such as, pumps, hand tractors and box-driers essential for sustainability of achieved production.

A detailed budget proposal for the LWMTL project is given below.

			year 1	year 2	Total amount
600	611	fees courses in the Netherlands		4680,00	4680,00
	612	fees courses abroad: PRA's Training Farmers Groups	1800,00	1800,00	3600,00
	690	miscellaneous: workshops, Farmer's Group meetings @€25	900,00	1200,00	2100,00
600		subtotal Training	2700,00	7680,00	10380,00
		Subtotal activity 1	57835,78	63265,78	121101,56
		activity 2: Familiarization and implementation			
		Faming System Technology			
300	312	NL/Eelaar abroad (6*21days/€ 356,22)	22441,86	22441,86	44883,72
	313	local experts/Robiyanto (6*14days/€ 65)	2730,00	2730,00	5460,00
	313	other staff/3 CO's (3*24*30days/€ 7,50)	8100,00	8100,00	16200,00
	313	other staff/3 FA's (3*24*30days/€ 3,50)	3780,00	3780,00	7560,00
	313	other staff/1 Office staff (24*30days/€ 5)	1800,00	1800,00	3600,00
	320	DSA (12 days/ 1 expat experts/Jakarta/ € 125)	750,00	750,00	1500,00
	320	DSA (114 days/ 1 expat experts/Palembang / € 72)	4104,00	4104,00	8208,00
	331	travel international (Palembang/6 tickets/ 1 persons)	3000,00	3000,00	6000,00
	332	travel location car hire(60 days/ 1 persons) € 25/day	375,00	375,00	750,00
	332	travel location boat hire(30 days/ 1 persons) € 50/day	750,00	750,00	1500,00
	390	other staff related costs (visa's etc. 1 persons)	100,00	100,00	200,00
300		subtotal Human Resources costs	47930,86	47930,86	95861,72
400	420	local services translations	400,00	400,00	800,00
	490	miscellaneous: Revolving Funds 3 Secondary Units (WUA's)	p.m.	p.m.	p.m.
400		subtotal purchases	400,00	400,00	800,00
500	522	office supplies abroad	200,00	200,00	400,00
	532	reproduction of text material/copying/telecommunication costs abroad	800,00	800,00	1600,00
	590	miscellaneous			
500		subtotal operational costs	1000,00	1000,00	2000,00

			year 1	year 2	Total amount
600	611	fees courses in the Netherlands		4680,00	4680,00
	612	fees courses abroad: PRA's Training Farmers Groups	1800,00	1800,00	3600,00
	690	miscellaneous: workshops, Farmer's Group meetings @€25	900,00	1200,00	2100,00
600		subtotal Training	2700,00	7680,00	10380,00
		Subtotal activity 1	57835,78	63265,78	121101,56
		activity 2: Familiarization and Implementation			
		Faming System Technology			
300	312	NL/Eelaart abroad (6*21days/€ 356,22)	22441,86	22441,86	44883,72
	313	local experts/Robyanto (6*14days/€ 65)	2730,00	2730,00	5460,00
	313	other staff/3 CO's (3*24*30days/€ 7,50)	8100,00	8100,00	16200,00
	313	other staff/3 FA's (3*24*30days/€ 3,50)	3780,00	3780,00	7560,00
	313	other staff/1 Office staff (24*30days/€ 5)	1800,00	1800,00	3600,00
	320	DSA (12 days/ 1 expat experts/Jakarta/ € 125)	750,00	750,00	1500,00
	320	DSA (114 days/ 1 expat experts/Palembang / € 72)	4104,00	4104,00	8208,00
	331	travel international (Palembang/6 tickets/ 1 persons)	3000,00	3000,00	6000,00
	332	travel location car hire(60 days/ 1 persons) € 25/day	375,00	375,00	750,00
	332	travel location boat hire(30 days/ 1 persons) € 50/day	750,00	750,00	1500,00
	390	other staff related costs (visa's etc. 1 persons)	100,00	100,00	200,00
300		subtotal Human Resources costs	47930,86	47930,86	95861,72
400	420	local services translations	400,00	400,00	800,00
	490	miscellaneous: Revolving Funds 3 Secondary Units (WUA's)	p.m.	p.m.	p.m.
400		subtotal purchases	400,00	400,00	800,00
500	522	office supplies abroad	200,00	200,00	400,00
	532	reproduction of text material/copying/telecommunication costs abroad	800,00	800,00	1600,00
	590	miscellaneous			
500		subtotal operational costs	1000,00	1000,00	2000,00

			year 1	year 2	Total amount
600	690	miscellaneous: workshops, Meetings Farmer's Groups	900.00	900.00	1800.00
600		subtotal Training	900.00	900.00	1800.00
		Subtotal activity 2	50230.86	50230.86	100461.72
		activity 3: Assessment needed water control infrastructure			
300	312	NL/Houterman abroad (3*14 days+3*21 days/€ 383,44)	16104.48	24156.72	40261.20
	312	NL/Hollanders abroad (6*11 days/€ 272,27)	8984.91	8984.91	17969.82
	313	local experts/To be named(6*14days/€ 100, inclusive tickets and DSA)	4200.00	4200.00	8400.00
	313	local experts/To be named (24*30days/€ 35)	12600.00	12600.00	25200.00
	313	other staff/3 CO's (3*24*15days/€ 7,50)	4050.00	4050.00	8100.00
	313	other staff/3 FA's (3*24*15days/€ 3,50)	1890.00	1890.00	3780.00
	313	other staff/1 Office staff (1*24*15days/€ 5)	900.00	900.00	1800.00
	320	DSA (12 days/ 2 expat experts/Jakarta/ € 125)	750.00	750.00	1500.00
	320	DSA (153 days/ 2 expat experts/Palembang / € 72)	4752.00	6264.00	11016.00
	331	travel international (Palembang/9 tickets/ 2 persons)	4500.00	4500.00	9000.00
	332	travel location car hire(60 days/ 2 persons) € 25/day	750.00	750.00	1500.00
	332	travel location boat hire(30 days/ 2 persons) € 50/day	750.00	750.00	1500.00
	390	other staff related costs (visa's etc. 1,5 persons)	150.00	150.00	300.00
300		subtotal Human Resources costs	60381.39	69945.63	130327.02
400	412	goods abroad: MIS computer + software	3500.00		3500.00
	412	goods abroad: 12 Tertiary structures fiberglass	4800.00		4800.00
	420	local services translations	400.00	400.00	800.00
400		subtotal purchases	8700.00	400.00	9100.00
500	522	office supplies abroad	200.00	200.00	400.00
	532	reproduction of text material/copying/telecommunication costs abroad	800.00	800.00	1600.00
	590	miscellaneous			
500		subtotal operational costs	1000.00	1000.00	2000.00

