

Ecological Degradation Around Gulf of Khambhat, Gujarat



A Status Report



Published by

Gujarat Ecology Commission

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

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CONTENTS

FOREWORD	I
ACKNOWLEDGMENTS	III
LIST OF TABLES	IV
LIST OF FIGURES	V
LIST OF ANNEXURES	VI
LIST OF ABBREVIATIONS	VII
1.0 INTRODUCTION	1
1.1 Study Area	1
1.1.1 Population	2
1.1.2 Agriculture	4
1.1.3 Livestock	5
1.1.4 Water Supply	5
1.2 Objectives and Scope	6
1.3 Approach and Methodology	7
2.0 TERRAIN CHARACTERS	9
2.1 Physiography and Drainage	9
2.2 Landforms	10
2.3 Geology and Structure	11
3.0 GEO-ENVIRONMENTAL FACTORS	15
3.1 Climate	15
3.2 Rainfall	16
3.3 Surface Water Resources	17
3.3.1 Runoff and Sedimentation	17
3.3.2 Development	18
3.3.3 Inland Water Bodies	18
3.4 Groundwater Resource	19
3.4.1 Groundwater Recharge	20
3.4.2 Groundwater Extraction	21
3.4.3 Groundwater Monitoring	21
3.5 Vegetation	25
3.5.1 Vegetation in Saline Land	25
3.5.2 Forest	26
3.5.3 Biodiversity Areas	26
4.0 SOIL SALINITY	43
4.1 Soils of the Area	43
4.2 Soil Salinity Criteria	43
4.3 Status Review of Soil Surveys and Methodology	44
4.4 Survey by KLDB (1960)	45
4.5 Survey by Agriculture Department (1980)	47
4.6 Survey by Experts' Committee (1985)	48
4.7 Survey by SAC and GOG (A-1975 & B-1986)	49
4.8 Survey by NBSS & LUP (1988)	50
4.9 Survey by NRSA (1986)	51
4.10 Survey by CSSRI (1980 & 1992)	52
4.11 Survey by GERI (1993)	53
4.12 Salinity Spread in Study Area	54
4.13 Conclusions	54
4.14 Future Scenario	56
BIBLIOGRAPHY	98

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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

February 6, 1997

(Hasmukh Shah)

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The commission is thankful to National Bureau of Soil Survey & Landuse Planning (NBSS & LUP), Central Soil Salinity Research Institute (CSSRI), National Remote Sensing Agency (NRSA), Space Applications Center (SAC), Kharland Development Board (KLDB), Gujarat Engineering Research Institute (GERI), Sardar Sarovar Narmada Nigam Limited (SSNNL), Water and Land Management Institute (WALMI), Dept. Of Agriculture (DOA, GOG), and other State Government

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LIST OF TABLES

1.1: Talukawise details of villages, area and population (1991)	2
1.2 Talukawise population and growth rate	3
1.3 Pattern of major crops (1971-91) in the study area and State	4
1.4 Pattern of cereals crops (1971-91) in the study area and State	4
1.5 Status of drinking water problem villages (1991)	6
2.1: Changes in landform pattern during 1875 to 1965	10
3.1: Climatic characteristics for study area	15
3.2: Monthly evapotranspiration data (values in mm)	16
3.3: Rainfall characterisation for study area	16
3.4: Runoff from major rivers to the Gulf	17
3.5: Watershedwise runoff to the Gulf (Watersheds within Gujarat)	17
3.6: Runoff after upstream withdrawals to the Gulf	18
3.7: Regionwise details of inland water bodies	19
3.8: Regionwise groundwater recharge potential	21
3.9: Groundwater extraction 1979 to 1991	22
3.10: Districtwise distribution of forest land	26
3.11: Forest types and coverage (1990)	26
4.1: Interrelationship of soil salinity expressions	44
4.2: Soil surveys in Gujarat by different agencies	45
4.3: Districtwise Kharland areas in Gujarat (KLDB, 1960)	46
4.4: Talukawise distribution of Kharland around Gulf of Khambhat (KLDB, 1960)	47
4.5: Talukawise soil salinity status (DOA, 1980)	48
4.6: Districtwise distribution of salinity in study area (EC, 1985)	49
4.7: Changes in salt affected areas (1975 to 1986)	49
4.8: Classification of the salt affected areas : SAC 1986.	50
4.9: Soil salinity status in Gujarat and study area (NBSS&LUP, 1988)	50
4.10: Talukawise salt affected area (NBSS & LUP, 1988)	51
4.11: NRSA scheme of classification for salt affected soils	51
4.12: Talukawise salt affected area (RS data, 1986, NRSA)	52
4.13: CSSRI criteria for soil salinity classification	52
4.14: Talukawise salt affected area (CSSRI, 1992)	53
4.15: Distribution of salt affected soils in study area (GERI, 1993)	53
4.16: Probable Scenario of soil salinity for the year 2001	55
4.17: Statement showing extent of salt affected soils in the GEC Study area over years, arrived at by different agencies	56

