



Socio-Economic Assessment of the 4150 MW Mundra Ultra Mega Power Project: *Mundra Gujarat*

Coastal Gujarat Power Ltd

Final Report

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Abbreviations

UMPP	Ultra Mega Power Project
BOO	Build Own Operate
CGPL	Coastal Gujarat Power Limited
PPA	Power Purchase Agreement
SPV	Special Purpose Vehicle
SEZ -	Special Economic Zone
MPSEZ -	Mundra Port and SEZ Limited
ILFS	Infrastructure Leasing and Financial Services
BSIA	Baseline Social Impact Assessment
CSR	Corporate Social Responsibility
SAVE	Saline Area Vitalisation Enterprise Limited
LRS -	Livelihood Restoration Plan
CEIA	Comprehensive Environment Impact Assessment
TCE	Tata Consulting Engineers Limited
EC	Environmental Clearance
CRZ	Coastal Regulation Zone
MGLI	Mahatma Gandhi Labour Institute
CMFRI	Central Marine Fisheries Research Institute
FGD	Focused Group Discussion
KII	Key Informant Interviews
PRA	Participatory Rural Appraisal
WASMO	Water and Sanitation Management Organization
SHG	Self-Help Group
BAIF	BAIF Development Research Foundation
VRTI	Vivekanand Research and Training Institute
DRDA	District Rural Development Agencies
TRIO	TRIOs Development Support Ltd
TALEEM	TALEEM Research Foundation
VDAC	Village Development Advisory Committee
TPSSL	Tata Power Solar System Limited
TPCDT	Tata Power Community Development Trust
MKGCT	Mota Kandagara Gauseva Charitable Trust
TVGCT	Tunda Vandh Gauseva Charitable Trust
TLM -	Teaching Learning Materials
PHC	Primary Health Centre
CHC	Community Health Centre
RO	Reverse Osmosis
RRWHS	Roof Rain Water Harvesting System
FIC	Fishermen Information Centre
CPR -	Common Property Resources

1 INTRODUCTION

1.1 THIS REPORT

ERM has been commissioned by Coastal Gujarat Power Limited (hereafter referred to as 'CGPL') to conduct a socio-economic assessment of the communities around the 4150 MW Mundra Ultra Mega Power Project (hereafter referred to as 'Mundra UMPP' or 'the Project'). CGPL intends to assess the current socio-economic status in the context of cumulative industrial growth of the area as well as indicators of change that could be attributed to the impact of the project on the one hand, and the larger change in the socio-economic scenario of the Mundra-Mandvi region.

1.2 PROJECT BACKGROUND

Tata Power is one of India's largest integrated private sector power companies with an installed generation capacity of 8560 MW. The company has presence in all the segments of the power sector viz. Generation (thermal, hydro, solar and wind), Transmission, Distribution and Trading. Tata power's international presence includes strategic investments in Indonesia, Singapore, South Africa, Australia and Bhutan.

The Government of India (GOI) launched the "Power for All by 2012" initiative in 2005. To stimulate the required capacity addition, GOI launched an initiative for facilitating the development of a number of coal-based Ultra Mega Power Projects (UMPP) each of minimum 4,000 MW capacity. UMPPs were expected to provide cheaper power through economy of scale and use super critical technology. UMPPs were implemented through public private partnerships on build-own-operate (BOO) basis. The first UMPP of India, Mundra UMPP was awarded to Tata Power through a competitive tariff based bidding process.

The Power Finance Corporation (PFC- a government company) selected the project site, technology, and type of fuel to be used, as well as obtaining required initial approvals for the plant. Coastal Gujarat Power Limited (CGPL) was registered as a special purpose vehicle (SPV) to build a supercritical coal-fired power plant with a capacity of 4000 MW near the port town of Mundra in the Kutch district of Gujarat, India (the project). It was developed with intent to generate electricity for sale to the utilities of five different states in regions of western and northern India through a long-term, 25-year power purchase agreement (PPA).