		year 1	year 2	Total amount
600	612 fees courses abroad: PRA's Training Farmers Groups	900.00	900.00	1800.00
	690 miscellaneous workshops, Meetings Farmer's Groups @€25	900.00	1200.00	2100.00
600	subtotal Training	1800.00	2100.00	3900.00
	Subtotal activity 3	71881.39	73445.63	145327.02
	Subtotal all activities	179948.03	186942.27	366890.30
800	contingencies			
	(5% of subtotal of all activities)	8997.40	9347.11	18344.52
900	910 NL/Eelaart abroad (7 days/€ 356,22)	2493.54		2493.54
	910 NL/Hollanders abroad (7 days/€ 272,27)	1905.89		1905.89
	910 DSA (4 days/2 expat experts/Jakarta /€ 125	500.00		500.00
	910 DSA (10days/2 expat experts/Palembang /€ 72	720.00		720.00
	910 travel international (Palembang/ 2 tickets/2 persons	2200.00		2200.00
	(This item might be added if the project starts not in 2003)			
	910 Subtotal Preparation	7819.43		
	920 Overhead (7,5% of subtotal of all activities)	13496.10	14020.67	27516.77
900	Subtotal Overhead	21315.53	14020.67	35336.20
	Applicants own contribution			
	311 NL/Suryadi (84 days @ €500-245,04 UNESCO-IHE)	10708.32	10708.32	21416.64
	311 NL/Hollanders (133 days @ €500-€272,27UNESCO-IHE)	15941.10	14346.99	30288.09
	311 NL/Houterman 105 days @ €600-€383,44 ARCADIS-Euroconsult	9095.52	13643.28	22738.80
	311 NL/Eelaart (133 days @ €600-€356,22) ARCADIS-Euroconsult	17064.60	15358.14	32422.74
	311 NL/Schultz (10 days Rijkswaterstaat)	2756.70	2756.70	5513.40
	312 NL/Schultz abroad (14 days Rijkswaterstaat)	3859.38	3859.38	7718.76
	320 DSA (4days/ 1 expat experts/Jakarta/ € 125)	250.00	250.00	500.00
	320 DSA (10 days/ 1 expat experts/Palembang / € 72)	360.00	360.00	720.00
	331 International travel/ Palembang 2 tickets	1100.00	1100.00	2200.00
	Total	61135.62	62382.81	123518.43

ANNEXES

A. Letters of Support



**DEPARTEMEN PERMUKIMAN DAN PRASARANA WILAYAH
SEKRETARIAT JENDERAL**

JL. PATTIMURA NO. 20, KEBAYORAN BARU, JAKARTA – 11210, Telp. 7246248, 7229463

No. : 01062001-Sr/Cls/12
Enclosure :

Jakarta, 19 November 2003

To :
Mr. Hans van der Vlist
Mr. Henk Schroten
Chairmen Netherlands Steering Committee 4p-MoU
Via. **Mr. Koos Wiericks**
The Netherlands

Dear Colleagues,

The importance of Tidal Lowland Development was also highlighted by the Minister of Kimpraswil in his meeting with the Netherlands Ambassador at 1st July 2003. You may recall that the Minister of Kimpraswil personally and explicitly asked for Dutch support on this issue, which is of the greatest importance for future food production in Indonesia. The issues already discussed during our recent Joint Steering Committee meeting in Jakarta in Indonesia and The Dutch JSCM delegation visited the project site in South Sumatera after JSCM.

Against this background, I am very pleased to note that our Indonesian and Dutch Tidal Lowland experts have succeeded in producing an excellent joint project proposal under the title "Land and Water management Tidal Lowlands – Participatory Approach". On behalf of the Indonesian Steering Committee for the 4p-MoU, I would like to express my full support to this proposal.

Implementation of this project will contribute to the sustainable development of land and water management in Indonesia and to the further development of a participatory approach. Capacity building and strengthening Water User Associations are other important pillars of the project.

I have understood that the project Proposal will be submitted to the PBSI program for Bilateral cooperation with Indonesia in order to apply for funding. I am convinced that the proposal very well fits in the objectives of PBSI and I am also convinced that a positive decision by PBSI will have a great positive impact on the actual development of Tidal Lowlands in the South Sumatera region. From that point of view and referring to the Director of Technical Guidance letter dated November 7, 2003 concerning Proposal of Land and Water Management of Tidal Lowlands, I would like to give my full positive recommendation to PBSI and invite them to take a positive decision on this project proposal.

With highest regards,

On behalf of the Indonesian Steering Committee
for the 4p-MoU GoI – GoN

RUBINI YUSUF
Coordinator

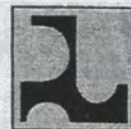
- C.c. :
1. Ir. Sri Nurumi, Dipl. HE
Directorate of Technical Guidance
 2. Ir. Irama Aboesoemono, Dipl. HE
Directorate of Technical Guidance
 3. File



PEMERINTAH PROPINSI SUMATERA SELATAN

DINAS PEKERJAAN UMUM PENGAIRAN

Jalan Kapten A. Rival / Ade Irma Nasution No.10 Telepon 351104 - 351407 - 352302
PALEMBANG



Fax : 0711 - 361381

Nomor : 617/229.a/PU.Air/2003

Palembang, May 6, 2003

Prof. Dr. Ir. Bart Schultz
Senior Advisor of The Ministry of Public Works
Transport and Water Management
Rijkswaterstaat
Utrecht, The Netherlands

Dear Prof. Schultz

The proposed project by Rijkswaterstaat is an important contribution to the Water Management Development in Tidal Lowlands. The project emphasizes an integrated approach to the Tidal Lowlands Development in South Sumatra province. Proper Water Management includes the Operation & Maintenance (O&M) of the water control infrastructure. Training of farmers and Water Users Association for their contribution in O&M and assessing their capabilities will be an important aspect of the Water Management and is fully supported by the proposal of Rijkswaterstaat. Also additional water control structures will be required in places. Rijkswaterstaat could assist in the assessment for urgently required additional infrastructure as provided by the government. Training through Guidelines and workshops for these aspects of Tidal Lowland Development to local Government staff is another important contribution.

