

EVALUATION REPORT

**" SALINITY MODERATING & PROOFING OF COASTAL AQUIFERS
IN A BADLY AFFECTED AREA OF THE AUROVILLE BIOREGION"**

FONDATION ENSEMBLE / HARVEST

Mission October 2007

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CONTENTS

Introduction : Harvest's demand & methodology of the evaluation.....	P3
1. REMINDER : LOCAL CONTEXT AND OBJECTIVES OF THE PROJECT	P6
1.1. Context of the project.....	P7
1.2. Financial partners.....	P12
1.3. Global and specific objectives of the projects.....	P13
1.4. Activities planned to be implemented.....	P15
1.5. Expected benefits and impact of the projects.....	P15
1.6. Objectively verifiable indicators.....	P15
2. HARVEST'S STRUCTURE AND PROCESS EVALUATION	P20
2.1. Human resources and means of action.....	P21
2.1.1. Human resources.....	P21
2.1.2. Means of action.....	P21
2.2. Implementation methodology and following up of the project.....	P23
2.2.1. Organisation and process : strengths and weaknesses, recommendations.....	P23
2.2.2. Management documents consulted.....	P23
3. EVALUATION OF RESULTS & SUSTAINABILITY OF THE PROJECT	P25
Results / Synthesis of results versus verifiable indicators	
Conclusions (strengths, difficulties, sustainability factors, indicators & activities to be followed)	
3.1. Physical works.....	P26
3.2. Agricultural activities	P31
3.3. Sanitation program	P36
3.4. Socio-economical analysis & community organization.....	P43
3.5. Scientific follow up & environmental monitoring.....	P47
4. RECOMMENDATIONS	P52
4.1. Harvest : consolidated capacities, difficulties & recommendations.....	P53
4.2. Projects : global validity & planned extension.....	P55

INTRODUCTION

HARVEST'S DEMAND :

1. Evaluation on Harvest's overall program of Water Management

This global evaluation needs to look at all projects under this program which are in the process at the date of evaluation, namely:

- "Sustainable and durable development through integrated water resources development in a selected village", funded by Aqua for All and Vitens
 - "Supplementation of groundwater through recharge structures", funded by City of Hilden
 - "Salinity moderating & proofing of coastal aquifers in a badly affected area of the Auroville bioregion", funded by Fondation Ensemble
- It has to be less detailed than the second underneath mentioned evaluation. It should help Harvest to be able to address critical issues that emerge from it.

This evaluation will be based on goals and objectives, process, results and outcome.

It should include :

- Effectiveness of the projects
- Cost benefit analysis
- Sustainability analysis

2. Evaluation on the program entitled « Salinity proofing ».

"Salinity proofing" is a 3-year project funded by the Fondation Ensemble which has completed 22 months on the ground.

Key-words : social mobilization, community organization, institutional building, capacity building, technical (engineering) aspect in the surface water, structure rehabilitation, agriculture, innovative techniques and sanitation, health.

This more detailed evaluation is meant to be a response to the overall organizational goal.

It needs to include:

- Social, economic and environmental impacts
- Methodology of implementation, process
- Transfer of know-how and responsibility of the project
- Goal orientation
- Sustainability of the project

FONDATION ENSEMBLE'S DEMAND

While the demand for evaluation was initiated from Harvest, at the request of the Fondation Ensemble it was agreed that the report will be submitted initially to Fondation Ensemble for the sake of neutrality and transparency

METHODOLOGY :

1- Documentation survey

The following documents were used for this intermediary evaluation :

- Initial project (presentation project report intended for the financier with description of the project including global and specific objectives, final and intermediary planned results, actions to be carried out and corresponding ways and means , planned indicators).
- Activity reports already submitted to the funding agency
- Update results
- Other varied documents

2- Harvest diagnosis and assessment

- General presentation of Harvest's strategy, methodology, overall approach, activities, networking, structure of the organization, context, public relation etc by the director.
- Presentation of the project implementation methodology, staffing, capacity, documentation, reporting and internal progress evaluation by the project manager and any other relevant persons.
- Internal training process

3- On site diagnosis and assessment

On site visits and interviews with users, key persons involved in the project and institution representatives were organized, in order to precise the following points :

- At what stage are we in the project and its activities ?
- Do activities of the project work properly ?
- Identification of best practices, delays, difficulties and reasons why ?
- Acceptance by the targeted population
- Recommendations for the next phase of the project with reorientation of the actions or of the project, if it happened to be necessary, planning for next stages.

Systematic evaluation of actions (with Harvest and on site) including :

- Proper use of ways and means
- Process , results in quantity and quality
- Step reached according to final objective
- Various and global impacts
- Community organization and commitment
- Institutional construction and reinforcement

- Efficiency in training and education on water management
- Know-how and responsibility transfer
- Social mobilization and changes in user's behaviors
- Changes in sanitation and health conditions
- Agriculture, innovative techniques and water resource management
- Monitoring system and documentation

The above evaluation criteria have been selected according to the nature of the project.

4 - Structure of the report

This evaluation has been organized through 5 main themes which enable a systematical declination of the various activities of the projects.

Physical works

Agricultural activities

Sanitation program

Socio-economical analysis & community organization

Scientific follow up & environmental monitoring

1. REMINDER / LOCAL CONTEXT AND OBJECTIVES OF THE PROJECT

1.1. Context of the project

1.2. Financial partners

1.3. Global and specific objectives of the projects

1.4. Activities planned to be implemented

1.5. Expected benefits and impact of the projects

1.6. Objectively verifiable indicators

1/ REMINDER :

LOCAL CONTEXT AND OBJECTIVES OF THE PROJECT

1.1. Context of the project

Harvest proposed to conduct a 3 years mini watershed project, starting in January 2006 and ending in December 2009 in an area particularly threatened by salinity intrusion in the Vanur Taluk of Villupuram District, Tamil Nadu, India. This project is based on an integrated approach, which comprises water, land, ecology, sanitation, livestock and people and on a participatory approach with the water users, farmers and the community so as to make them act as changing agents to conserve natural resources and guarantee the sustainability of the program.

A list of affected villages has been defined based on various criteria like quality and evolution of groundwater, surface water, drinking water, soil quality and of fields yielding evolution.

Type of activity targeted in the villages & name of project	Number of villages and beneficiaries	Name of villages in Villupuram District	
Villages targeted for physical work <i>" Salinity moderating & proofing of coastal aquifers in a badly affected area of the Auroville bioregion" Fondation Ensemble</i> <i>+ other funders</i>	7 villages (for « Salinity proofing ») + 5 (other projects)	« Salinity proofing » : Anpakkam Kaluperumpakkam Kodur Olundiapet Rayaottai Rayapudupakkam Vilvanatham	Other projects : Bommayapalayam Kalapet Kottakuppam Kunimedu Puthuâttu
Villages specifically selected for the supplementation of groundwater recharge along the Tsunami affected coastal area <i>"Groundwater recharge 2", City of Hilden</i>	5 villages	Villages for phase II :	Villages for phase I : Bommayapalayam Kalapet Kottakuppam Kunimedu Puthuâttu
Villages selected for the developmental cum	7 villages	Anpakkam	Rayaottai + Thuruvai

research works (results must be demonstrated to the nearby villages) <i>" Salinity moderating & proofing of coastal aquifers in a badly affected area of the Auroville bioregion" Fondation Ensemble</i>		Kaluperumpakkam Kodur Olundiapattu + 2 hamlets	Rayapudupakkam Vilvanatham
Village selected for the pilot phase on sanitation and public health <i>"Integrated village water management" Vitens, Aqua for All</i>	1 village	Kottakarai	
Villages particularly selected for agriculture, tree plantation, irrigation and sanitation <i>" Salinity moderating & proofing of coastal aquifers in a badly affected area of the Auroville bioregion" Fondation Ensemble</i>	8 = 8,930 people (+ Kottakarai 2000 people)	Anpakkam Kaluperumpakkam Kodur Olundiapet Rayaottai + Thuruvai Rayapudupakkam Vilvanatham + 2 hamlets	+(Kottakarai)
Total villages and population benefiting from Harvest's water management project	13 villages = 22,941 people + 5 villages for groundwater recharge = 18 villages Main targeted group : around 1000 farming households =approximately 5,000 people	1 Anpakkam 2 Kaluperumpakkam 3 Kodur 4 Olundiapattu 5 Rayaottai 6 Vilvanatham 7 Rayapuddupakkam 8 Thuruvai 9 Kenipattu 10 Pulichapallam 11 Vanur 12 Kattrambakkam 13 Kottakarai	Following 5 villages also included for groundwater recharge : Kottakuppam , Bommayapalayam, Kalapet, Puthupattu, Kunimedu