Coastal Gujarat Power Ltd. (CGPL) was incorporated on 10th February 2006, as a Special Purpose Vehicle (SPV) by PFC. Tata Power acquired CGPL on 22 April 2007 through a share purchase agreement. CGPL is thus a 100% subsidiary of Tata Power Company Limited (Tata Power). The project has five units of 830 MW each, generating a total of 4150 MW using supercritical

technology and consumes 40,000 MT /day imported coal. Power is evacuated through six 400kV lines, installed by Power Grid Corporation of India Limited, to ultimately benefit the States of Gujarat, Maharashtra, Punjab, Haryana and Rajasthan.

1.3 *OBJECTIVE OF THE STUDY*

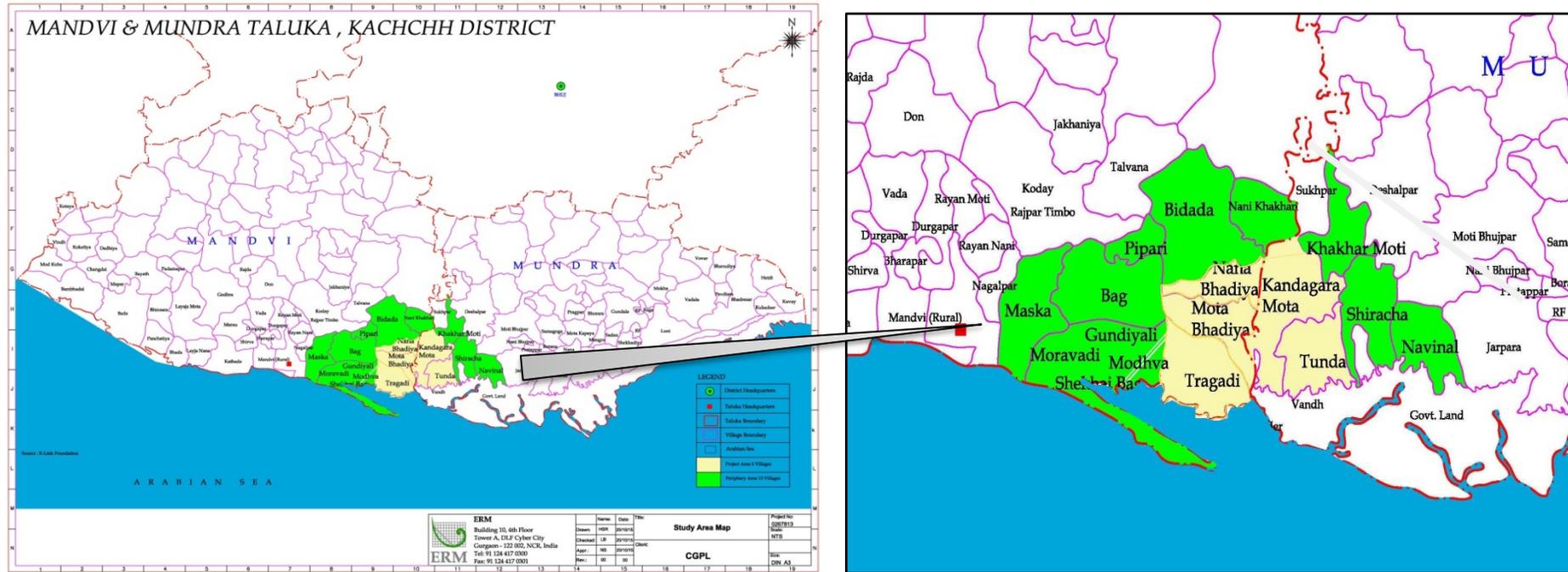
This study is a socio-economic assessment of the communities around the study area of the Mundra power plant in order to capture the trends in socio-economic changes that the study area has experienced due to CGPL and other concurrent industrial developments started in the study area. The specific objectives of this study are:

- Review and consolidation of existing socio-economic information in terms of a series of indicators that could be attributed to impacts of the CGPL operations in project area and periphery area;
- Undertake a socio-economic sample survey covering 21 villages in the study area;
- Undertake a comparative analysis of the raw data (provided by CGPL and the primary data) to identify the changing socio-economic trend and social impacts as a result of these changes;
- Comment, to the extent feasible, on the correlation between the changing socio-economic and livelihood trends to the CSR efforts undertaken by CGPL and opportunities or constraints brought by cumulative industrial growth of the area; and
- Prepare a narrative report that illustrates the socio-economic baseline and social impacts of CGPL in Mundra.