Water Management is a key input for the development and a sustainable increase of the rice production in South Sumatra including the successful pilot project in Telang Scheme in South Sumatra. We look forward to a fruitful cooperation.



Sincerely Yours

Head of South Sumatra Water Resources Department

A. Anwar Arifin

CC.

1. Governor of South Sumatra Province
2. Directorate General of Water Resources, Dept. Kimpraswil
3. The Head of (Bupati) Banyuasin District
4. Dr. Robiyanto H. Susanto



BUPATI BANYUASIN

Pangkalan Balai, 24 April 2003

No. 521.6/2029/VII/2003

To Professor. Dr. Ir. Bart Schultz
Senior Advisor of The Ministry of Public Works
Transport and Water Management
Rijkswaterstaat, Utrecht, The Netherlands

Dear Prof Schultz,

I wish to express my full support for the initiative of the Netherlands Ministry of Public Works, Transport and Water Management (Rijkswaterstaat) for the Tidal Lowlands Water Management project. This project will be a major contribution to the familiarization of the inputs required for proper Water Management in this environment.

Water Management is a key input for the development and sustainable increase of the rice production in South Sumatera. In this respect it will support the Rice Estate project in Kabupaten Banyuasin, South Sumatera province. This project is a first attempt of the Indonesia Government for an integrated effort with a full participatory approach in the Tidal Lowland. The main aim of this project is to increase the rice production to support continuation of the strong rice production increases of the last two years in the province.

We appreciate very much the willingness of the Netherlands Ministry of Public Work. Transport and Water Management to contribute to these efforts by the exchange of knowledge concerning the Water Management of Tidal Lowlands. Based on your previous experiences in Indonesia including the support for Tidal Lowlands Development in Indonesia by Rijkswaterstaat and UNESCO-IHE we fully trust in a successful cooperation.

We are looking forward to the realization of this collaboration at the first chance.

Sincerely Yours

 **BUPATI BANYUASIN,**

H. H. AMIRUDDIN INOED

CC.

1. Governor of South Sumatera
2. Dir. Gen. of Water Resources, Rep. Indonesia
3. Chief of DPRD (House of Representative) Banyuasin
4. Dr. Robiyanto H. Susanto, Sriwijaya University



**PEMERINTAH PROPINSI SUMATERA SELATAN
DINAS TANAMAN PANGAN DAN HORTIKULTURA**

Jln. Kapten P. Tendean No. 1058 Telp. 353122 - 350741 Fax. 0711 350741
PALEMBANG 30129

Palembang, October 20, 2003

Ref. No.

To Professor. Dr. Ir. Bart Schultz
Senior Advisor of The Ministry of Public Works
Transport and Water Management
Rijkswaterstaat, Utrecht, The Netherlands

Dear Prof Schultz,

We have been working on the on-farm water management improvement in the lowlands of South Sumatra with targeted area of 370.000 ha. The on farm and major scheme water management are very important on the food crops production on such area. This is especially important when We consider the South Sumatra province as the 3rd rank food production center nationwide after Java and South Sulawesi.

The availability of other agricultural inputs such as seed, fertilizers, on-farm mechanization as a well as the after harvest processing and handling are needed in conjunction with a good water management during the food crops production.

We appreciate very much the willingness of the Netherlands Ministry of Public Work. Transport and Water Management to contribute to these efforts by the exchange of knowledge concerning the Water Management of Tidal Lowlands. Based on your previous experiences in Indonesia including the support for Tidal Lowlands Development in Indonesia by Rijkswaterstaat and UNESCO-IHE we fully trust in a successful cooperation.

We are looking forward to the realization of this collaboration at the first chance.

Your Sincerely



H. H. TRISBANI ARIEF, M.M.

CC.

1. Governor of South Sumatera
2. Dir. Gen. of Agric Infrastructure, Ministry of Agric., Rep. Indonesia
3. Dr. Robiyanto H.Susanto, Sriwijaya University



Sukseskan PON XVI - 2004 Sumatera Selatan



B CV's of Netherlands Experts

Standard form curriculum vitae: Suryadi

1. Family name:	Suryadi
2. First names:	Fransiscus Xaverius
3. Date of birth:	28 – 11 – 1954
4. Place of birth:	Palembang
5. Nationality:	Indonesian
6. Civil status:	Single
7. Present employer:	River Engineering Section, WL Delft Hydraulics and Lecturer UNESCO-IHE Delft, Land & Water Development
8. Years in firm:	Three years
9. Proposed position in team:	Water Management Specialist and Modeling Development for MIS system.
10. Key qualifications (Relevant to the project):	During many years Mr Suryadi has obtained experience in hydrometric and hydrographic surveys in tidal rivers in Indonesia and in modeling of water management systems. He received his BSc degree in Civil Engineering at the Parahyangan, Catholic University in Bandung, Indonesia and an MSc degree in Hydraulic Engineering at IHE, Delft. He got his PhD from Delft University of Technology - IHE Delft in October 1996. Since May 2000, he joined WL Delft Hydraulics in the Netherlands. His research topic for the past few years has been Soil and Water Management Strategies for Lowlands. An other important research topic focuses on the set-up of database management systems, hydrodynamic modeling, modeling of land suitability, morphological changes and water management zoning with GIS, and includes many national and international publications. He has broad experience in teaching applied hydraulics, one dimensional water quantity and quality mathematical modeling, for several courses at IHE the Netherlands and abroad and the MSc program at the University of Sana'a, Yemen as well as in Malaysia. He has also experience in consultancy projects related to modeling of water management systems and application of GIS.
11. Education:	1996. PhD, Delft University of Technology - IHE, Delft, the Netherlands. Thesis: Soil and Water Management Strategies for Tidal Lowlands in Indonesia 1987. MSc Degree, Hydraulic Engineering, IHE Delft, the Netherlands 1984. Job training on tidal outlet mathematical modeling, Delft Hydraulics, the Netherlands 1984. Diploma in Hydraulic Engineering, IHE Delft, the Netherlands 1981. Job training on developing computer models for one dimensional unsteady flow (water movement and salinity) and tidal analysis, Delft Hydraulics, the Netherlands 1978. BSc. Degree Civil Engineering, Parahyangan Catholic University, Bandung, Indonesia
12. Experience Record:	2002-March 2003. River Engineering WL Delft. BASELINE and WAQUA modeling PKB project for river Waal, Lek and IJssel 2002. River Engineering WL Delft. Lecturing Tidal Drainage and DUFLOW, Land Drainage course, ILRI, Wageningen 2001 1D hydrodynamic model for Huangpu river system (Shanghai), China 2001 River Engineering WL Delft. 1D and 2D morphological