Funder	Year	Activity	Village Name	Popula - tion	
UNICEF	2005-2006	Integrated sanitation program in Tsunami related temporary shelters in Villupuram district	Mudaliarkuppam	1000	
			Kunimedhukuppam	3650	
			Anumandaykuppam (beach)	2000	
			Chettinagar (beach)	560	
			Chinnamudaliarchavady (beach)	700	
			Pudukuppam	340	
			City of Hilden phase 1	2006	Supplementation of groundwater through recharge structures along the tsunami-affected coast of Tamil Nadu around Auroville
2 percolation ponds and related structures have been excavated	Karuvadikkuppam	3000			
	Pondicherry University (2)	2000			
	Kalapet	8928			
	Pondicherry University (2)	2000			
City of Hilden phase 2	2007	Artificial recharge Against sea water intrusion & secured groundwater availability	check dams	Pulichapallam	4570
				Anpakkam (2)	560
			Recharge ponds	Vanur	4845
			Number of recharge wells and filtration units: 2	Vanur	4845
				Anpakkam	560
			Zukunftsstiftung Entwicklungshilfe	2006	Sustainable development of sanitation and public health

			Kottakarai	2000
A4A/Vitens	2007	A pilot project for sustainable and durable development through integrated water resources development		
			Kottakarai	2000
Vitens - Government of India (Pondicherry)	2007	Pure Dynamised Drinking Water Supply including institutional Building to the Village Population in Selected Village, Sanjeevinagar	Sanjeevinagar	1800
Government of India - PWD	2006	Rehabilitation of irrigation tank		
			Vilvanatham	835
Government of India -NREGA	2007	Creation or rehabilitation of recharge ponds	Kottakarai	2000
			Edayanchavadi	3000
			Anpakkam	559
			Kaluperumpakkam	1383
			Kodur	1544
			Rayapuddupakkam	2010
			Bommayapalayam	6664
Fondation Ensemble	2006-2007	All activities under Ensemble's project	Anpakkam	559
			Kaluperumpakkam	1383
			Kodur	1544
			Olundiapattu	1084
			Rayaottai	663
			Vilvanatham	835
			Rayapuddupakkam	2010
		Thuruvai	852	
NOTE: Other villages of the area are getting benefit of the overall activities because of the changes in groundwater availability through recharge, erosion control, environmental management, but also because of the example and motivation of the concerned population.				

Original statement :

13 villages = 22,941 people + 5 villages for groundwater recharge = 18 villages
Main targeted group : around 1000 farming households = approximately 5,000 people

Beneficiary population for the entire program until 2007
24 villages = 78063 people

Village Name	Beneficiary Population until 2007
Anpakkam	560
Anumandaykuppam (beach)	2000
Bommayapalayam	6664
Chettinagar (beach)	560
Chinnamudaliarchavady (beach)	700
Edayanchavadi	3000
Kalapet	8928
Kaluperumpakkam	1383
Karuvadikkuppam	3000
Kodur	1544
Kottakarai	2000
Kottakuppam	24075
Kunimedhukuppam	3650
Mudaliarkuppam	1000
Olundiapattu	1084
Pondicherry University	2000
Pudukuppam	340
Pullichapallam	4570
Rayaottai	663
Rayapuddupakkam	2010
Sanjeevinagar	1800
Thuruvai	852
Vanur	4845
Vilvanatham	835

24

78063

The selected villages show a high degradation of water quality and a high depletion of groundwater table, as well as degradation of tank structures and lack of drainage structure maintenance. These villages are part of the same sub-watershed and part of a larger tank network and drainage system.

At the environmental level, the impact of the projects will be strengthened by these geographic characteristics and should improve the groundwater situation on an area evaluated to 5 to 10 times the project area, with the related population. Looking at the geographical and social context, this project will have major impact on a large area as it is situated on the recharge area of the main local aquifer, supplying about 260 sq km with its rural and coastal population, about 400 000 people. It is also a key area as far as seawater intrusion risk is concerned, as it is locking the groundwater flow for the entire aquifer system. These projects are part of the overall Harvest program on the Kaluvelly-Pondicherry sedimentary coastal basin adopted by the HELP Basin Program of UNESCO and covering an area of about 1,400 sq km and a population of 1.2 millions people.

At the beginning of the project, the hydrodynamic functioning of the whole system was poorly known by the local population, while Harvest has developed a very solid scientific knowledge of the entire system on which such project can be build. No water management laws had been enacted nor applied and no institutional structure exist to address such problem.

1.2. Financial partners

Name of the Funding agency	Budget Euros	Initial financial counter part %	Actual financial counter part %	Amount Received so far from the total budget
Fondation Ensemble	416,832	67%	58.3%	81.6%
Beneficiaries	39,138	6%	5.5%	100.0%
City of Hilden Project 1	52,000	8%	7.3%	100.0%
City of Hilden Project 2	50,035		7.0%	100.0%
A4A - Vitens (Kottakarai)	79,951		11.2%	87.6%
Beneficiaries	3,997		0.6%	100.0%
Vitens - Government Sanjeevi Nagar	16,460		2.3%	100.0%
Beneficiaries	1,636		0.2%	100.0%

Zukunftsstiftung Entwicklungshilfe - Kottakarai Project	15,052	2%	2.1%	100.0%
PWD Government - Vilvanatham Tank (not funded through Harvest)	40,000		5.6%	0.0%
Government of India, Central Ground Water Board		16%		initially planned in the budget but finally abandoned
Total Budget	715,102	100%	100%	

Note:

Are mentioned only the funds canalized through Harvest or direct counter part in the activities
The financial counter parts for the year 2008 are not included in this table

1.3. Global and specific objectives of the project

The broader aim of the project is :

to create an action-research and operational project to develop new methodologies in the field of hydrology and hydrogeology, tank rehabilitation, coastal area water management, policy development, environmental and water management awareness, and social development and empowerment.

The global objectives of the project are :

to improve the water resource situation understanding present circumstances from a hydrological and socio-economical point of view, quantifying the fresh water resources and their time evolution in order to prevent salinisation in the aquifers (which is the main dependable source of accessible water for drinking and agricultural purposes) in the coastal villages, to improve the collect, drainage and usage of surface water to reduce groundwater dependency and augment recharge, to develop the capacity of the population to use water resources and develop related activities in sustainable ways, defining methodologies of system evaluation that could be applied and extended to sedimentary basins, finding good arguments to promote the introduction of water management rules/laws.

The specific objectives are :

Physical works

To tackle the surface runoff, thus leading to a maximization of rainwater harvesting capacities in the area and to large increase of groundwater recharge.

Agricultural activities

To implement better surface water management, irrigation and agriculture practises so as to reduce reliance on groundwater.

Sanitation program

To develop appropriate facilities for sanitation aspects, creating awareness in the population.

Scientific follow up & environmental monitoring

To document and analyse the main factors of environmental and land use evolutions like meteorology, groundwater level, water quality, soil quality, land use pattern and to integrate them in GIS system and other proper tools for proper transfer of information to the farmers and the authorities to support decision process and advocacy.

Socio-economical analysis & community organization

To collect socio-economical data so as to understand the organization of villages, the dynamic and needs of villagers and to create appropriate organizations within the villages for adequate transfer of know-how and local empowerment.

See tables below

1.4. Activities planned to be implemented

1.5. Expected benefits and impact of the projects

1.6. Objectively verifiable indicators

See tables below

PHYSICAL WORKS

PROJECT PROPOSAL REMINDER

IMMEDIATE OBJECTIVES	ACTIVITIES	EXPECTED BENEFITS	VERIFIABLE INDICATORS
<ul style="list-style-type: none"> - To increase rainwater harvesting capacities and improve groundwater recharge by rehabilitating the storage reservoirs such as irrigation tanks and ponds - To develop groundwater recharge by creating appropriate structures along the waterways and fields - To diminish seawater intrusion risk by supplementing groundwater recharge along the coast 	<ul style="list-style-type: none"> - Tanks desilting and bund strengthening (8) - Repair of sluices and surplus weirs (8 tanks) - Desilting of village ponds (6) - New percolation ponds (5) - Check dams for erosion control and groundwater recharge (10) - Supply channels and drains clearance and desilting, including planting of riparian buffer (2) - Drilling of recharge wells (4) 	<ul style="list-style-type: none"> - Increase in the water storage capacity - Additional storage capacity in the surface water reservoirs and other infiltration devices improving the recharging of groundwater 	<ul style="list-style-type: none"> - Improvement of rain water harvesting capacity : increase of volume of water stored in tanks and ponds - Improvement of groundwater recharge : improvement of aquifer recharge on a long term basis, rise of water level in the surrounding wells - Improvement of drainage : measurement of flow in the channels - Improvement of irrigation capacity : increase of area irrigated by rehabilitated tanks

