

Salinity Mitigation in Junagadh: A case story in water
resource management by Ambuja Cements

Excellence in Water Management-Beyond the Fence
entry for CII-Sohrabji Godrej Green Business Centre
Award

Presentation to Jury
16th -17th December 2008

- Cement manufacturing.
- 5 manufacturing plants , 6 grinding units, 3 shipping terminals.
- Annual production of 18 million tonnes.
- Annual Turn over Rs.6,469.68 Crores(2007)
- CSR activities conducted through independent NGO- Ambuja Cement Foundation (www.acf.org.in)

Overview of ACF

- Community development CSR conducted in approximately 700 villages, 19 locations in 10 states.
- Impacting 1.2 million people.
- Issues: NRM(water & land), health, education, infrastructure, livelihoods, women's development etc.

Salinity mitigation programme- one case story. Several water management programmes conducted in other locations as well.

Over view of project

- **Type of project**

Salinity mitigation- provision of water for irrigation, drinking and household purposes.

- **Where**

60 villages along coast of Junagadh (Kodinar, Sutrapada and Veraval blocks).

- **Target group**

Rural communities

- **Triggers**

- ▶ Serious nature of salinity ingress-poor socio-economic conditions.
- ▶ Felt need of rural communities to deal with salinity.



Key deliverables of Project

- Improving quality of water.
- Improving quantity of water available.
- Improving access and availability of drinking water.
- Altering agricultural practices to better suit them to regional conditions & increase profitability.
- Improving human and cattle health.



Causes of salinity

- Mismanagement of ground water due to over-irrigation and water loss through high run-off.
- Inefficient use and wastage of water by farmers.
- Cultivation of high water intensive crops like sugarcane, banana etc. resulting in lowered water table and ingress of saline water into groundwater.
- Over-exploitation of ground water to meet needs of growing population.
- Breaking up of joint family system resulting in fragmentation of land, leading to rampant increase in no. of wells and extensive use of diesel and electrical pumps.
- High run off due to improper or inadequate water harvesting.
- Recurrent droughts.

Initial phase

- Participatory Rural Appraisals (PRAs) conducted.
- Village level and individual meetings held to garner support and participation of community.
- Mass awareness generated.
- Plans for implementation designed along with community-traditional knowledge of community along with modern scientific and technological know-how of Foundation/Company.

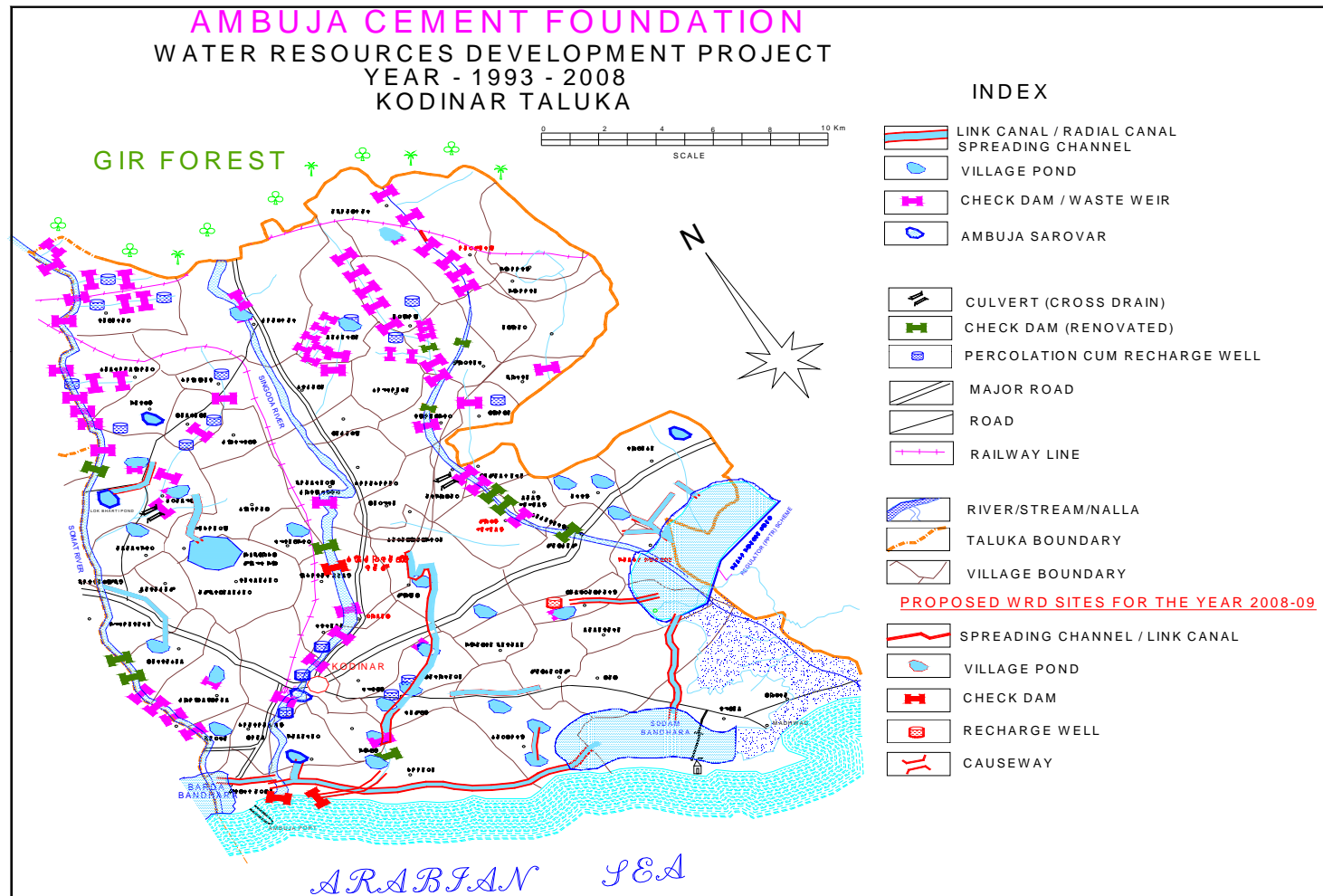


Implementation phase

Initially piloted in 15 villages, then expanded to 60.