LIST OF FIGURES

1.1	Location map of study area around Gulf of Khambhat	8
2.1	Landforms and land cover around Gulf of Khambhat (1875)	12
2.2	Landforms and land cover around Gulf of Khambhat (1965)	13
2.3	Geological evolution of Gujarat	14
3.1	Drainage and catchment for the Gulf of Khambhat	28
3.2	Irrigation projects around Gulf of Khambhat	29
3.3	Changes in ponds and lakes in Nal Kantha during 90 years (1875 - 1965)	30
3.4	Geohydrological setup around Gulf of Khambhat	31
3.5	Depth to water level around Gulf of Khambhat	32
3.6	Water table contour around Gulf of Khambhat	33
3.7	TDS contours for unconfined aquifer May -1994	34
3.8	TDS contours for confined aquifer May -1994	35
3.9	Section showing water table and ground water salinity along Saurashtra branch canal	36
3.10	Water level variation and quality in tube wells (tal: Amod)	37
3.11	Static level and quality in open wells (tal: Bharuch & Jambusar)	38
3.12	Static level and quality in open wells (tal: Khambhat)	39
3.13	Static level and quality in open wells (tal: Viramgam)	40
3.14	Water level variation and quality in tube wells (tal: Sanand & Viramgam)	41
3.15	Vegetation around Gulf of Khambhat (FIP, 1965)	42
4.1	Soil map of areas around Gulf of Khambhat	57
4.2	Kharland distribution in Gujarat (1960)	58
4.3	Saline area around Gulf of Khambhat (Expert Committee, 1986)	59
4.4	Salt affected areas around Gulf of Khambhat (Rs Data, SAC 1986)	60
4.5	Soil salinity in Gujarat (NBSS & LUP, 1988)	61
4.6	Soil salinity around Gulf of Khambhat (NBSS & LUP, 1988)	62
4.7	Salt affected area around Gulf of Khambhat (NRSA, 1986)	63
4.8	Salt affected soils in Gujarat (CSSRI, 1992)	64
4.9	Salt affected soils around Gulf of Khambhat (CSSRI, 1992)	65
4.10	Salt affected areas around Gulf of Khambhat (GERI,1993)	66
4.11	Extent of salt affected soils as estimated by different agencies (1960 - 1993)	67

LIST OF ANNEXES

3.1: Climatological characters for IMD stations related to study area.	68
3.2: Districtwise rainfall data (1960-89)	69
3.3: Average annual runoff to Gulf from the catchment within Gujarat	70
3.4: Annual runoff (1915-63) from 3 major rivers draining to the Gulf.	71
3.5: Details of irrigation projects in the catchment area of Gulf of Khambhat.	72
3.6: Status of inland water bodies during 1875 to 1965 around the Gulf	74
3.7: Taluka wise groundwater recharge and extraction (GWRDC, 79-91)	76
3.8: Talukawise groundwater extraction (DOA, 1979-91)	77
3.9: Water level monitoring (GWRDC, 1978-93) in open wells	78
3.10: Water level monitoring (CGWB, 1978-88) in open wells	80
3.11: Water level monitoring (GWRDC, 1979-93) in tube well	81
3.12: Groundwater Salinity monitoring (GWRDC, 1928-93) in open wells	82
3.13: Groundwater salinity monitoring (CGWB, 1979-84) in open wells	83
3.14: Groundwater salinity monitoring (GWRDC, 1980-1993) in tube wells	84
3.15: Vegetation types in and around Gulf of Khambhat	85
3.16: Talukawise distribution of forest land around Gulf of Khambhat	92
3.17: List of flora found in Velavadar National Park	93
3.18: List of Fauna found in Velavadar National Park	95
4.1: Methodology adopted for soil survey of Gujarat by CSSRI : A note by Dr. N.K. Tyagi, Director, CSSRI, Karnal	

LIST OF ABBREVIATIONS

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