AGRICULTURAL ACTIVITIES

PROJECT PROPOSAL REMINDER

IMMEDIATE OBJECTIVES	ACTIVITIES	EXPECTED BENEFITS	VERIFIABLE INDICATORS
<ul style="list-style-type: none"> - To create village level local institutions (Water Users Associations = WUA) and framework involving all the beneficiaries of the watershed development project to manage and maintain the existing surface water bodies in the village - To train the members of WUA and farmers in management of water tanks, improved organic agricultural practices, equity in water distribution and basic agricultural meteorology of the region and to correlate the same with irrigation water management - To test the quality of the soil periodically and to introduce soil fertility cards to the farmers - To establish integrated organic farming demonstration plots in order to increase the overall income of the farm and improve the impact on the environment - To create a hydro meteorological data collection framework through weather stations and to train the people in assessing the water balance of their own area 	<ul style="list-style-type: none"> - Training programs to farmers on meteorology, crop and water management, organic agriculture, tree plantation, aquaculture, fodder cultivation - Exposure/visits/ field trips to organic farms, agricultural research stations, water technology centres and farmers organizations - Integrated organic farming demonstration plots - Conducting on farm research trials for various crops - Preparation of soil fertility cards - Conducting workshops/seminars for farmers 	<ul style="list-style-type: none"> - Involvement of the farmers in the conservation of natural resources is improved - Increase in the water storage capacity acting as a catalyst to win the confidence of the farmers for their active and effective involvement, and to increase crop production - Create awareness and capacity on the conservation of natural resources among the community - Farmers get trained in modern and environmentally sound agricultural technologies - Increase in cultivable area - Fertility and nutrient status of the soil is improved and the land productivity per hectare is improved - Implementation of integrated organic farming systems improving the income generation and stabilizing soil fertility - The resources of the lands are economically valorised - Farmers are trained on the collection of meteorological data and interpretation of the data - Improve self governance and self responsibility - Networking of the water users associations, exchanges of competences 	<ul style="list-style-type: none"> - Improvement of irrigation capacity : increase of area irrigated by rehabilitated tanks (see physical works) - Improvement of agricultural practises : alternative cultivation implemented, proper consumption of water and adequate utilisation of irrigation systems - Improvement of water management : people direct participation and involvement - Improvement of awareness on water resources and environmental issues : evaluation can be made with meetings and discussions - Improvement of community participation : meetings, number of participant, level of interactions - Development of new skills and expertises

SANITATION PROGRAM

PROJECT PROPOSAL REMINDER

IMMEDIATE OBJECTIVES	ACTIVITIES	EXPECTED BENEFITS	VERIFIABLE INDICATORS
<ul style="list-style-type: none"> - To create awareness among the various users of land and water about the ill effects of poor management of natural resources and the necessity of conservation of the resources - To improve sanitation facilities in the villages in order to reduce water born diseases - To create awareness among the public about safe drinking water and sanitation practices 	<ul style="list-style-type: none"> - Public awareness campaigns on health, water and sanitation - Exhibitions in the village and health education for school children - Training, capacity building and exposure visits on public health and sanitation to the villagers - Construction or improvement of community based sanitation - Construction of cost effective model household toilets - Construction of washing floor near the public toilet in the village - Development of composting facilities and training on composting techniques 	<ul style="list-style-type: none"> - Involvement of concerned persons in the conservation of natural resources is improved - Create awareness and capacity on the conservation of natural resources among the community - Reduction in wasteland area - Improve sanitation in the villages and create awareness on sanitation and hygiene - Improve self governance and self responsibility 	<ul style="list-style-type: none"> - Improvement of drinking water quality : drinking water tests - Improvement of water management : people direct participation and involvement - Improvement of hygiene in the villages : usage of toilets, garbage collection - Improvement of awareness on sanitation, water resources and environmental issues : evaluation can be made with meetings and discussions - Improvement of community participation : meetings, number of participant, level of interactions - Improvement of public health reduction of absenteeism due to illness

SCIENTIFIC FOLLOW UP & ENVIRONMENTAL MONITORING

PROJECT PROPOSAL REMINDER

IMMEDIATE OBJECTIVES	ACTIVITIES	EXPECTED BENEFITS	VERIFIABLE INDICATORS
<ul style="list-style-type: none"> - To test the quality of the soil periodically and to introduce soil fertility cards to the farmers - To create a hydro meteorological data collection framework through weather stations and to train the people in assessing the water balance of their own area - To monitor specific water data in order to assess the evolution of the water availability and quality in the region - To conduct research on the impact of rehabilitated structures, best agricultural practices and valorisation of natural resources in a sustainable way on groundwater recharge, groundwater and surface water quality and soil fertility 	<ul style="list-style-type: none"> - Meteorological data monitoring - Ground water monitoring - Surface water flow monitoring - Water and soil quality analysis - Analyses, processing and GIS integration 	<ul style="list-style-type: none"> - Improvement in the judicious and scientific management of natural resources such as water, soil, plant and animal on a sustainable basis by preserving the environment - Fertility and nutrient status of the soil is improved and the land productivity per hectare is improved - Farmers are trained on the collection of meteorological data and interpretation of the data 	<ul style="list-style-type: none"> Installation of equipment and information collected

SOCIO-ECONOMICAL ANALYSIS & COMMUNITY ORGANISATION

PROJECT PROPOSAL REMINDER

IMMEDIATE OBJECTIVES	ACTIVITIES	EXPECTED BENEFITS	VERIFIABLE INDICATORS
<ul style="list-style-type: none">- To improve the general livelihood and the quality of life in the villages- To improve the socio-economic status of the community	<ul style="list-style-type: none">- Creation of local employment generation activities for women	<ul style="list-style-type: none">- The resources of the lands are economically valorised- Improve self governance and self responsibility	Not mentioned in proposal project

2. HARVEST'S STRUCTURE AND PROCESS EVALUATION

2.1. Human resources and means of action

2.1.1. Human resources

2.1.2. Means of action

2.2. Implementation methodology and following up of the project

2.2.1. Organisation and process : strengths and weaknesses, recommendations

2.2.2. Management documents consulted

2. HARVEST'S STRUCTURE AND PROCESS EVALUATION

2.1. Human resources and means of action

2.2.3. Human resources

Organisation :

EXECUTIVE DIRECTOR

ENSEMBLE

PROJECT COORDINATOR

multi task - overall assisting in management, idea creation, proposal writing, documentation, fund/resource mobilization

SOCIAL TEAM LEADER (changed at end of October 2007, replaced by Kottakarai project's team leader)

SUPERVISOR (asst to social team leader)

7 COMMUNITY ORGANISERS

AQUA FOR ALL / VITENS

TEAM LEADER

COMMUNITY ORGANISERS

GROUND WATER TEAM

TEAM LEADER

ENGINEERING

TEAM LEADER

ASSISTANT

WORKERS

GIS/ DATABASE

TEAM LEADER

ASSISTANT

ACCOUNTANT

Ground water, engineering and GIS/Database teams all work in association/cooperation with the social project teams.

2.2.4. Means of action

Equipment available with Harvest	
Qty	Details
	Field equipment
1	Audio Systems for intervention in villages
1	Video projector with screen
3	Digital Camera
1	Conductivity Meter
1	Conductivity & PH Meter
1	TD Scan-4 Conductivity Meter
1	Resistivity Meter
1	Evapori Meter
1	GPS System (topographique high resolution survey instrument)
1	Levelling Instrument (Survey)
1	Autolevel levelling instrument
1	Hand Held GPS(Garmin)
1	Infiltration Meter
1	Hydro Meter
1	Vacuum Pump
1	Water Flow Meter
1	Water Level Indicator
1	Weather Station Hardware
	Vehicle - Four Wheelers & Excavators
1	Jeep Mahindra
1	Mahindra Jeep - Bolero Sport
1	M.S. Trailer
2	Excavators Tata Hitachi 200
	Vehicle - Two Wheelers
14	Bikes and mopeds
	Computers & Related equipment
15	Computers
2	Laptop
4	Printers

2.3. Implementation methodology and follow up of the project

2.3.1. Organisation and process : strengths and weaknesses, recommendations

Regular weekly meetings between the project manager and the field staff of the project to report work progress. Once a month, evaluation of month progress what needs to be done, what is held back, etc. and accordingly rearrangement of work priorities and move forward. Formalised evaluations take place as and when required.

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> - Indepth understanding of the ground reality and integrated approach and methodology - Presence on the fields - Good reputation - Qualitative work - Excellent expertise on water dynamics - Ability to address human relationship - Good experience with sanitation - Capacity to mobilize women - Capacity to collect data - Efficient people within teams - Very good expertise on social issues 	<ul style="list-style-type: none"> - Difficulty for project manager to bring group cohesion, sometimes gap between social and technical teams when problems on the field because lack of global vision. - Interface between team coordinators not really transferred to the field people. - Integrated approach essentially depends on Harvest Director. - Need of sustainability for Harvest, in term of management team. - Difficulty for managers to settle a, team vision, because of top from bottom approach typical of Indian working context. - Lack of communication between community organisers - Global follow up and self evaluation of the project essentially guaranteed by Director - Difficulty for the staff to work on multiple activities and to keep the global vision of the project at the same time

Recommendations :

- Need of external expertise to help getting a shared vision and a real group focus oriented toward sustainable and integrated management and adapted training.
- Necessity for the project manager to develop an appropriate visual tool for the following up of the project ("tableaux de bord") and to help keeping the global objectives.
- Importance to reorganize the management delegation for better transfer and sustainability.
- Development of communication, awareness and education tools to help transfer and capitalization of information.

