Ecological Degradation Around Gulf of Khambhat, Gujarat

A Status Report

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Gujarat Ecology Commission

GERI Campus, Race Course Road, Vadodara 390 007, India.

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FOREWORD

The Gujarat Ecology Commission (GEC) has given priority to ecological restoration of degraded lands, degraded water bodies and depletion of biodiversity. As the first step in this direction GEC has undertaken a series of status review studies using available sources of information. The first such study was on Current Ecological Status of Kachchh. This was followed by a report on Current Knowledge of Biodiversity of Gujarat. The third report on the Process of Desertification in Kachchh and Banaskantha Districts has just been brought out. A preliminary status report on the Gulf of Kachchh has been finalised with a view to draw a management plan for this important and fragile ecosystem. A report on Ecological Restoration of mining areas of Panandhro in Kachchh, prepared at the instance of Gujarat Mineral Development Corporation (GMDC), has been submitted in draft form and two more such reports on the mining areas of Ambaji and Kadipani are also ready.

A study of 19 talukas around the Gulf of Khambhat was undertaken sometime ago since it was felt that the area had suffered severe degradation in a short span of 25-30 years. The objective was not only to focus attention on severe degradation and plan for its ecological restoration but also make people aware of the fact that the process of degradation does not necessarily span over decades or centuries. In some cases it happens within a short span of time right in front of us but we tend to ignore it due to lack of sensitivity and concern. Preoccupation with problems of today elbows out even recognition of emerging problems of tomorrow. Immediate takes precedence over important.

The study area of GEC around the Gulf of Khambhat, located centrally in the State, represent nearly 10% of Gujarat. It covers 19189 sq. km in 19 talukas with a population of 4.3 million out of the total state's 1.96 lakh sq. km in 184 talukas with 413 million population (1991 Census).
The study was carried out by Dr P.P. Patel of the Geology Department of Maharaja Sayajirao University of Baroda with assistance of GEC professionals. Dr Patel had, for this study, the benefit of frequent consultations with Prof. S.S. Merh, an eminent geologist, and Dr M.V. Bapat, a well known expert on soil science.

Various available studies, surveys, reports and maps have been examined to understand the terrain characters and geoenvironmental setting with special reference to degradation of soil and water resources. The baseline data of 1960 has been obtained from Kharland Development Board and other relevant agencies of Gujarat Government. Other agencies, whose data have been used for this study, are well known. Methodology of data collection, where felt necessary, has been indicated in the report. Indices used by different agencies have been harmonised for facility of comparison. What emerges out of this exercise is that while 7.4% of the GEC study area was salt affected in 1960, the extent of such affected area rose to 54% in 1984 according to the National Bureau of Soil Survey & Land Use Planning, (the premier national agency for soil survey); to 46% according to Space Application Centre in 1986; to 57.6% according to National Remote Sensing Agency in 1986; and, to 64% according to Gujarat Engineering Research Institute in 1993. The State Government agencies and NBSS & LUP have been using comparable methodologies for their work. The Central Soil Salinity Research Institute (CSSRI), which is using different methodology and having arrived at a lower figure, also confirms that while the study area was 11.7% of the saline areas of the State in 1960, it went upto 34.4% in about two decades. Thus,

whichever way one may analyse, the conclusion that the area around the Gulf of Khambhat has faced severe soil degradation within a span of 20-30 years is unmistakable. There are also other indications of ecological degradation which have been covered in this study.

GEC would now like to plan for ecological restoration of the area with the help of scientists and experts representing different disciplines.

Vadodara
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ACKNOWLEDGMENTS

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AICRP	All India Coordinated Research Project
AMSL	Above Mean Sea Level
AIS & LUS	All India Soil and Land Use Survey
CGWB	Central Ground Water Board
CSSRI	Central Soil Salinity Research Institute
DOA	Department of Agriculture
dS/m	Desi Simmens per Meter
EC	Expert Committee
EC2	Electric Conductivity of Saturated Extract
ECe	Electric Conductivity
ESP	Electro-Static Potential
FIP	French Institute of Pondichery
FSI	Forest Survey of India
GEC	Gujarat Ecology Commission
GERI	Gujarat Engineering and Research Institute
GOG	Government of Gujarat
GWRDC Gujarat	Water Resource Development Corporation
HB60	Hand Book 60
IARI	Indian Agriculture Research Institute
ICAR	Indian Council of Agricultural Research
IMD	Indian Meteorological Department
IRS	Indian Remote Sensing
KLDB	Kharland Development Board
LI Class	Land Irritability Class
MCM	Million Cubic Meter
MRBC	Mahi Right Bank Command
NBSS&LUP	National Bureau of Soil Survey and Land Use Planning
NCA	National Commission on Agriculture
NRSA	National Remote Sensing Agency
ORG	Operational Research Group
RRS	Regional Research Station
SAC	Space Applications Center
SAR	Salt Absorption Ratio
SOI	Survey of India
SSO	Soil Survey Officer
TDS	Total Dissolved Solids
TCE	Tahal Consulting Engineers
USDA	United States Department of Agriculture