

Water-resources based livelihood planning

A Proposal for Mokhada Taluka

TDSC- Aroehan- Siemens CSR



Technology and Development Solutions Cell

Centre for Technology Alternatives in Rural Areas

Indian Institute of Technology Bombay

Powai, Mumbai

1 Background

Aroehan, an NGO working in the Palghar district on several livelihood related problems, is developing a framework for integrated village planning, with a focus on block level integration of resources in Mokhada Taluka of Palghar District. While Aroehan specializes in livelihoods, health, education and governance sector; for an integrated planning process, expertise in different sectors are required. Based on previous involvement with Technology and Development Solution Cell (TDSC) and Centre for Technology Alternatives in Rural Areas (CTARA) at IIT Bombay, Aroehan approached TDSC for support in the water and livelihood (water dependent) sectors. The work with Aroehan commenced since December 2016 and based on recent progress and changes, the proposal is now being updated.

1.1 Planning Process

Various Government schemes and NGOs use participatory planning techniques such as Participatory Rural Appraisal (PRA) tools for developing sector specific or project specific plans. The current planning process is limited by:

- a) Limited sectoral technical expertise during plan preparation
- b) Limited participation of various groups within the village
- c) Lack of coordination or attention towards interdependencies on resource utilization between/amongst villages
- d) Limited importance to regional vision, resources, sectoral dependencies, etc.

Broadly there are two categories of problems with the various current planning processes, viz. methodology of planning and execution of planning process. It is observed that planning for planning is limited.

Thus, using best practices available, adapting them to local conditions and focusing on regional planning, Aroehan proposes to carry out integrated village development planning for block development plan preparation in Mokhada Taluka. Aroehan will carry out detailed, inclusive surveys using tools like PRA. Data necessary for planning interventions in various sectors will be collected and overlaid with each other for integrated planning. This exercise will be done with focus on regional resource availability. Data will be simplified to build precise interventions.

TDSC is supporting in preparing intervention plans as outcome of this planning exercise by providing its expertise in water sector, which may be later taken up as individual projects through Government, CSR or community support.

1.2 Association of TDSC and Aroehan

Based on engagement of TDSC with Aroehan in Kurlod and Botoshi watershed planning, TDSC is to offer similar support for entire block of Mokhada. In Kurlod and Botoshi, TDSC team carried out field work and selection of intervention locations and initial planning. Throughout this process, Aroehan team was involved and trained, and now after working in Kurlod and Botoshi, Aroehan team can operate instruments like theodolite and

calculate head, flow rates, etc. for pumping water systems. Similarly, they can select appropriate location for bunds, estimate submersion zone, etc. Thus, in future, for such works Aroehan will be less dependent on TDSC or any external agency beyond periodic refresher trainings. Based on this pilot, TDSC will support Aroehan in entire Mokhada block with the aim of making Aroehan team self-sufficient in planning with minimum external inputs.

2 Mokhada block level watershed interventions

Mokhada taluka is situated in the northern part of Western Ghats of India consisting of hilly with undulating slopes. The region gets adequate rainfall but due to hilly terrain and lack of water infiltration systems, several habitations of the region experience water scarcity leading to high degree of drinking water stress. The region comprises of tribal dominating population that depends mainly on agriculture for its livelihood. Former village level studies indicate an urge to understand the gaps and provide an integrated solution reducing the water stresses in the region.

2.1 Aim and Objectives

The project aims to increase water availability for both drinking and livelihood purposes using best practices suitable for local conditions and focusing on regional planning. The objectives are:

- i) To get a Taluka wide perspective of water stress, classify it according to different criteria and further organize habitations according to stress criteria.
- ii) To develop stress indicators based on various criteria, categorize habitations based on stress indicators and further prioritization of habitation for intervention planning.
- iii) To conduct capacity building training for Aroehan members for implementation of project at Taluka level.
- iv) To implement intervention protocol in several habitations and monitor it and prepare guidelines for it.
- v) To study impact assessment of intervention protocol and develop guidelines for it.