1.4 *PROJECT LOCATION*

The 4150 MW Mundra Ultra Mega Power Plant (Mundra UMPP or the Project) has been developed on a 1,306 hectare site located in the coastal area, south of Tunda village in Mundra and Mandvi taluka, Kutch district of Gujarat. *Figure 1.1* provides an overview of the project location. All five units were commissioned between Mar 2012 and Mar 2013.

Figure 1.1 Project Location



Source: Adopted from administrative divisions of Kutch District map

The power plant is located within the boundaries of three revenue villages- Tunda-Vandh, Mota Kandagara in Mundra taluka, and Nana Bhadiya in Mandvi taluka.

1.4.1 *Industrial Developments in Mundra-Mandvi Region*

Over the centuries Kutch has remained an important centre of maritime trade in Indian Ocean region. Mandvi, was an old port city and its maritime history is linked to its 400 year old ship-building industry. After Independence, Kandla port was developed and in recent years Mundra is developed as an important port. The recent economic and industrial development of the Mandvi-Mundra region can be linked to the development of the Mundra Port which commenced its operations in 1998. Mundra port operation has grown manifold and it has become India's largest commercial port. Some of the large-scale industries which started initially were Jindal Saw Ltd (Nana Kapaya, Samaghogha), Mahashakti Coke, and Lakhmiwadi Mines and Mineral Pvt Ltd (Gundala).

2001 Kutch earthquake which took nearly 20,000 lives in Kutch District is an important milestone in the history of development of the Kutch region. Massive aid poured into Kutch for post-disaster reconstruction activities. The tax exemptions and improvement of basic infrastructures by Gujarat Government attracted industries. Due to development of multiple Ports in its coastline, the Kutch district now has evolved as a logistics hub and port-based industries have flourished in the region.

Out of the total 60 Special Economic Zones (SEZ) established by Government of Gujarat, 14 are in Kutch district¹ and 5 are in Mundra-Mandvi area. The scale of the port based economic development can be inferred from the details of these SEZs provided in table below.

Table 1.1 *Port-based industrialization of the Kutch Coast through SEZs*

SEZ Name	Location	Type
Kandla Special Economic Zone	Gandhidham	Multiproduct
Mundra Port & Special Economic Zone Ltd. (MPSEZL)	Mundra Taluka	Multi product
M/s. Sealand Ports Private Limited	Villages- Layaja, Ratadiya, Godhra, Bayath & Undoth, Taluka- Mandvi	Multi product
M/s. Avash Logistic Park Private Limited	Villages- Mota Layaja, Godhara & Bayath Taluka - Mandvi	Free Trade Warehousing Zone (FTWZ)
M/s. OPG Power Gujarat Private Limited	Bhadreshwar, Mundra	Power

Source: SEZ India, 2009;

http://www.ecoinsee.org/lib_docs/6C1%20Tamali%20Chakraborty.pdf

¹ Source: Industries Commissionerate, 2010.

In April 2006, Government of India brought a notification for creation of a Special Economic Zone (SEZ) to be developed on the adjacent land to Mundra Port. The Mundra Port and SEZ Limited (MPSEZL) came into existence and it was the first multi-product port-based SEZ in India. The development plan included two UMPPs, a private railway line, an airport, warehouses, and townships. Apart from port the development plan for Kutch included multiple power projects. The major power projects include Akrimota Thermal Power Project at village Nani Chher, Lakhapat (2 X 125 MW); Kutch Lignite Power Station of 290 MW located in Lakhapat taluka; Adani Power (4620 MW) and Coastal Gujarat Power Limited (4150 MW); Bhadreshwar Power Station by OPG (300MW), Nana Layja Power Project by IL&FS (4000MW Coal+ 2000MW Gas) which includes 5MTPA LNG terminal; and Essar Power Gujarat at Salaya (1200MW). Apart from these power projects, operational large scale industries and those in the construction stage is provided in Table 1.2 below.