	<p>modelling with uniform as well as well as graded sediment characteristics for river Tenryuu, Japan</p> <p>1999 -pres.Guest lecture on Modelling of Water Management Systems and the Application of a GIS, IHE, Delft, the Netherlands</p> <p>1999 Mathematical Modelling of the Water Management Systems, Kendawangan Tidal Reclamation Scheme (2,500 ha), West Kalimantan (till February 2000) Indonesia</p> <p>1999 Lecturer Parahyangan Catholic University, Bandung, Mathematical Modelling of the Aquaculture Water Management Systems (1,500 ha), South Sulawesi (till April 2000)</p> <p>1998 Lecturing on Basic Hydraulics, Parahyangan Catholic University, Bandung, Indonesia</p> <p>1998 Guest lecture on Urban drainage modelling, IHE, Delft, the Netherlands</p> <p>1998 Setting up a workshop on Tidal Swampland Development Project related to the guidelines preparation, Indonesia</p> <p>1997 – 1999 Technical Mission on Water Management Systems of Lowland Development Project in Central Kalimantan (in colaboration with the Dutch experts team) Indonesia</p> <p>1997 Lecturing and supervising thesis work for BSc students in the field of Lowland development, Institut Teknologi Nasional, Bandung,</p> <p>1998 Setting up a workshop on Tidal Swampland Development Project related to the guidelines preparation, Indonesia</p> <p>1997 – 1999 Technical Mission on Water Management Systems of Lowland Development Project in Central Kalimantan (in colaboration with the Dutch experts team) Indonesia</p> <p>1997 Lecturing on Water Resources Development at the Parahyangan Catholic University, Bandung, Indonesia</p> <p>1997 Lecturing and supervising thesis work for BSc students in the field of Lowland development, Institut Teknologi Nasional, Bandung, Indonesia</p> <p>1995 Lecturing on the design of the water management infrastructure and mathematical modelling; Course on Lowland Development Technical Planning and Design, Kota Bharu, Malaysia</p> <p>1994 Lecturing on (1) Mathematical modelling of soil and water management systems in tidal lowland development projects and (2) Introduction to GIS, Senior advanced course on polder development, IHE, Delft, the Netherlands</p> <p>1994 Lecturing on Applied Hydraulics for the MSc study program at the Faculty of Engineering, University of Sana'a, Yemen</p> <p>1995 Geographical Information specialist for the Telang Saleh Agricultural Development Project, Euroconsult, Palembang</p> <p>1993 – 1994 Water management specialist for the Telang Saleh Agricultural Development project, Euroconsult, Palembang</p> <p>1994 Development of a DUFLOW schematization model for coastal area in Sri Lanka, as a consultancy project for Boskalis BV, the Netherlands</p> <p>1994 Guiding of field trips to France and in the Netherlands of the participants of the diploma course in Land and Water Development of IHE, Delft, the Netherlands</p> <p>1994 Lecturing on introduction to GIS and its application to water management zoning of tidal lowland development projects, Kuala Lumpur, Malaysia.</p> <p>1993 – 1996 Supervising thesis work for MSc students in the field of</p>
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	<p>lowland development, IHE, Delft, the Netherlands</p> <p>1993 – 1996 Giving lectures on DUFLOW modelling for several short courses and diploma course at IHE, Delft, the Netherlands</p> <p>1992 Lecturing on Lowland Development in Indonesia for the diploma course at IHE, Delft, the Netherlands</p> <p>1986 – 1991 Lecturing at Bipowered Post Graduate Course on Basic Hydraulics, Tides, Salinity Intrusion and supervising design/group work of the Lowland Branch</p> <p>1989 – 1990 Water movement and salinity intrusion model for the Banyuasin river and its tributaries, South Sumatra within the framework of the Monitoring and Evaluation Program</p> <p>1989 – 1990 Mathematical modelling for the Special Maintenance Program of tidal drainage schemes in Sumatra and Kalimantan</p> <p>1991 – 1996 Research fellow at the International Institute for Infrastructural, Hydraulic and Environmental Engineering, Delft, the Netherlands</p> <p>1989 – 1991 Counterpart team leader for Integrated Water Resources Development Project, Cimanuk – Cisadane, Bandung, Indonesia</p> <p>1981 – 1987 Counterpart team leader for tidal lowland development project in Indonesia, Bandung, Indonesia</p> <p>1978 – 1991 Part time lecturer (Basic Hydraulics) at the Parahyangan Catholic University, Bandung, Indonesia</p> <p>1978 – 1981 Counterparting staff for hydrometric and hydrographic for tidal lowland development projects in Indonesia, Bandung, Indonesia</p>
13. Language skills: (excellent/good/fair/poor)	<p><i>Language Reading Speaking Writing</i></p> <p>Indonesia mother tongue mother tongue mother tongue</p> <p>English very good very good very good</p> <p>Dutch good very good good</p> <p>Chinese oral oral</p>
14. Work undertaken which best illustrates capability to handle task assigned in present project:	<p>Dr. Suryadi has obtained a longtime experience in hydrometric and hydrographic surveys in tidal rivers in Indonesia and in modeling of water management systems with practical applications for Water Users Associations. His research topic for the past few years has been Soil and Water Management Strategies for Lowlands. An other important research topic focuses on the set-up of database management systems, hydrodynamic modeling, modeling of land suitability, morphological changes and water management zoning with GIS.</p>