2.3.2. Management documents consulted :

Harvest's management	<p>2006 Review/month : number of days spent on various activities :</p> <ul style="list-style-type: none"> - office meeting and office work - training and exposure visits to staff - working on holidays and Sundays - field work
Ensemble project's management	<ul style="list-style-type: none"> - General organization (organisation chart) - Minutes register : team leader's meetings)- Jan. 2006 to Oct. 2007 - Minutes register : community organisers' meetings - till Oct 2007 - Performance appraisal : one done per community organiser per year - may 2006 (the next one will be done in December 2007) - SWOT analysis (for Harvest) - Feb/March 2007 - SWOT project (for "Salinity proofing" project) - Feb/March 2007 - SWOT self (personal assessment for each community organiser) - Feb/March 2007
Tools for socio-economical data analysis	<ul style="list-style-type: none"> - Baseline household survey - Community organisation in villages / Guidelines (Social Team) - Village profile/ Statistic reports from household survey (charts)

3. EVALUATION OF RESULTS & SUSTAINABILITY OF THE PROJECT

3.1. Results

3.2. Synthesis of results versus verifiable indicators

3.3. Conclusions

3.2.1. Strengths

3.2.2. Difficulties

3.2.3. Sustainability factors

3.2.4. Indicators & activities to be followed

Physical works

Agricultural activities

Sanitation program

Socio-economical analysis & community organization

Scientific follow up & environmental monitoring

PHYSICAL WORKS

RESULTS

TYPE OF ACTIVITIES (AS DEFINED IN PROJECT PROPOSAL)	RESULTS	RESULTS SYNTHESIS
<ul style="list-style-type: none"> - Tanks desilting and bund strengthening (8) - Repair of sluices and surplus weirs (8 tanks) - Desilting of village ponds (6) 	See tables below	All works completed, except : - 2 big tanks partially completed: 55% for Rayaottai because of political interference, 60% for Anpakkam for non cooperation of the farmers to give contribution which appeared to be too substantial. - 1 big tank (Olundiapattu) incomplete because of political difficulties.
<ul style="list-style-type: none"> - New percolation ponds (5) 	2006 co-funding from City of Hilden - Pondicherry university 2, Vanur 1 2007 City of Hilden - Vanur 1	Changes in works and financial program as per financial constrains and site conditions 2008 other program with City of Hilden
<ul style="list-style-type: none"> - Check dams for erosion control and groundwater recharge (10) 	2006 City of Hilden : Forecomers canyon 2 & Pondicherry Univ 2 & Kalapet 1 2007 Anpakkam, Kodur, Vanur Dams (City of Hilden)	3 dams completed (City of Hilden) Changes in works and financial program as per financial constrains and site conditions
<ul style="list-style-type: none"> - Supply channels and drains clearance and desilting, including planting of riparian buffer (2) 	See table below	All works completed
<ul style="list-style-type: none"> - Drilling of recharge wells (4) 		To be done in early 2008 City of Hilden, recharge structure project

Desilting of irrigation tanks

M.I.TANK /PANCHAYAT TANK											
Name of the village tank	Total extent	Water spread area	Catchment area	Capacity of tank m3		Depth m	Excavation		Sluice qty	Weir qty	Status
				Before desilting	After desilting		Planned in m3	excavated in m3			
RAYAPUDUPAKKAM SMALL	22.57.0 Ha	20.00.0 Ha	4.1 Sq Km	83,000	95,300	0.6 to 1.1	8,000	12,300	1	1	completed
OLUINDIYAPATTU SMALL	14.00.0 Ha	8.75.0 Ha	3.0 Sq Km	61,600	75,000	0.6 to 1.1	10,000	13,400	2	1	completed
PWD IRRIGATION TANK											
KODUR	119.69.0 Ha	95.33 .0Ha	8 Sq KM	943,691	976,531	0.6 to 1.1	26,350	32,840	2	1	completed
KALUPERUMPAKKAM	38.76.5Ha	29.21.0 Ha	6 Sq Km	386,424	404,096	0.6 to 1.1	19,200	17,672	2	1	completed
ANPAKKAM	68.52 .0Ha	53.66.0 Ha	12 Sq Km	610,000	625,503	0.6 to 1.1	28,000 (revised 16,500)	15,503	2	1	60% completed as per revised plan
RAYAOTTAI	46.82.5 Ha	25.20.0 Ha	6 Sq Km	4,360,833		0.6 to 1.1	26,000		2	2	55% (sluice work only) due to political issue
OLUINDIYAPATTU	78.53.5 Ha	52.31.0 Ha	6 Sq Km				25,200		2	2	Undone due to Political issues

Desilting of village ponds

Name of the village pond	Total extent	Catchment area	Capacity of pond-cum		Work executed (in M)		Remarks (E.W.Qty)	status
			Before desilting	After desilting	Area	Depth		

ANPAKKAM POND 1	0.55.0 Ha	0.60 Sq Km	900	2880	50X48	1.30	1980	Completed 2006
ANPAKKAM POND 2	1.44.0 Ha	0.60 Sq Km	600	2400	50X48	1.00	1800	Completed 2006
KODUR	1.36.5 Ha	0.70 Sq Km	2000	5745	80 X 62	1.15	3745	Completed 2006
OLINDIYAPETTU	1.40.0 Ha	0.75 Sq Km	1500	4800	69 X52	1.35	3300	Completed 2006
RAYA OTTAI	1.40.5 Ha	0.75 Sq Km	1000	6000	110 X 50	1.10	5000	Completed 2006
VILLVANATHAM	1.47.0 Ha	0.85 Sq Km	1500	7700	92X60	1.40	6200	Completed 2006
KALUPERUMPAKKAM	2.10.0 Ha	0.60 Sq Km	1000	6600	110X50	1.20	5600	Completed 2006

Supply channel and drains clearance and desilting including planting of riparian buffer

Name of the village tank	Water spread area	Catchment area	Estimate cost	Status
OLUNDIYAPATTU-ANPAKKAM CHANNEL	7150	6100M (Length of channel)	837000	Completed 2007 : Channel clearance and desilting + channel plantation
KODUR - VILLVANATHAM CHANNEL	6490	5800M (Length of channel)	670000	Completed 2007 : Channel clearance and desilting + channel plantation + Anpakkam/Kodur road junction Culvert + jungle clearance

De-silting of Field Irrigation Channels

Tank channel	Length in m	Status
Kaluperumpakkam tank Sluice - 1	860	Completed
Sluice - 2	1015	
Vilvanatham Tank Sluice - 1	1100	
Sluice - 2	700	
Sluice - 3	500	
Kodur Tank Sluice - 1	2570	
Sluice - 2	1750	
Anpakkam Tank Sluice - 1	1555	
Sluice - 2	2115	
Olundiapet Small Tank Sluice - 1	1990	
Sluice - 2	1040	
Rayaottai Tank Sluice - 1	2050	
Sluice - 1	1250	

PHYSICAL WORKS

VERIFIABLE INDICATORS & RESULTS SYNTHESIS

VERIFIABLE INDICATORS	RESULTS SYNTHESIS	CONCLUSIONS
<p>- Improvement of rain water harvesting capacity and strength : increase of volume of water stored in tanks and ponds , tree plantation</p>	<p>- Total increase of volume of water stored in tanks and ponds = 91 715 m³ (see above-mentioned tables) - Rehabilitation of tank control structures (weirs and sluices), bunds stabilisation and plantation</p>	<p>- The major part of planned physical works has been completed in due time. - Increase of volume of water stored in tanks and ponds, available for irrigation is significant (91 715 m³) - Each tank has got its own management structure registered as a society.</p>
<p>- Improvement of groundwater recharge : improvement of aquifer recharge on a long term basis, rise of water level in the surrounding wells</p>	<p>- All works completed except 3 tanks partially completed or incomplete - Improvement of aquifer recharge not possible to determine on such a short period, possible to account for it on a long term basis</p>	<p>Difficulties met : - Opposition to do the tank rehabilitation work due to economical and/or political interference. - Lack of clarity and proper stream flow with the various concerned authorities.</p>
<p>- Improvement of drainage : desilting and strengthening, measurement of flow in the channels</p>	<p>- Period is too early for any kind of measurement while all 2 structures have been completed thoroughly and are in place (surplus water from each tank will be able to move or drain into the following structure easily thus irrigating a larger area in a better manner)</p>	<p>Difficulties maybe underestimated in the initial risks' analysis. - Climatic constraints.</p>
<p>- Improvement of irrigation capacity : increase of area irrigated by rehabilitated tanks</p>	<p>- Water retention after the rehabilitation is for about 4 months (whereas it was only for about 1.5 to 2 months before). There will be then more water available for irrigation.</p>	<p>Sustainability factors : - Financial participation as well as labour work participation of the population for the rehabilitation of tanks play a significant role in the development of self-governance capacities. - Tank societies build financial stability and ensure financial accountability. The creation of these societies is a significant step toward empowerment and will enable to get funds from the government for works in the future.</p> <p>To be followed : - Improvement of drainage, through measurement of flow in</p>

		the channel - Improvement of field irrigation channels - rise of water level in wells (improvement of aquifer recharge) as a long term indicator
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AGRICULTURAL ACTIVITIES