2.2 Scope and Limitations of work

Scope of work:

- i) Phase 1: Preparing protocols for sectoral planning with data collection formats. This work has been completed, execution of planning will be done next.
- ii) Phase 2: Pilot study – pre-feasibility study and intervention planning in select four sectors in limited villages/habitation/planning unit.
- iii) Phase 3: Pre-feasibility study and intervention plan preparation training/ capacity building of Aroehan team. This will be done through on field support in n planning unit. By the time for planning in region for ‘N’ planning unit, Aroehan should be independently able to do intervention planning and reporting (in total – ‘N’ planning units)

Limitations of work:

Any irrigation interventions on rivers which are on taluka boundary (Parts of Wagh River, Vaitarna River, Wal River) is out of scope for taluka planning to avoid inter taluka conflict.

Handholding and guidance in independent planning will be provided for limited period.

2.3 Activities and Deliverables

TDSC will provide external technical support in form of:

- a) Preparation of structured forms (PRA) for primary data collection and training Aroehan team for conducting survey.
- b) Status assessment of existing water supply infrastructure
- c) GIS Training of Aroehan staff for digitalizing the collected data and asset mapping
- d) Analysis of collected primary data and identifying issues related to water supply
- e) Developing indicators for stress classification and categorization
- f) Prioritization of habitation in collaboration with Aroehan in various work shelf
- g) Development of block level watershed intervention protocols
- h) Block level planning for water based livelihood opportunities
- i) Intervention Planning for pilot habitations
- j) Handholding of Aroehan for implementation of protocol on pilot basis.
- k) Monitor implementation throughout the project, assess the impact and make necessary amendments in protocol based on field experience.

The project to deliver below mentioned tasks:

Table 1: Steps of Planning for Mokhada Taluka

Sr. No	Steps of Planning Exercise
1	Preparation of Participatory Rural Appraisal (PRA) survey forms
2	Collection of primary and secondary data for existing water infrastructure and further analysis of the collected data
3	Identification of Need assessment/ Stress characterization/ appropriate planning unit for finalization of taluka
4	Finalization of strategies : macro /micro : Unit of planning intervention for taluka
5	Preparation of Intervention protocol of each type of planning unit suitable for entire taluka
6	Evaluation of existing intervention or planned intervention by NGO
7	Preparation of protocols for watershed interventions and further conducting trainings.
8	Identification of habitations for pilot study and spatial mapping of the identified area
9	Scaling of pilot in an agreed upon number of planning units
10	Handholding of Implementation agency for remaining planning units

The project will cover 25 habitations for a study of drinking water interventions, livelihood opportunities and suitable energy solutions at habitation level to make water accessible along with a drainage line/ river/ stream flowing from the selected pilot habitations. The

project will also look at solid and liquid waste of 3 households/habitations suggesting self-sustainable composting and recycling solutions.

2.4 Support expectation from Aroehan

Aroehan being the lead in the project, with TDSC providing external professional support, Aroehan will be responsible for:

- i) Collection of primary data using PRA forms
- ii) Data entry and primary analysis of data collected through PRA
- iii) Coordination with stakeholders
- iv) On field implementation of the planning process (PRA)
- v) Selecting villages where sectoral planning is necessary (maximum limit – all habitations intervention planning for all sectors)
- vi) Involving other NGOs, Trusts, CSOs, etc. that are interested in carrying out decentralized participatory planning in the region.

Note on GIS use: The data collected and suggested interventions will be fed in form of GIS layers that can be used for future work planning by various agencies. TDSC will give necessary guidance for selecting and using right GIS software and also help map current and potential interventions in a GIS format.

3 Project Timeline

The project activities are in coordination with Aroehan. TDSC will analyze the data collected by Aroehan along with secondary data and use combined data for suggesting intervention nature and locations for pre-feasibility. The field component of intervention planning will be done with Aroehan team.