Table 1.2 Major Industries in Kutch District

Industry	Status	Description	Location	Approximate Distance* (km)
Kutch Lignite Thermal Power Station	Operational	290 MW Thermal Power Plant	Panandharo	121.00 km
Akrimota Lignite Power Plant	Operational		Village Cher Nani, Lakhapat Taluka	139.00 km
Mundra TPP	Operational	4620 MW Thermal Power Plant	Mundra	2.50 km
Coastal Gujarat Power Limited	Operational	4150 MW Thermal Power Plant	Mundra	
Nana Layja Power Co. Ltd	Under-construction	4000 MW Coal based plant and a 2000 MW Gas based power plant	Mandvi	32.68 km
M/s IFFICO NPK/DAP Plant	Operational	Indian Farmers Cooperative Society	Kandla	74.65 km
M/s Jindal Saw Ltd	Operational	Manufactures pipes and ducts	Village Nana kapaya, Mundra	16.50 km
M/s Welspun Power & Steel Ltd.	Operational	Manufactures DRI (Coal based) Ingots/ Billets and TMT bars	Village Varsamedi, Taluka Anjar	65.18 km
M/s Parle Products Pvt. Ltd	Operational	Manufacture of Biscuits	Village Ler, Taluka Bhuj	49.33 km
M/s Suzlon Energy Ltd.	Operational	Wind power manufacturing facility	Village Paddar, Taluka Bhuj	54.00 km
M/s Cargil India Pvt. Ltd.	Operational	Food and Agricultural Service Provider	Village Bhimasar, Taluka- Anjar	77.68 km
Indian steel corp. Ltd	Operational	Manufacturers of corrugated and galvanized sheets	Village Bhimasar, Taluka- Anjar	76.87 km
JMD Oil Mills Ltd.	Operational	Manufacturer and supplier of food grade oils	Village Bhimasar, Taluka- Anjar	77.61 km

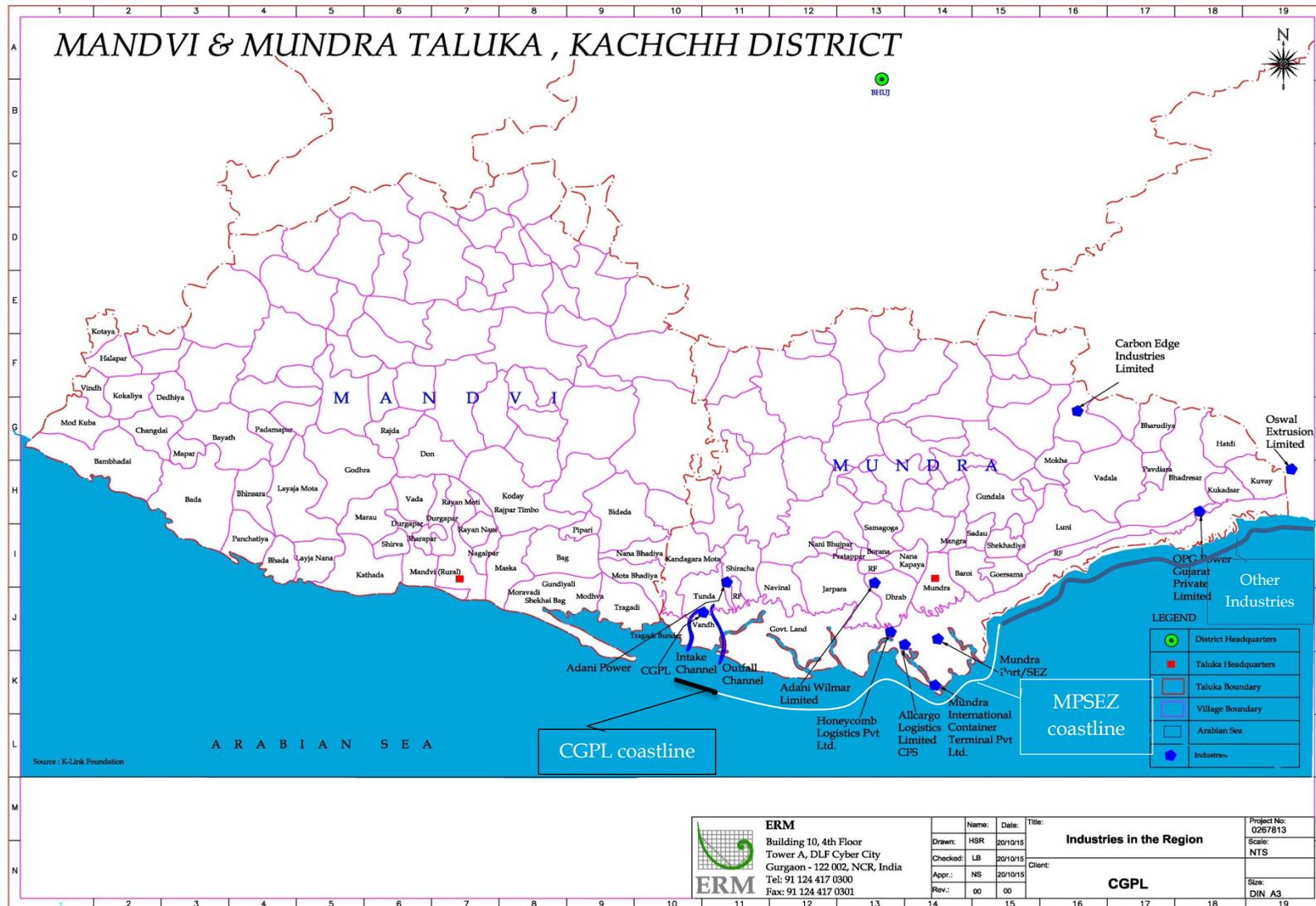
Industry	Status	Description	Location	Approximate Distance* (km)
Kutch Chemical Plant Pvt. Ltd	Operational	Manufactures of Speciality Chemicals	Village Bhimasar, Taluka- Anjar	77.79 km
Cargill Oil refinery	Operational	Refinery	Village Bhimasar, Taluka- Anjar	78.65 km