RESULTS

TYPE OF ACTIVITIES (DEFINED IN THE PROJECT PROPOSAL)	DETAILED ACTIVITIES	RESULTS
- Training programs to farmers on meteorology, crop and water management, organic agriculture, tree plantation, aquaculture, fodder cultivation	Leadership Training	25 People = 2 villages
	EM Training	47 farmers = 6 villages
	Mango Value addition Training at Krishi Vigyan Kendra, Tindivanam	6 people = 2 villages
	Sanitation Training	358 people = 8 villages
	Water management training	35 people
	Fodder cultivation training	40 farmers (fodder cultivation really established for 6 farmers)
	Organic farming training at Sathyamangalam farm.	23 farmers = 7 villages
	Organic farming training at Harvest office. Topics include : - To impart technical skills on organic farming to the farmers. - To reduce the cost of cultivation by eliminating the usage of external chemical fertilizers. - To utilize the available farm resources in a better way. - To prevent the pollution caused to land and water by chemical fertilizers. - To bring the practice of proper water management system in the field level.	72 farmers
	Effective Micro organism training under the organic farming program at Auro Annam, Auroville.	17 farmers =2 villages
	Pisciculture training	40 (large part of

		women)
	Tree plantation training (this wasn't a training in the terms of workshop but rather a on the job skill. This was imparted when the plantations around the ponds and tanks and channels had to be done. In the first year, they did plantations around the ponds. On seeing the survival rate, they again planted this year along with the tank bunds and the channels)	all WUA members and labourers
- Exposure/visits/ field trips to organic farms, agricultural research stations, water technology centres and farmers organizations	Exposure visit on organic farming at Sathyamangalam farm.	23 farmers = 7 villages
	Exposure Visit to other WUAs	71 people = 7 villages
	Exposure visit on crop and water management, at Agriculture Faculty, Annamalai University, Chidambaram	33 farmers
- Integrated organic farming demonstration plots	Integrated organic farming demonstration plots	2006 = 2 plots 2007 = 3 plots see photo presented above
- Conducting on farm research trials for various crops	Crop and water management trials	2006 = 35 trials 2007 = 38 trials = 7 villages
	Integrating fodder plots in farmers fields	2006 = 6 2007 = 8
- Preparation of soil fertility cards		
	Soil sample analysis for micro and macro nutrient	70 samples taken
	Soil fertile cards	350 samples taken 50 cards per village
	Soil texture and structure analysis	70 samples taken
- Conducting	- Soil & water test results workshop. Officials from the Soil Testing Laboratory and	204 farmers from all

workshops/seminars for farmers	<p>Agriculture Department, Tamil Nadu, Cuddalore (government of India) participated in the program and explained about the contents of the soil and water test results and cleared the doubts of the farmers regarding the results. This is to be held once every year.</p> <p>Objectives :</p> <ul style="list-style-type: none"> - To collect soil and water samples in farmers field. - To test the soil and water samples for their quality. - To make the farmers aware of the status the nutrient content of the soil. - To recommend proper remediation practices to improve the quality of the soil. 	the villages
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AGRICULTURAL ACTIVITIES

VERIFIABLE INDICATORS VERSUS RESULTS SYNTHESIS

VERIFIABLE INDICATORS	RESULTS SYNTHESIS	CONCLUSIONS
<p>- Improvement of irrigation capacity : increase of area irrigated by rehabilitated tanks</p>	<p>- Total increase in rainwater harvesting capacity = 91 715 m³ (See detailed results in "physical works") - Water retention after the rehabilitation is for about 4 months (whereas it was only for about 1.5 to 2 months before). There will be then more water available for irrigation. Hence farmers can have 2 crops - paddy and a pulse or millet instead of 1.</p>	<p>- Rehabilitation of irrigation structures has increased considerably the rainwater harvesting capacity of the area of the project and the potential for water surface irrigation</p> <p>- Large number of soil and water samples made with regular follow-up and restitution of results to farmers.</p> <p>- Training and exposure visits conducted for the association members have shown feedback in terms of knowledge in the field.</p>
<p>- Improvement of agricultural practises : alternative cultivation implemented, proper consumption of water and adequate utilisation of irrigation systems</p>	<p>- 500 soil and water samples made, waiting for second soil sampling round results after 1 year. - 2006 = 2 integrated organic farming demonstration plots + 2007 = 3 plots (block level farming where possible) - 2006 = 35 crop and water management trials + 2007 = 38 trials (= 43 acres of paddy crop) - 2006 = 6 fodder plots integrated in farmers fields + 2007 = 8 trials - organic paddy cultivation - seeds treated with bio fertiliser (azospirillum) - 1 demonstrative model of orchard crops in Kottakarai - 1 vermicompost pit in farm for vegetable garden - Azolla cultivation trial for paddy fields (supply in nitrogen and phosphorus) = 1 trial</p>	<p>- Involvement and awareness on water resource and management has been shown through participation and discussions.</p> <p>- Integrated organic farming demonstration plots have been established with a good and diversified harvest and consolidated healthiness of the crops.</p> <p>- Crops and water management through organic methods are very successful technically and financially and generate a high motivation from the surrounding farmers to shift to similar methods.</p> <p>Difficulties : - To convince farmers to adopt organic farming takes time at initial stage and should address the financial risks they fear</p>

	<ul style="list-style-type: none"> - Nursery for vegetable crops for kitchen garden program - 1 cattle shed with urine collection tank for preparing organic pesticides - Bio pesticide unit at village level 	<p>(most of the lands see one crop a year only).</p> <ul style="list-style-type: none"> - Large introduction of casuarinas (cash crop) plantation in the area, acting against the integration and sustainability of the project. - Cash crops generate a large diminution of employment possibilities which leads to a shift towards other activities for the concerned population and finally reduction of availability of man power. - Large land owners are interested in cash crop only as they don't live in the area. - Organic farming require relatively high man power difficult to find and in contradiction with social programs of the government (Cash for Work). - Market accessibility is poor and should be developed that farmers get the real value of their crops better than to sell to middle men.
- Improvement of water management : people direct participation and involvement	Meetings for WUA's committees : once in a month	
- Improvement of awareness on water resources and environmental issues : evaluation can be made with meetings and discussions	Awareness on water and environmental issues obvious among WUA & WATSAN committees + active participation and constructive requests	
- Improvement of community participation : meetings, number of participant, level of interactions	30 training sessions = about 700 participants (each person can have participated to several training sessions) Workshop for 200 farmers Exposure visits for 130 people	
- Development of new skills and expertises	Various skills and expertise developed (see subjects of trainings and workshop in above mentioned tables)	<p>Sustainability factors :</p> <p>The experiment of organic farming has shown encouraging results and has to be developed now at a larger scale so as to work at block level farming (to ensure no interference of chemical farming practices and obtain real organic products) and being able to develop a real organic farming market. A group of farmers show high motivation and is willing act as trainers and share their experience with others.</p> <p>To be followed :</p> <ul style="list-style-type: none"> - Results of the second soil sampling round not available yet at the date of this evaluation, will have to be compared to the first round after 1 year. - Consolidation and extension of organic farming experiment.