Standard form curriculum vitae; Schultz

1. Family name:	Schultz
2. First names:	Eduard
3. Date of birth:	7 February 1947
4. Place of birth:	Haarlem
5. Nationality:	Dutch
6. Civil status:	Married
7. Present employer:	Min. of Transport, Public Works and water Management, (Rijkswaterstaat) UNESCO-IHE
8. Years in firm:	30 years with Rijkswaterstaat 13 Years with UNESCO-IHE
9. Proposed position in team:	Head Supervising Committee and Head Task Force implementation
10. Key qualifications (Relevant to the project):	<p>Prof. Schultz is Senior advisor, Civil Engineering Division, Directorate General for Public Works and Water Management, Utrecht, The Netherlands and part-time Professor in Land and Water Development, International Institute for Infrastructural, Hydraulic and Environmental Engineering (IHE), Delft, The Netherlands. Prof. Schultz career includes 30 years of research, advising and project implementation in the field of land and water development, drainage, irrigation and environmental engineering.</p> <p>Most of this time he worked as head of the Water Management Division in the IJsselmeerpolders Development Authority.</p> <p>At IHE, Prof. Schultz is responsible for education and research in Land and Water Development. Under his guidance about 180 overseas participants obtained their Master of Engineering degree (MEng), about 80 their Master of Science degree (MSc) and 4 their PhD degree.</p> <p>During his career he visited more than 30 countries to appraise, evaluate, advice, or teach on land reclamation, drainage and irrigation projects.</p> <p>He is author of more than 150 articles in the field of land reclamation, drainage and irrigation and editor of several proceedings of National and International Conferences. He is chairman of the Editorial Board of Irrigation and Drainage.</p> <p>From September 1999 to July 2002 he was President of The International Commission on Irrigation and Drainage (ICID).</p>
11. Education:	Prof. Schultz graduated from the Delft University of Technology, Delft, The Netherlands. He also obtained his PhD degree here on the topic 'Water Management of the drained lakes in The Netherlands'.
12. Language skills: (excellent/good/fair/poor)	<p><i>Language Reading Speaking Writing</i></p> <p>Dutch Excellent Excellent Excellent</p> <p>English Excellent Excellent Excellent</p> <p>German Good Good Good</p> <p>French Fair Fair Fair</p>

Standard form curriculum vitae: Houterman

1. Family name:	Houterman
2. First names:	Joseph
3. Date of birth:	29 Augustus 1952
4. Place of birth:	Arnhem
5. Nationality:	Dutch
6. Civil status:	Married
7. Present employer:	ARCADIS-Euroconsult
8. Years in firm:	23 years
9. Proposed position in team:	Training Specialist: O&M participatory approach Tidal Lowlands , Design, Planning and Budgeting
10. Key qualifications (Relevant to the project):	<p>Mr Houterman holds a B.Sc. in Land and Water Use from the Advanced College of Land and Water Use in the Netherlands (1980). He has 23 years of professional experience, mostly during long term missions as a resident expert in the irrigation, drainage and flood control sector in Indonesia, Iraq and Bangladesh. Of special interest the deltaic lowland reclamation program in Indonesia.</p> <p>Mr Houterman's main fields of expertise include project management, land and water management, design, O&M, monitoring and evaluation, planning and budgeting, training, and farmer's participation. Mr Houterman has been Team leader for more than 8 years on large multi-disciplinary irrigation and drainage projects with emphasis on inter-agency coordination, planning, budgeting, capacity building and institutional strengthening. Mr Houterman has most recently been engaged in the World Bank country review of the drainage sector in Indonesia.</p>
11. Education:	<p>B.Sc., Advanced College of Land and Water Use, Velp, the Netherlands, 1980</p> <p>International Reference Centre on Drinking Water, the Hague, the Netherlands, 1986</p> <p>Summer Course on Management, Twente University, Enschede, the Netherlands, 1992</p>
12. Experience Record:	<p>All activities are conducted as a Consultant working for ARCADIS-Euroconsult.</p> <p>2002-2003. Indonesia/ the Netherlands: Drainage Expert case study Agricultural Drainage in Indonesia: Towards an Interdisciplinary and Integrated Approach, World Bank-BNPPEW, World Bank-Netherlands Partnership Program Environmental Window.</p> <p>2001-date. The Netherlands: Project Coordinator Central Office; Responsible for CV database management, recruiting, contract negotiations and management.</p> <p>1997-2001. Indonesia: Central Team Leader/Institutional Specialist, Integrated Swamp Development Project, Directorate General of Water Resources Development, Ministry of Public Works (World Bank). Project assists the Government with integrated second-stage swamp development in Riau, Jambi and West Kalimantan provinces and includes 20 existing swamp schemes, covering an area of approx. 75,000 ha. Important tasks include coordination between ministries, improvement of the institutions of swamp development, and improved planning and strategies for the coastal swamp development program including participatory-design, -construction</p>