3.1 Task and Duration

Table 2: Tasks and expected duration of each task

Sr. No	Tasks	Month
1	Preparation of Participatory Rural Appraisal (PRA) survey forms and training Aroehan team for collecting data in PRA format	One Month
2	Analysis of primary data collected by Aroehan and secondary data	One Month
3	GIS training and asset mapping training for Aroehan team	Half Month
4	Prioritization of villages/ planning unit for intervention planning in coordination with Aroehan team	One Month
5	Submitting intermediate report consisting of data analysis and potential study area based on prioritization	One Month
6	Preparation of intervention plan in selected habitations/villages	One Month
7	Field verification and field based planning of interventions for selected pilot habitations/villages	One Month
8	Envisaging final set of interventions based on field verification	One Month
9	Preparation of intervention protocol along with training material and conducting training of Aroehan team for carrying out intervention planning with TDSC's support.	One Month
10	Final report and presentation of intervention planned in pilot	One Month
11	Preparing GIS layer of interventions (can be used in dashboard)	Half Month
12	Training of Aroehan team for independently carrying out intervention planning and reporting and preparing GIS layer of intervention	One Month

The project duration is 11 person month and will require continuous coordination from Aroehan team for data collection and field support.

4 Other Details

4.1 Standard Terms and Conditions

DECLARATION: All work undertaken by IIT Bombay as part of the project will be in good faith and based on material / data / other relevant information given by the Client requesting for the work.

CONFIDENTIALITY: Due care will be taken by IIT Bombay to maintain confidentiality and discretion regarding confidential information received from the Client, including but not limited to results, reports and identity of the client.

REPORTS: Any test or other consultancy report given by IIT Bombay will be based on work performed according to available standards and / or open domain literature. In any event, this report may not be construed as a legal document, certificate or endorsement and may not be used for marketing of the products or processes, without prior consent from IIT Bombay. The institute reserves the right to retain one copy of the report and use the results of the project for its internal teaching and research purposes.

WORK PERFORMANCE: Every effort will be made to complete the specified work according to the planned time schedule. However, IIT Bombay will not be held responsible for delays caused beyond its reasonable control.

CONFLICT OF INTEREST: IIT Bombay may take up work for other clients also in the same area, provided, to the best of the institute's knowledge, there is no conflict of interest in undertaking such projects.

PAYMENT: The payment of consultation charges to IIT Bombay are to be made in advance and in full before the start of the project, through a demand draft / crossed valid cheque, drawn in favour of The Registrar, IIT Bombay and sent to the Consultant or the address overleaf. The charges will also include any applicable tax as prescribed by the Government of India from time to time.

TERMINATION: The project work may be terminated by either party by giving the other party a notice period of 30 days. However, both parties will meet any residual obligations in connection with the project.

LIABILITY: IIT Bombay shall not be held liable for any loss, damage, delay or failure of performance, resulting directly or indirectly from any cause, which is beyond its reasonable control (Force Majeure). The liability of IIT Bombay shall be limited to the funds received for the project.

INTELLECTUAL PROPERTY RIGHTS: All rights pertaining to any intellectual property generated / created / invented in the due course of the project, will be the joint property of IIT Bombay and the Client. Terms and conditions regarding transferring / assigning / selling these rights to the client shall be governed by a separate written and agreed to document if required.

RESOLUTION OF DISPUTES: Any disputes arising out of the project shall be amicably settled by both the organizations. Any unsettled disputes may be subject to resolution as per the Indian Arbitration and Conciliation Act 1996.

DISCLAIMER: The report on the consultancy project is the technical opinion of the individual faculty member, based on his expertise in the particular area of research and NOT the views of IIT Bombay.

The above terms and conditions will apply to all projects taken up by IIT Bombay, unless otherwise mutually agreed to in a separate document.

4.2 Mailing Address

Technology and Development Solutions Cell (TDSC)

Centre for Technology Alternatives for Rural Areas
Indian Institute of Technology Bombay
Powai, Mumbai 400076 Maharashtra, India
Email address: tdsc.iitb@gmail.com
Telephone: (022) 25767870, 25764809
TDSC homepage: <http://www.ctara.iitb.ac.in/tdsc>

Note: Any doubts/queries in the report should be brought to the notice of TDSC, IIT Bombay within 30 days from the date of submission.

Thank You.

Principal Investigator,
Technology and Development Solutions Cell (TDSC)
Indian Institute of Technology Bombay