SANITATION PROGRAM

RESULTS

ACTIVITIES (AS DEFINED IN PROJECT PROPOSAL)	DETAILED ACTIVITIES	RESULTS
- Public awareness campaigns on health, water and sanitation	<p>Distribution of Sanitation awareness pamphlets Awareness creation pamphlets were printed on the following topics.</p> <ol style="list-style-type: none"> 1. Safe drinking water 2. Basic sanitation practices for better health 3. Diarrhoea - Preventive & Curative measures 4. Sanitation Toilets <p>These pamphlets were distributed to the general public, women group members and school children.</p>	1 pamphlet distributed to every household (1918) in the villages + to schools and public buildings + many pasted on walls (total number not noted)
	<p>Installation of sanitation awareness boards in villages. Sanitation awareness boards have been installed in each village. The contents in the board depict the wrong sanitation practices and the proper rectification measures to be taken. These boards are kept in the villages where all the people have access to see the contents of the board. Since the contents are given in a pictorial manner it will be easy for the illiterate people also to understand the problems.</p>	8 boards + 3 wall writing = 7 villages see photo presented above
	Sanitation awareness rally and meetings with the participation of school children, women groups and members of WUAs.	1130 school children, women groups and members of WUAs = 3 villages
	Street play We have conducted street play on safe hygiene and sanitation practices in all the villages. The program was conducted with a cultural team.	136 people = 6 villages (Rayaottai was combined with rayapudupakkam).
	Sanitation C D shows two times per village, 4 CD per show.	= 7 villages
- Exhibitions in the village	Training program on sanitation awareness	258 children

and health education for school children		= 5 villages
	Sanitation awareness teaching boards to the Schools sanitation awareness boards have been made which can be used as a teaching material and supplied to the schools in the project area	50 boards (10 per schools) = 5 schools
	Sanitation awareness video show program for the school children The theme of the show is how poor sanitation practice leads to poor health and the construction and usage of toilets in rural areas and waste management. 2 CDs per show including health hygiene.	734 school children =6 villages (Rayaottai has no school)
- Training, capacity building and exposure visits on public health and sanitation to the villagers	Sanitation trainings on : - Sell Health Groups sanitation training for target villages. - Sanitation books pit notes awareness board. - Sanitation training for drinking water quality & hand pump maintenance. - Nutrition training for 10 batches in target village.[selection for WATSAN committee members and trusted parson] - Sanitation training for handing over public toilet to WATSAN committee. - Sanitation training for handing over school toilet to children's committee. - Nursery raising and composting	136 benefited people (all WATSAN committee members) Sanitation training in schools : provided for all children (734) + special training for sanitation committees in each school
	Sanitation exposure visits - 1st batch Sanitation exposure visit for Ecosan toilet to Parangipettai village through Bless NGO [- 2d batch Sanitation exposure visit for Ecosan toilet to Parangipettai village	34 WATSAN committee members (Date;21.07.2006) + 32 WATSAN committee members (Date;26.07.2006)
	Committees formation : - In order to keep the village in a clean environment, Water & Sanitation Committees have been formed in all the villages with the women self help group members. Formation of water& sanitation committee (WATSAN) (regular meetings have been conducted on monthly basis)	7 WATSAN (2006) = 136 members = 7 Villages (14 committees)

	- Formation of Children's Parliament committees for 7 schools. 4 committees from each school (sanitation, food & water, kitchen gardens, education)	7 Children's parliament = 7 schools (28 committees)
	Village cleaning program by the WATSAN	7 Villages cleaned about twice a week since beginning of 2007
- Construction or improvement of community based sanitation	Water supply of households in Kottakarai pilot village : - planning of distribution network, estimate and final distribution map (with help of expert engineers), pit excavation (June 2007) - getting approval from competent authority - collecting of participation from beneficiaries and amount exceptionally maintained in WUA's account (normally by the Panchayat)	Kottakarai : Activity postponed from feb'07 to May'07 (+ installation of purification unit) because of delays in competent authorities' permission
	Solid waste management in Kottakarai pilot village : - refuse bins installed throughout the village - complete construction of dumping and recycling shed - labour arrangement for transporting solid waste to yard	Refuse bins throughout Kottakarai village + 1 dumping and recycling shed + composting in private households
	Improvement of community toilets	50 Toilet cubicles 50 Bathroom cubicles = 5 villages = 140 benefited families (No toilet in Rayaottai and Olundiapet) see photo presented above Spontaneous demands of women for individual toilets.
	Improvement of school toilets	15 toilets cubicles 6 bathroom cubicles 9 urinals = 7 schools = 7 villages = 828 benefited children see photo presented above

<p>- Construction of cost effective model household toilets</p>	<p>Construction of private toilets in Kottakarai pilot village :</p> <ul style="list-style-type: none"> - construction of 2 toilet demonstration - Ecosan research & development : innovative single pan-double vault toilet, based on flap system integrated in the vault (cheaper solution) + integrated ferrocement pan used (upper quality) - Contribution collection from the beneficiaries (50) 	<p>ECOSAN demonstration private toilets already installed in pilot village Kottakarai. 100 ECOSAN toilets in final stages of preparation = 1 for each household. Delay in the implementation phase because of social and financial process (financial counter part from government) see photo presented above</p>
<p>- Construction of washing floor near the public toilet in the village</p>	<p>Construction of washing platform near the common toilet in the village</p>	<p>12 = 5 villages = 140 benefited families</p>
<p>- Development of composting facilities and training on composting techniques</p>	<p>Training on composting extending to early 2008.</p>	<p>Harvest is presently looking at common composting in each village and whoever is interested. The final list has not been made and discussions are in progress. Composting units already installed and used in pilot village Kottakarai. see photo presented above</p>

Co funding with UNICEF : Water and sanitation project in the interim shelters of Tsunami affected area funded by UNICEF

Sl.No	Village	Sanitation Facilities				
		Hand pump repair	Adult toilets	School Toilets	Bathing area	Compost pit
1	Chinnamudaliarchavady	-	10	3	1	1
2	Pudukuppam	8	10	-	1	1
3	Mudaliarkuppam	8	10	3	1	1
4	Koonimedukuppam	3	10	3	1	1
5	Chettinagarkuppam	4	10	3	1	1
6	Anumandaikuppam	3	10	3	1	1
	Total	26	60	15	6	6

SANITATION PROGRAM

VERIFIABLE INDICATORS & RESULTS SYNTHESIS

VERIFIABLE INDICATORS	RESULTS SYNTHESIS	CONCLUSIONS
- Improvement of drinking water quality : drinking water tests ?	Long term indicator. As the water in the area shows high levels of salinity, the aim of the various activities of the project is to decrease this salinity.	- Most of the population seems to have heard about the awareness campaign in the villages of the Fondation Ensemble's project, or better have been trained on various sanitation items. 1000 children are concerned or actively involved in the program.
- Improvement of water management : people direct participation and involvement	About 50 sanitation events organized for the awareness campaign. 7 WATSAN committees formed.	- Water supply, toilet program and solid waste management project seem to be a success in the pilot village of Kottakarai.
- Improvement of hygiene in the villages : usage of toilets, garbage collection	<p>Water supply in pilot village, Kottakarai : Some actions delayed because of social and financial process (competent authorities' permission) but on the way of completion.</p> <p>Toilets :</p> <ul style="list-style-type: none"> - 7 villages cleaned twice a week by WATSAN committees. - Public toilets used by women and children and regularly cleaned by WATSAN committees. - Spontaneous demands of women for individual toilets. - 7 Children's parliament formed including sanitation committees in charge of cleaning toilets. - 100 private toilets in the way of construction in Kottakarai <p>Solid waste management in pilot project, Kottakarai:</p> <ul style="list-style-type: none"> - refuse bins installed throughout the village which 	<p>- Capacity building in sanitation has been reinforced as all WATSAN and Children's Parliament have been created and show regular activity and meetings.</p> <p>Difficulties met :</p> <ul style="list-style-type: none"> - Awareness, acceptance and changes seem to be much more longer and difficult to carry out in the colony (Kottakarai). Lack of adhesion notably due to economic reasons and number of illiterate persons. - Acceptance of toilets as a necessary mean of health improvement is difficult due to the fact that it is considered of low importance in social visibility. - Ecosan toilets, promoted through this program as well, require extra financial strength due to extra cost if to compare to water based sanitation. <p>Financial appropriateness becomes then an issue.</p>

	<p>appears to be clean except in the colony area where results seem to be much more difficult to obtain.</p> <ul style="list-style-type: none"> - transportation of solid waste organised & complete construction of dumping and recycling shed <p>As the solid waste management project is being initiated in the other villages, the garbage collection will show effectiveness in a few months.</p>	<p>Sustainability factors :</p> <ul style="list-style-type: none"> - The creation of children's Parliaments with dynamic committees in all schools is a very positive process since it offers a guarantee of durability for the improvement of sanitation conditions. The awareness effort concentrated on children leaves optimistic on a good relay of the information and changes in sanitation habits inside their families. - The creation of specific WATSAN committees through women self help groups is of prime importance because of the specific health risks and the traditional role of women in Tamil society. - Financial participation of household for private toilets is a positive factor of individual commitment and for the maintenance of equipment. <p>To be followed :</p> <ul style="list-style-type: none"> - Solid waste management project in colony of Kottakarai and whole other villages of the project - Drinking water quality (tests) as a long term indicator - Acceptance of Ecosan and other sanitation devices through various population - Cost effective design - Financial design for internal promotion at village level - Proper level of financial support from the authorities
<p>- Improvement of community participation : meetings, number of participant, level of interactions</p>	<p>As the solid waste management project is being initiated in the villages, the community participation will show effectiveness in a few months.</p> <p>Note: some of the meetings are formal process, whereas many are informal (hence not recorded on paper). These meetings are held in an informal manner so as to provide more flexibility for people, especially women.</p>	
<p>- Improvement of public health reduction of absenteeism due to illness</p>	<p>Long term indicator.</p>	