	<p>and -O&M in consultation with farmers and farmer's organizations. 1993-1997. Indonesia: Telang and Saleh Agricultural Development Project, Drainage Component. Team Leader/O&M Specialist/Design Engineer. As Team Leader responsible for all technical and administrative aspects of the project, as O&M Specialist responsible for the set-up and training of O&M organization in the Telang and Saleh projects and the introduction of O&M procedures, as Design Engineer responsible for hydraulic design for rehabilitation and upgrading of the hydraulic infrastructure in Telang I.</p> <p>1991-1993 Bangladesh: Operation & Maintenance Specialist in the Systems Rehabilitation Project. Responsible for development, introduction and implementation of improved O&M procedures and practices in three irrigation schemes, the Karnafuli, Chandpur and Muhuri Irrigation Projects.</p> <p>(1991) Indonesia: Monitoring and evaluation of agricultural development in the Swamp Reclamation Schemes project, Karang Agung, South Sumatra. As Land Use Specialist, involved in the evaluation of monitoring results of land use and water management aspects in swamp schemes.</p> <p>1989-1991 Indonesia: Irrigation Sub-Sector Project, Special Maintenance, Efficient O&M and Supervision of Ongoing Swamp Reclamation Project. Provincial O&M Adviser</p> <p>1988-1989 Indonesia: As Soil and Water Management Specialist involved in setting up an M&E system serving the Public Works agencies involved in swamp reclamation.</p> <p>1986-1988 Sudan: Project Adviser for the design, implementation and organization of an urban water supply project in the towns of Nyala and El Geneina.</p> <p>1985-1986 Iraq: Abu Ghraib Project. Irrigation Engineer charged with detailed design of tertiary units in irrigation and drainage systems and the supervision of construction works.</p> <p>1983-1985 Indonesia: Transmigration settlement project Merauke, Irian Jaya. Soils and land use surveys .</p> <p>1982-1983 Indonesia: Nationwide survey of tidal lands. Soil Scientist</p> <p>1982 The Netherlands: Preparatory studies and design for the North Jezira (Shimal) Irrigation Project, Iraq</p> <p>1981 Indonesia: Transmigration settlement project Merauke. Soil Surveyor</p> <p>1981 Iraq: Outfall Drain for the irrigated areas around Baghdad. Charged with the hydrological survey,</p> <p>1980 The Netherlands: IJsselmeer Polders Development Authority, Drainage Engineer.</p> <p>1978-1979 Sudan: Pengko Pilot Project, Bor. Irrigation/Drainage Engineer. .</p>																							
13. Language skills: (excellent/good/fair/poor)	<p><i>Language Reading Speaking Writing</i></p> <table><tr><td>Dutch</td><td>Excellent</td><td>Excellent</td><td>Excellent</td></tr><tr><td>English</td><td>Excellent</td><td>Excellent</td><td>Excellent</td></tr><tr><td>French</td><td>Good</td><td>Good</td><td>Good</td></tr><tr><td>German</td><td>Good</td><td>Good</td><td>Good</td></tr><tr><td>Indonesian</td><td>Good</td><td>Good</td><td>Good</td></tr></table>				Dutch	Excellent	Excellent	Excellent	English	Excellent	Excellent	Excellent	French	Good	Good	Good	German	Good	Good	Good	Indonesian	Good	Good	Good
Dutch	Excellent	Excellent	Excellent																					
English	Excellent	Excellent	Excellent																					
French	Good	Good	Good																					
German	Good	Good	Good																					
Indonesian	Good	Good	Good																					
14. Work undertaken which best illustrates capability to handle task assigned in present project:	<p>Mr Houterman's main fields of expertise include project management, land and water management, design, O&M, monitoring and evaluation, planning and budgeting, training, and farmer's participation. Mr Houterman has been Team leader for more than 8</p>																							

	years on large multi-disciplinary irrigation and drainage projects in Tidal Lowlands including the target area of the LWMTL project with emphasis on inter-agency coordination, planning, budgeting, capacity and institutional strengthening building including training of Water User's Associations in O&M.
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Standard form curriculum vitae; Eelaart

1. Family name:	Van den Eelaart
2. First names:	Adriaan Lein jan
3. Date of birth:	17 May 1941
4. Place of birth:	Makasar
5. Nationality:	Dutch
6. Civil status:	Married
7. Present employer:	Free-lance Consultant, Retired from ARCADIS-Euroconsult
8. Years in firm:	Since two years Free-lance
9. Proposed position in team:	On-Farm Water Management and Farming System Specialist for Tidal Lowlands
10. Key qualifications (Relevant to the project):	<p>Mr Van den Eelaart has more than 20 years of professional experience in land & water management in coastal regions. His responsibilities have included assessment of soil-related agronomic problems, on-farm water management, identification of the critical land qualities, key indicators for monitoring purposes, project feasibility with environmental impact and soil conservation measures.</p> <p>In the framework of the Swamps II, Telang-Saleh and ISDP Projects in Indonesia he acquired in-depth knowledge of the land reclamation, scheme design criteria and objectives, water management aspects for O&M implementation in Tropical Tidal Lowlands, including the management of acid sulphate soils, peat soils and saline soils and its environmental impacts. In 1992 he was a member of the World Bank pre-appraisal mission for the Integrated Swamp Development Project of Indonesia. (ISDP). In 1998 he was a member of the World Bank preparation mission for the Mekong Delta Water Resource Development Project in Vietnam (MDWRDP)</p>
11. Education:	<p>M.Sc. Land and Water Use, Agricultural University of Wageningen, the Netherlands, 1970</p> <p>Courses in photogrammetry, aerial photo interpretation and remote sensing with an emphasis on digital processing, International Training Centre for Aerospace Survey and Earth Sciences (ITC), Enschede, the Netherlands, 1968/1979</p> <p>Course in automatic mapping and data processing using the ARC-INFO Geo Information System, Rotterdam, the Netherlands, 1988</p>
12. Experience Record:	<p>2002 Indonesia: Senior Advisor: Implementation & Construction for Tertiary Development, Participatory Approach, in 4,500 ha pilot areas in Tidal Swamp Schemes in South Sumatra, Jambi and West Kalimantan. Ministry of Agriculture, DirGen of Facilities and Infrastructure, Dir. Irrigation and Water Management.</p> <ul style="list-style-type: none"> - Advise on Participatory Rural Appraisals to monitor progress of works for Tertiary Development and On-Farm Water Management systems, including discussions with Water Users Associations, Farmers Groups (Kelompok Tani) and local Government Officials. - Introduction of mechanized Farming System Technology include the use of pumps and two-wheel-tractors and its Operation & Maintenance. - Facilitate and advise on Training of local Government Officials and Community Organizers/Field Assistants on Water Management at Tertiary level.