**Aerial Distances as measured in Google Earth Pro*

The study area along with Kutch district has gone through an intense process of industrialization between 2006 and 2013 with capital investment from multiple infrastructure and industrial projects. The large scale industries in Kutch have also helped in the growth of the medium and small and micro enterprises (MSME). As per Gujarat Industries Commissionerate, about 4990 of the registered MSMEs were operating in 2006. The statistical report¹ in 2011 reports total number of MSMEs in Kutch District increased to 7085.

(1) ¹ http://dcmsme.gov.in/dips/dip%20kutch_guj.pdf

Figure 1.2 Major industries along the coastline of Kutch



1.5 *PROJECT OVERVIEW AND STUDY AREA*

1.5.1 *CGPL Project Components*

CGPL power plant and its associated components can be broadly conceived in two categories, i.e. project components within the Main Plant boundary, and components outside of the Main Plant boundary. Following project components are located within the plant boundary

- Coal storage and coal handling system
- Main power plant
- DM plant, ETP, STP
- Drainage and effluent disposal
- Fire protection system
- Ash handling system and ash disposal area
- Switchyard

Project components located outside Main Plant boundary are:

- Common raw water intake channel
- Cooling water discharge channel
- External coal storage and handling system at West Port
- Coal Conveyer belt from West Port to CGPL Plant (12kms)
- Transmission lines (associated facility)
- Residential complex

An aerial view of the plant and its immediate vicinity is shown in the figure below:

Figure 1.3 Aerial view of the intake and outfall channels of CGPL: mention source



The site Land required for this UMPP was acquired identified by Power Finance Corporation (PFC) and was the site was transferred to CGPL. Hence, the decision for selection of site was carried out by PFC and it played the lead role in acquisition of the land. CGPL after winning the bid cooperated in land acquisition formalities. The village wise break-up of the land acquired for CGPL and category of the land is provided in table below.