SCIENTIFIC FOLLOW UP & ENVIRONMENTAL MONITORING

RESULTS

ACTIVITIES (AS DEFINED IN PROJECT PROPOSAL)	DETAILED ACTIVITIES	RESULTS
- Meteorological data monitoring	Installation of Manual Rain gauge to create a closer net work in the Project area and close surrounding villages	Installed in 2006
	Installation of Thermometers in the Project area	Installed in 2006
	Installation of one Pan evaporimeter in the Project area	Installed in 2006
	Installation of Thermometers in the Project area	Installed in 2006
- Ground water monitoring	Water level indicator	Installed in 2006
	Drilling of 3 No's of 4 inch Observation well to a depth of 150 m depth	Installed in 2006
	Drilling of 1 No. of 6 inch Observation well to a depth of 150 m	Installed in 2006
	Conducting a pumping test for one observation well (Step drawdown test- all the parameters)	Installed in 2006
	Groundwater (bore well)	10 samples taken
- Surface water flow monitoring	Flow meter for closed pipe pressure flow from the Bore well	To be installed later
	Cut throat flume for open channel flow from the tank sluices (8 tanks, 15 sluices)	Partially installed
	Installation of Staff gauge on one sluice per tank (8 tanks).	To be installed later
- Water and soil quality analysis	Soil moisture meter	purchased in 2006
	Soil sampling core sampler	purchased in 2006
	Tank and Bore well water quality analysis (twice yearly)	109 samples
	Soil Fertility Cards	50 cards per village
	Random soil sampling for PH, major nutrients, salinity (3 years =291 samples)	291 samples taken in 2006/07
	Soil sample analysis for micro and macro nutrient	70 samples taken
	Soil fertile card	350 samples taken
	Soil texture and structure analysis (yearly once)	70 samples taken, 2007 ongoing
- Analyses, processing and GIS integration	Major cartography work and consolidation of data have been realized	See charts enclosed in annexes

Environmental monitoring : detailed results and work progress

Environmental monitoring	Equipment installation	Work progress	Project village benefit
Meteorological data monitoring 1.Installation of manual rain gauge 2.Installation of thermometer 3.Fixing weather notice board 4.Installation of panevaporimeter	March&April-2006 Mar & April-2006 May -2006 May-2006	May-06 to October -07 May-06 to October-07 May -06 to October -07 May-06 to Oct. -07	11 Villages = Kodur, Vilvanatham, Kazhuperupakkam, Anpakkam, Ozhud.pattu, Rayaottai, Rayapupakkam, Pullichapalam, Kattrampakkam, Kenipattu, Kottakarai 11 villages (above mentioned) 11 Villages Kodur
Ground water monitoring 1.Water level Indicator 2.Drilling of 4" observation(3 well) 3.Drilling of 6" observation well 4.Pump test-all parameter	April-2006 Mar - May-06 March-2006 July-2006	May -06 to Oct June-06 May -06 August-06	Project villages. Kodur,Anpakkam, Kazhuperumpakkam Vilvanatham Vilvanatham
Surface water flow monitoring 1.Flow meter from borewell 2.Cut throat flume for open channel flow 3.Installation of staff gauge 4.Soil moisture meter 5.Soil core sampler	To be installed latter September-07 Sep-2007 & Oct-2007 Adapted Adapted	Nov-07 Nov-07 Aug-06	Kodur big tank, Ozhudiapattu small tank Kodur,ozhudiapattu small tank,anpakkam, Kazhuperupakkam, Rayapudupakkam, Irumbai
Water and Soil quality analysis 1.Soil testing cards 2.Soil sampling, for pH, major nutrients, salinity 3.Soil structural and texture analysis 4.Tank and bore well water quality analysis		April&may-2006 Oct &Nov -2006 March&April-2007 Oct.& Nov-2007 Ail & May-2006 Oct-2006 / April-2007	Soil health card distributed to village farmers as below mentioned 141 sample(7village) : Kazhuperumpakkam Vilvanatham, Kodur, Anpakkam,Rayaottai Rayapudupakkam, Ozhundiapattu 116 sample 291 soil sample (9 Project villages) Additional village are Nesal, Appirampattu 291 soil sample (9 project village) As above mentioned project villages, texture only analysed 67 water samples (7 project villages) Kazhuperumpakkam, Vilvanatham Kodur, Anpakkam, Rayaottai, Rayapudupakkam, Ozhundiapattu 11 samples 103 water samples (9 villages)

Soil & water test

Following soil sample collected and given to laboratory analysis for the year 2006-2008

Lab analysis	(2006.-2007)	(2007-2008)	Total
Soil sample	257 sample	582 sample	839
Non monsoon-06.	141 sample	Non-monsoon-07.	291 sample
Monsoon -06	116 sample	Monsoon-07.	291 sample

291 soil sample given to soil test laboratory for the month of October-2007(monsoon) and results waited.

Following water sample analysed for the year (2006-2008)

Lab analysis	(2006.-2007)	(2007-2008)	Total
Water sample	78 sample	103 sample	181
Non-monsoon-06	67 samples	Non-monsoon.	11 sample
Monsoon-06	103 samples		

SCIENTIFIC FOLLOW UP & ENVIRONMENTAL MONITORING

VERIFIABLE INDICATORS VERSUS RESULTS SYNTHESIS

VERIFIABLE INDICATORS	RESULTS SYNTHESIS	CONCLUSIONS
Installation of equipment	<ul style="list-style-type: none"> - Weather stations have been installed in all villages to create a hydro meteorological data collection. - All meteorology and groundwater monitoring equipment installed - surface water flow monitoring equipment : to be installed 	<ul style="list-style-type: none"> - All meteorology and groundwater monitoring equipment installed covering planned area. - Numerous water and soil quality samples. Regular scientific follow-up. - Major work of data processing and GIS integration.
Information collected and transfer to the beneficiaries	<ul style="list-style-type: none"> - One volunteer is in charge of meteorological data collection in each village. - All the environmental monitoring teams have been trained in the villages. - Data has been collected and analysed, reports have been explained at WUA's meetings. - 500 soil and water samples (see agriculture results) <p>In association with scientific partners from Sysiphe, France, a doctorate thesis has been completed on the evolution of water availability and quality and solution to prevent crisis situations.</p> <p>2 other scientific researches have also been completed with volunteers on :</p> <ul style="list-style-type: none"> - the evolution of water demand in the area with respect to the changes in spatial and social development and its consequences - the potential to recharge groundwater through diversion of the surplus overflow of the tanks in the watershed towards high infiltration zones (pre feasibility report) 	<ul style="list-style-type: none"> - Information seems to be regularly transferred to farmers and village associations which is quite important to create interest and awareness and develop appropriation of the process and the information collected. <p>Difficulties met : None mentioned by Harvest or verified during the evaluation mission, except the difficult accessibility.</p> <p>Sustainability factors :</p> <ul style="list-style-type: none"> - Villagers and farmers trained and involved in the collection of data (transfer of know-how and empowered) + capitalization of results by WUA (and Harvest). <p>To be followed :</p> <ul style="list-style-type: none"> - Water and soil quality as a long term process. - surface water flow monitoring equipment (to be installed in 2008)

SOCIO-ECONOMICAL ANALYSIS & COMMUNITY ORGANISATION

RESULTS

ACTIVITIES (AS DEFINED IN PROJECT PROPOSAL)	DETAILED ACTIVITIES	RESULTS
- Community organisation	Household survey of project villages made by social team (community organisers), with "Participatory Rural Appraisal" methodology	All villages surveys made in 2006. Tools for socio-economical data analysis : - Baseline household surveys - Community organisation in villages / Guidelines = village profile, farmers landholding details, Participatory Rural Appraisal report, meetings - Village profile = statistic reports from household survey (charts)
	Formation of Water Users Association (WUA)	All WUA formed in 2006 Meetings once in every month = WUAs in 7 villages = 136 Executive Committee members = 682 General Body members
	- Formation of Water and Sanitation Committees (WATSAN) - Roles & responsibilities of the WATSAN committee members : 1. Responsible for all the Water and Sanitation facilities in the specified area. 2. Responsible for motivation and awareness campaign on health and hygiene 3. Active role in ensuring community participation. 4. Shall conduct regular sanitary surveys. 5. Responsible for long term and short term protection of drinking water.	All WATSAN formed in 2006 Monthly meetings conducted = WATSAN in 7 villages = 163 members