	<p>(2001) Netherlands: Supervisor and Examinant Groupwork for IHE Delft (8 students). Groupwork included a Feasibility Study for the Bura Irrigation Project in Kenya.</p> <p>From 1974-2000 working for ARCADIS-Euroconsult</p> <p>(1995-2000) Indonesia: Senior Land & Water Management Specialist, Integrated Swamp Development Project (ISDP), Ministry of Public Works. (short term assignments) Duties included:</p> <ul style="list-style-type: none"> - Introduction of a new on-farm water management system with optimum soil/water management requirements for rice production in Tidal Swamps <p>(1998-1999) Indonesia: MIS/GIS and Land Use Planning Expert for the Integrated Swamp Development Project (ISDP) IBRD Loan 3755-IND (short-term assignments).</p> <p>(1998) Vietnam: Member of the World Bank Preparation Mission for the Mekong. Delta Water Resource Development Project. Total 500,000 ha. (MDWRDP):</p> <ul style="list-style-type: none"> - Review and comment on acid sulphate soils and related technical matters of the interim feasibility study - Assess the project feasibility from environmental viewpoint, with recommendations for acid sulphate soil and water management and mitigation measures and recommended land use in particular for Phase III in the Quan Lo-Phung Hiep sub-project, covering an area of 60,000 ha. <p>(1997) Indonesia: Team Leader/Upper Watershed Management Specialist of ADB TA-No.2665-INO: Institutional Strengthening of the Forest and Soil Conservation. Services in the Segara Anakan Basin Project:</p> <p>(1997) Indonesia: Team Leader/Land Development Specialist: Review the Land Development for the Batang Anai Irrigation project. West Sumatra (DGWRD, Bintek).</p> <p>(1996-1998) Indonesia: Senior Land Evaluation/GIS Specialist, Second Land Resources Evaluation and Planning Project (LREP-II), CSAR, Comp.C.</p> <p>(1996) Indonesia: Advisor for the Preparation Study in 200,000 ha in Central and South Kalimantan and the Feasibility study of the Mechanised Rice Farming project for 40,000 ha in South Kalimantan. Salim Group.</p> <p>(1995) Malaysia: Land Use Planner/GIS Expert on the Kalaka-Saribas Integrated Agricultural Development Project, Phase II (Sarawak).</p> <p>(1993-1996) Indonesia: On-Farm water management specialist of the Integrated Tidal Lowland Project in Telang-Saleh, South Sumatra (ADB). Advise on on-farm water management and lay-out.</p> <p>(1993-1995) Indonesia: Soil/Land Use and Image Analysis Specialist on the Second Land Resources Evaluation and Planning Project (LREP-II).</p> <p>(1993) Indonesia: Land Use Planner on the Provincial Irrigation Agricultural Development Project (PIADP).</p> <p>(1992) Indonesia/USA: Member of World Bank pre-appraisal mission for the Integrated Swamp Development Project. Assigned as Soil/Water and On-Farm Water Management Specialist.</p> <p>(1992) Pakistan: Land Evaluation Expert on the Balochistan Minor Irrigation Agricultural Development Project, Phase II.</p> <p>(1990-1991) Indonesia: Senior Soil Scientist and Water Management Specialist at the Agency for Agricultural Research and</p>
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	<p>Development (AARD), under the Agricultural Research Project in Tidal Swamps (SWAMPS II). Duties included:</p> <ul style="list-style-type: none">- Assist AARD in research and development of Farming System technology in tidal swamp Schemes and on policy decisions in this respect.- Provide training for water users' associations in soil and water management and its effect on gate operation for the water control structures- Conduct water management trials at farm level in Tertiary Demonstration Units. <p>(1989-1990) Indonesia: Senior Soil and Land Evaluation Specialist in the Third Irrigation Sector Project (TISP), Irrigation Component, province of Maluku (Ministry of Public Works/ADB).</p> <p>(1988-1989) The Netherlands: Senior Soils/Mapping Specialist. Short-term inputs in various projects.</p> <p>(1988-1989) The Netherlands/Indonesia: On-farm water management specialist and soil scientist in the Lawoo Research Project for Acid Sulphate Soils, South Kalimantan</p> <p>(1988-1989) The Netherlands/Indonesia: On-farm water management specialist and soil scientist in the Lawoo Research Project for Acid Sulphate Soils, South Kalimantan</p> <p>(1987) Indonesia: Land Use and Land Evaluation Specialist for the second-stage development of existing transmigration projects in three regions (South Sumatra, SE Sulawesi and Irian Jaya</p> <p>(1986) Indonesia: Soil and Water Specialist in master plan study on swamp reclamation in Irian Jaya (Ministry of Public Works/IBRD).</p> <p>(1987) Indonesia: As Senior Land Reclamation Specialist for peat soils, involved in site selection for a pilot farm for ramie fibre development in Indonesia (Polyfibre/PT Kodel).</p> <p>(1984-1985) Indonesia: Senior Land Reclamation/Mapping Specialist on the Rural Development Project in Lowlands, Sumatra, Kalimantan (IBRD).</p> <p>(1982-1984) Indonesia: As Senior Soil Scientist on the Nation Wide Study of Coastal and near-coastal Swampland in Sumatra, Kalimantan and Irian Jaya</p> <p>(1979-1981) Indonesia: Soil Scientist and Land Reclamation Specialist in the tidal swampland development project</p> <p>(1976-1978) Iraq: At the Abu Ghraib Development Project, in charge of the soil and hydrologic survey in an area covering 248,000 ha,</p> <p>(1975) Iraq: Land Use Planner and Reclamation Specialist 1970 - 1974 FAO, Rome, Italy Associate Expert</p> <p>(1973-1974) Lebanon: As FAO/UNDP Soil Scientist participated in the Litani River Irrigation Feasibility Project</p> <p>(1970-1972) Thailand: As FAO/UNDP Soil Scientist participated in a soil survey and land classification project,</p>																				
13. Language skills: (excellent/good/fair/poor)	<table><tr><td colspan="4"><i>Language Reading Speaking Writing</i></td></tr><tr><td>Dutch</td><td>Excellent</td><td>Excellent</td><td>Excellent</td></tr><tr><td>English</td><td>Excellent</td><td>Excellent</td><td>Excellent</td></tr><tr><td>Indonesia</td><td>Good</td><td>Good</td><td>Good</td></tr><tr><td>French</td><td>Good</td><td>Good</td><td>Good</td></tr></table>	<i>Language Reading Speaking Writing</i>				Dutch	Excellent	Excellent	Excellent	English	Excellent	Excellent	Excellent	Indonesia	Good	Good	Good	French	Good	Good	Good
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Dutch	Excellent	Excellent	Excellent																		
English	Excellent	Excellent	Excellent																		
Indonesia	Good	Good	Good																		
French	Good	Good	Good																		
14. Work undertaken which best illustrates capability to handle task assigned in present project:	For one year Senior Advisor to the Indonesian Government, Min. of Agriculture: Implementation & Construction for Tertiary Development, Participatory Approach, in 4,500 ha pilot areas in Tidal Swamp Schemes in South Sumatra, Jambi and West																				