- Based on initial plan drawn up, water harvesting and conservation structures constructed in partnership with people, government and other agencies.
- Concurrent intensive training programme held for villagers to understand how structures work, their maintenance and benefits.
- Changes in agriculture promoted-through demonstrations- less water intensive crops, salinity resistant crops, micro-irrigation methods, promotion of horticulture, vegetable cultivation.
- Alternate sources of drinking water developed- eg. roof rain water harvesting structures, sealing of well bottoms, percolation & drinking water wells.
- Capacity building of people woven into project through trainings, workshops, demonstrations, individual & group interactions.

Map of intervention area



Expansion phase

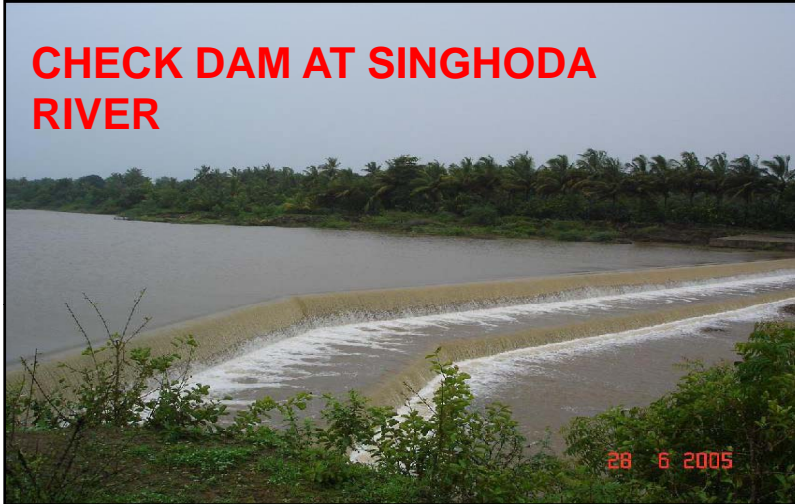
- Partnerships developed and proposals to expand to more villages.
- Government inclined to take similar interventions in other regions.

Types of water management interventions

- Pond deepening & interlinking.
- Check dams on river Singhoda and other seasonal streams.
- Conversion of mined-out pits into water reservoirs and interlinking.
- Sealing well bottoms (an innovation).
- Percolation tank.
- Percolation wells.
- Well recharge.
- Construction of RRWHS.



**CHECK DAM AT SINGHODA
RIVER**



CANAL FOR INTERLINKING



WELL RECHARGE



**ROOF RAIN WATER HARVESTING
STRUCTURE**



Special features of project

- Direct and active community participation
- Innovativeness- interlinking of water bodies as a part of mines reclamation.
- Built-in long term sustainability.
- Government and NGO partnerships.
- Cost effective.
- River grid project at micro level.

Project Impact

Environmental

- Increase in ground water level in project area by 30 feet. *“Water has reached levels seen three decades back.”*
- River flows till summer as against 3 months post-monsoon.
- Access to drinking water.
- Innovative land reclamation of mines. Storing 6.6 MCM of water.
- Changes in agricultural pattern and irrigation practices.
- Crop diversification-including cash crops and horticulture.
- Increased crop intensity & increased yields. Over all agricultural productivity has increased by 1.5 to 3 fold.

Activity	No.
Construction / Renovation of Check dam /Causeway / Dykes	153
Well Recharging	862
Percolation Tank/Village Ponds/ tanks/ Renovation/ De silting/Deepening	95
Percolation Wells	91
Construction of Waste weirs / Culverts / Bori Bandh	141
RRWHS Constructed	2041
Drinking water wells /Renovation of Saline Wells	60

Economic

- Higher incomes due to crop intensity & introduction of vegetables & horticulture along with right technology.
- Increased profitability of agriculture.(3crops instead of 1)
- Cattle more productive, better yield due to improved health.
- Women and girls able to contribute to economic activities due to reduction in drudgery of drinking water collection.



Social

- Improved standard of living.
- Better health status-lesser cases of kidney stones & bone problems.
- Reduction in migration.
- Reduced drudgery for women and girls.
- Better education due to higher incomes.
- Education for girl child.



Challenges

Faced

- People mobilization and over coming initial apprehensions.
- Issues of sparing land for construction of structures.

Overcome

- Through discussions and participatory means.
- Technical expertise provided to people.

- Community a constant partner
- Developmental agencies like Sri Ratan Tata Trust
- The Government of Gujarat
- Formed the Coastal Salinity Prevention Cell with SRTT, AKRPS(I) and the Government. ([www. cspc.org.in](http://www.cspc.org.in))

Sustainability of Project

- Training and capacity building of people.
- Mostly a one time investment with little maintenance and therefore minimum recurrent expenditure.
- Informal groups of villagers formed to look after common water harvesting structures.
- In government supported projects, maintenance undertaken by government.



We are water positive

- Ambuja plant requirement -200ltr/tonne of cement i.e. 3.2 MCM.
- Low water consumption due to three R's-reuse, recycle, reduce.
- Total water harvested 30 MCM.