Table 1.3 *Village wise land acquisition*

<i>Name of the village</i>	<i>Waste Land*</i>	<i>Agriculture Land</i>	<i>Gaucher Land</i>	<i>Forest Land</i>	<i>Total</i>
Tunda Vandh	306.81	187.83	12	Nil	506.64
Mota Kandagra	440.5079	Nil	37.0421	130	607.55
Nana Bhadiya	160.26				160.26
Tragadi	32.3760				32.3760
Total					1306.826

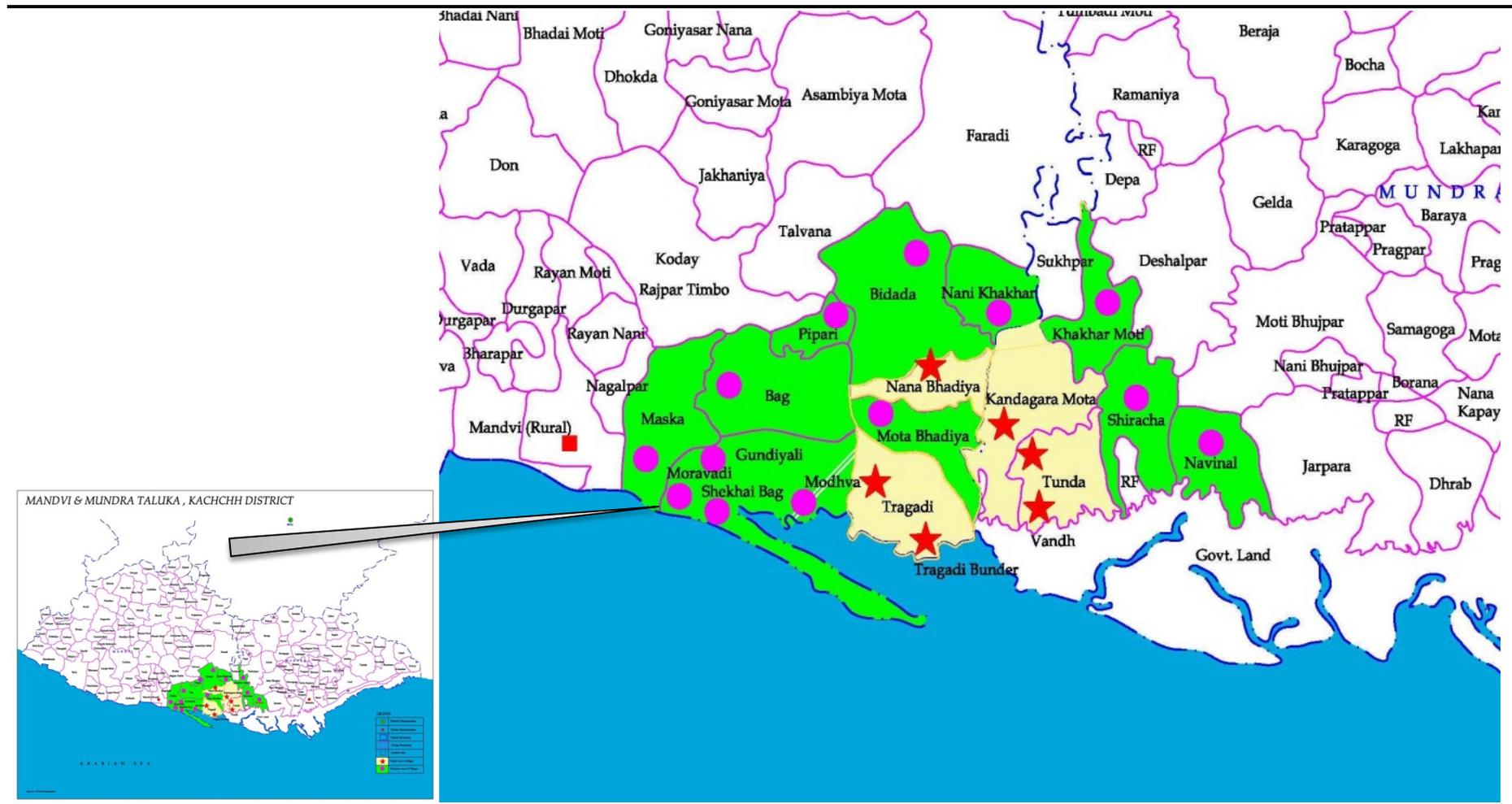
Source: CGPL-2015, All figures are in Hectares