	<p>Kalimantan. Ministry of Agriculture, DirGen of Facilities and Infrastructure, Dir. Irrigation and Water Management.</p> <p>For in total one year: Senior Land & Water Management Specialist, Integrated Swamp Development Project (ISDP), Ministry of Public Works. (short term assignments) Introduced a new on-farm water management system with optimum soil/water management requirements for rice production in Tidal Swamps</p> <p>For one year Senior Soil Scientist and Water Management Specialist at the Agency for Agricultural Research and Development (AARD), under the Agricultural Research Project in Tidal Swamps (SWAMPS II). Assisted AARD in research and development of Farming System technology in tidal swamp Schemes and on policy decisions.</p>
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Standard form curriculum vitae; Hollanders

1. Family name:	Hollanders
2. First names:	Peter H.J.
3. Date of birth:	1966
4. Place of birth:	Venlo
5. Nationality:	Dutch
6. Civil status:	Single
7. Present employer:	UNESCO-IHE
8. Years in firm:	Seven Years
9. Proposed position in team:	Land & Water Management Specialist
10. Key qualifications (Relevant to the project):	Since 1996, Lecturer at IHE-Delft. As a member of the Water Engineering department, he coordinates the All Masters programme Land and Water Development and several Tailor Made short courses. He is responsible for the lectures on Engineering Hydrology, GIS, Water Management Applications and Gravity Outlet Structures. In addition, he is involved in the research on Global Future Drainage needs and several ongoing drainage projects in China and Indonesia carried out within the core.
11. Education:	1988, B.Sc. Degree in Land and Water Management, College for Forestry and Land and Water Management, Velp, the Netherlands 1993, M.Sc. Degree in Hydrology, Wageningen Agricultural University, the Netherlands 1993, M.Sc. Degree in Hydrology, Wageningen Agricultural University, the Netherlands 1994, Course GIS (Arc/Info), DLO-Staring Centrum, the Netherlands
12. Experience Record:	2003 Advisor and facilitator for the training and capacity building Syria in the water sector of Syria, within the Syrian-Dutch Water Co-Operation. 2002 – 2003 Member Task Force, project “Guidelines Lowland Indonesia Development Indonesia”. Responsible for the set-up, execution and collection of data of a developed pilot area for monitoring in Telang I, Indonesia. 2001 / 2002 Coordinator groupwork for the Chinese specialist course programme on Water Scarcity. Programme Mentor and Coordinator groupwork for the international All Masters programme Land and Water Development. 2000 / 2001 Programme Coordinator of Specialist Course Vietnam. Integrated Land and Water Development and Management in Vietnam. Responsible for the organisation, management and execution of the specialist programme for 15 specialists from MARD and its associated institutes. Facilitator and coordinator for the short course for 10 senior officials from MARD. 2000 Coordinator groupwork and research topics for the China course programme on Integrated River Basin Management for Flood Control. Responsible for the preparation and execution of the groupwork and data collection, and the integration of the different MSc studies into one or more coherent integration reports. 1999 / 2000 Assistant on Water for Food and Rural Development Worldbank Vision Exercise, presented during the World Water Forum, March 2000, The Hague.

	<p>responsible for (1) identification and contacting key individuals, (2) follow up with these individuals / organizations to encourage them to comment on the vision, (3) Organize, synthesize and compiling of the comments and disseminate these to the vision members and (4) Assist the report writers in the final preparation of the report.</p> <p>1996-1999 Programme Coordinator for the international All Masters programme Land and Water Development.</p> <p>1998 – 2002 China Research project “Policies for Water Savings Yellow River Basin; A DSS applied to Ningxia and Shandong”; EU/DG XII, INCO-DC programme. Project Leader. Responsible for 1) identification and quantification of the main water savings in irrigation, 2) to assess drainage and salinity problems, 3) to define improved water management strategies, 4) to evaluate potentials for water re-use, 5) to assess all possible environmental risks and problems, 6) to support the development of a DSS. Furthermore the development and implementation of field measurement and data processing (i.e. application computer models) methods in the field and with local institutes.</p> <p>1997, Iran . Programme Coordinator for a tailor made short course on Land Development and Consolidation for specialists from the ministry of Agriculture. Responsible for the development, management and part of the execution of the programme itself</p> <p>1996-1997 Vietnam. Group Training for the Ministry of Agriculture and Rural Development (MARD). Programme Coordinator. Responsible for the Development (including datacollection) and Management of a tailor made one year diploma course (Meng) in Integrated Land and Water Development and Management for agricultural and civil engineers from MARD and it's associated institutes.</p> <p>1993-1996 DLO-Staring Centrum, Wageningen, the Netherlands. Research Hydrologist. Responsible for the development of procedures and simulations of several hydrological systems using the 3D-flow model SIMGRO and linking it with a GIS. Results of these studies are used by government institutions to form their policy.</p>
13. Language skills: (excellent/good/fair/poor)	<p><i>Language Reading Speaking Writing</i></p> <p>Dutch Excellent Excellent Excellent</p> <p>English Excellent Excellent Excellent</p> <p>German Good Good Good</p>
	<p>Since 1996, Lecturer at IHE-Delft. As a member of the Water Engineering department, he coordinates the All Masters programme Land and Water Development and several Tailor Made short courses.</p> <p>Since 2002 Member Task Force, project “Guidelines Tidal Lowland Development Indonesia. Responsible for the set-up, execution and collection of data of a developed pilot area for monitoring in Telang I, Indonesia.</p>