	<p>6. Shall responsible for water supply for all household.</p> <p>7. Conducting WATSAN committee meetings regularly.</p> <p>8. Periodical reporting to the NGO staff.</p>	
	<p>Formation of Children's Parliament committees. 4 committees from each school :</p> <ol style="list-style-type: none"> 1. sanitation 2. food water, 3. kitchen gardens 4. education 	<p>All Children's Parliaments formed in 2006 = 7 schools = 28 committees</p>
<p>- Creation of local employment generation activities for women</p>	<p>- Funds have been allocated to the WATSAN Committees who will use it as they wish to. The creation of economic activities for women is presently on discussion with the WATSAN group.</p> <p>- Interest women have been linked by Harvest with trainings provided by the government (the way they utilize it has not been monitored). They have all gone in for food processing.</p> <p>- Pisciculture training was taken up mainly by the WUA members, the women's groups were involved in it but as mere workers and not beneficiaries</p>	<p>- Creation of local employment for women should be more developed in the second phase of the project</p> <p>- Harvest is not able to provide loans for women groups as it overlaps with the organisation which is sustaining them. This was not taken into account when the proposal was planned.</p>

Village institutions created under the project : Water Users Associations

Sl.No.	Particular	Anpakkam	Kaluperum pakkam	Kodur	Olundiapet Big tank	Olundiapet Small tank	Royaottai	Royapudu pakkam	Vilvanatham
1	Registration No.	44/2006	45/2006	51/2006	54/2006	53/2006	63/2006	52/2006	46/2006
2	Date of Registration	04.05.06	04.05.06	15.05.06	18.05.06	15.05.06	16.06.06	15.05.06	04.05.06
3	Total No. of Executive Committee members	15	15	17	15	21	21	15	17
4	Male	12	12	14	12	18	18	12	3
5	Female	3	3	3	3	3	3	3	14
6	No. of General Body members	137	83	146	28	54	76	72	86

SOCIO-ECONOMICAL ANALYSIS & COMMUNITY ORGANISATION

VERIFIABLE INDICATORS & RESULTS SYNTHESIS

Verifiable objective indicators were not mentioned in the project proposal but could be :

VERIFIABLE INDICATORS	RESULTS SYNTHESIS	CONCLUSIONS
information collected and transferred to the villagers	<p>Participatory Rural Appraisal exercises conducted in all villages.</p> <p>Note : Some of the meetings are formal process, whereas many are informal. Hence they are not recorded on paper. These meetings are held in an informal manner so as to provide more flexibility for people, especially women. Community organisers are always meeting people on their daily rounds and record decisions made as conducive to go ahead with projects.</p>	<ul style="list-style-type: none"> - The creation and regular meetings and activities of the associations (WUA, WATSAN, Children's Parliaments), leads to better integration of the different social groups of the villages in the decision making process and the implementation of activities concerning the village. - The dynamic of the project and of the associations prove to give a real impulse to village leaders on social and environment issues. - The pilot project of Kottakarai prove to be a very good way to test out the social and technical methodology and the authorities' position in regard to power transfer <p>Difficulties met :</p>
capacity building	<p>All community organisations created (WUA, WATSAN associations & Children's Parliaments)</p>	<ul style="list-style-type: none"> - Exiting of traditional caste system leads to difficulty to arrange the common meeting between village and colony. - Persisting problems in some villages generates to formation of group leaders with their followers which then leads to group separation between the people and create difficulties in arranging the coordination meetings. Generally a lot of influential game is going on in villages. - Kottakarai : some of the village people always showing their opposition to Auroville activities disseminated bogus information to the public in order to create opposition, even while these activities were beneficial to the villagers.

	<p>- Kottakarai : strong opposition from village people was faced during initial introduction of project, one reason linked to the fact that many times Auroville based organizations promised many things but nothing really happened.</p> <p>Sustainability factors :</p> <ul style="list-style-type: none"> - Participatory Rural Appraisal is a very interested and appropriate methodology in terms of sustainability since thanks to its participative approach it created involvement of people and awareness on local issues and reality. - Community organisations created in all villages of the project with specific objectives, which is very positive in terms of awareness creation and transfer of responsibility - Very good responses from the concerned authorities vis-à-vis empowerment of the population <p>To be followed :</p> <ul style="list-style-type: none"> - Creation of local employment generation activities for women, as part of the second phase of the project
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4. RECOMMENDATIONS

4.1. Harvest : consolidated capacities, difficulties & recommendations

4.2. Projects : global validity & planned extension

4. RECOMMENDATIONS

HARVEST	CONSOLIDATED CAPACITIES	DIFFICULTIES & RECOMMENDATIONS
<p>Structure</p>	<p>Human resources : Reliability, adaptability to local context, close response to villagers' needs, innovation capacity. Harvest combines all together a global vision of the local and regional context and needs and tangible activities' programs on site.</p> <p>Equipment : Appropriate scientific and technological equipment.</p>	<p>Networking with the authority : Difficulty in getting proper grip on the authority for support and sanctions, while well connected.</p>
<p>Methodology</p>	<p>Efficiency : Consistency between planned results and state of progress of the activities of the project.</p> <p>Integrated approach :</p> <ul style="list-style-type: none"> - adapted social approach (nearness of community organisers with the targeted population + choice of particularly adapted tools such as Participative Rural Appraisal) - reliable and solid scientific and technical approach - rich experience which leads to solid understanding of the overall issue, appropriate choice of means and methodology and in depth social participation - environmental approach : overall Harvest program on the Kaluvelly-Pondicherry sedimentary coastal basin <p>Integration of sustainability factors :</p> <ul style="list-style-type: none"> - Integrated approach, orientation of objectives adequate to village needs - Social mobilisation and institutional construction (investment on children's programs / investment on women's programs / beneficiaries as financial contributors) 	<p>Integrated management: Necessity to consolidate the integrated management approach, particularly through specific trainings of project and department managers and staff when required, to avoid gaps between social and technical teams.</p> <p>Project's Follow-up:</p> <ul style="list-style-type: none"> - Lack of precision in the project proposal on the expected results, no quantified results, which explains partly difficulties in the project's follow-up and for the evaluations. -Lack of clarity in the project's follow-up and the reporting (lack of precise details in the activity reports, particularly in the quantity, dates of events, people concerned, etc....). The structure of the activity reports as defined by Ensemble is not adapted for this type of complex program, which partly explains that the results are not precise enough. - Various management tools exist but there is no proper general "visual" tool for the follow up of the project (chart form). This kind of tool is of major importance because of the great complexity of the program due to several projects carried out in parallel on the same geographical area and because of the intricate aspects linked to integrated

	<ul style="list-style-type: none"> - Responsibility and know-how transfers (capacity building, through the creation of local institutions (WATSAN, WUA, Children Parliament) / governance) - Integration of major natural risks (tsunami, major floods) - Integration of major town planning projects/works (arterial roads, train, large economic activity poles) 	<p>management.</p> <p>The organization of the evaluation report through 4 main themes can bring a frame to the development of control checklists and be used as a clear and systematic basis for the reporting.</p> <p>- Record and valorization of the project:</p> <p>Importance to capitalize the gained experience, to create a record of the project, in particular through the creation of systematic methodological tools. Specific technical notes on technological innovations, errors & conflicts management and difficulties could be developed in order to extend the experiment to a larger area (ref. global objective defined in project proposal).</p> <p>Development of communication tools and training for the beneficiaries and the staff.</p>
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PROJECTS	GLOBAL VALIDITY	PLANNED EXTENSION
<p>"SALINITY MODERATING AND PROOFING OF COASTAL AQUIFERS", Fondation Ensemble</p>	<p>This project is the main constituent of the entire program, it creates the necessary changes in the physical context and a proper frame through the society, ensuring the sustainability of the approach and the easiness to attach more punctual and shorter activities. High degree of validity in regard to overall necessary changes.</p>	<p>Third year of the project, which should ensure the consolidation of the overall program and its sustainability. - Second project proposed to Fondation Ensemble : "Water Resource Regeneration, Sustainability and Improvement of Livelihood through Dry Land Farming and Income Generation." The realisation and gained experience of the first project lead to new targets which will consolidate, deepen and enlarge further the results both environmentally, technically, socially and economically.</p>
<p>"INTEGRATED VILLAGE WATER MANAGEMENT, KOTTAKARAI", Aqua For All, Vitens</p>	<p>Well designed pilot project, leads to easiness in transfer of gained experiences, address critical issues related to public health and water accessibility in a consolidated way, sizeable demonstration site for the surrounding population and replicability.</p>	<p>Extension to other villages of the area through the same funders</p>
<p>"GROUNDWATER RECHARGE II", City of Hilden</p>	<p>Single purpose oriented, straight forward solutions which benefit the entire program.</p>	<p>Similar program in the surrounding area with the same funder</p>
<p>Other programs</p>		<p>"Securing the water resources in the Kaliveli region" A large 10 years project proposal submitted to the Ministry of Water Resources of India covering 1000km², based on Bunding the wasteland areas above the aquifers and along the water ways Building recharge structures to ensure that rain water reaches the aquifers. Repairing the channels connecting to the tanks in the area so that a large storage area is created. To get farmers in the region to adopt new methods of farming coupled with incentives to switch to water saving practices, organic agriculture and market accessibility. This program benefit largely from the Salinity Proofing experiments and results in terms of content and approach.</p>