**the waste land includes the coastal area un-surveyed land.*

1.5.2 *Defining Study Area*

Study area includes villages in 10 km radius where CGPL has undertaken its CR initiatives. These villages include: Tunda, Vandh, Mota Kandagra, Nana Bhadiya, Tragadi, Modhva, Tragadi Bunder, Bag, Maska, Pipri, Mota Bhadiya, Moti Khakar, Nani Khakar, Bidada, Shiracha, Gundiya and Navinal. Of the study area the first four villages comprise the **project area** (Tunda/ Vandh, Mota Kandagra, Nana Bhadiya, Tragadi/ and Tragadi Bunder). The Tragadi Bunder is a seasonal fishing hamlet located on the beach front of CGPL close to the outfall water channel. All other villages excluding the project area is referred as periphery area. The map below delineates the project area, periphery area and study area.

Figure 1.4 Villages under the study area



Many socio-economic baseline and assessment studies have been conducted for the study area across various phases of the CGPL. A summary of the key socio-economic baselines and assessment reports is provided in Table 2.1 below:

Table 1.4 *Key socio-economic studies conducted by CGPL covering the study area*

CGPL Project Stage	Study Title, Agency, Year	Highlights
Project Phase (2007 to 2012)	Report on Baseline Social Impact Assessment (BSIA), Saline Area Vitalisation Enterprise Ltd. (SAVE), 2007	Identifies potential social impacts and possible opportunities created by the implementation of UMPP. The report focused on the impacts of land acquisition for the project of the four villages impacted by loss of land. This report suggested measures for compensating land losers, and to develop a livelihood restoration plan.
Project Phase (2007 to 2012)	Household survey and needs assessment study, IL&FS Ecosmart Ltd, 2008	Provides socio-economic profile of the population living in the villages of Tunda, Mota Kandagara and Nana Bhadiya. A total of 1027 households were surveyed in these three villages. The recommendations of the report included conducting health camps, providing ambulance services, building community toilets, improvement of school infrastructure, animal shelters for cattle, fodder supply, supply of potable water, creating self-help groups and establishing a marketing and sales unit for embroidery works of Rabari ⁽¹⁾ women in Vandh.
Project Phase (2007 to 2012)	Stakeholder engagement and benefit sharing, Interactive Karma India, 2011	This study focused on Tragadi and Modhva where fishing communities reside. The study provided recommendations for supporting sustainable livelihood for local fishing communities. One of the outcomes of the study was formation of community advisory committee which advised and monitored specific benefit sharing plan for fishing communities, alternate income generating opportunities, improving local infrastructure and providing financial assistance.
Project Phase (2007 to 2012)	Situation Analysis and Participatory Needs Assessment of Modhva village, Mandvi block, Kutch district, TRIOs Development Support (P) Ltd, New Delhi, 2011	A detailed need assessment of Modhva was conducted using participatory rural appraisal tools and the key issues identified were listed out. The study came up with few interventions to bridge the need gaps such as strengthening of Machimar Samiti, provision of revolving fund to fishermen, construction of fishing pond, livelihood interventions of women such as formation of SHGs, imparting income generating

(1) Rabaris are traditionally a pastoralist (cattle keepers and locally known as *Malldharis*) semi-nomadic community believed to have migrated from Rajasthan. In Kutch they are considered under Other (socio-economic) Backward Castes (<http://www.bcmbcmw.tn.gov.in/obc/faq/gujarat.pdf>) though considered as Scheduled Tribe (<http://tribal.nic.in/WriteReadData/CMS/Documents/201212010312287275390File1051.pdf>) in other parts of Gujarat (Alech, Barada, and Gir).

CGPL Project Stage	Study Title, Agency, Year	Highlights
		skills to SHG members, alternate livelihood interventions for youth and access to basic services.
Project Phase (2007 to 2012)	Labour Influx Management Plan, IL&FS Ecosmart Ltd, 2008	The objective of the study was to mitigate the potential impacts of influx of migrant workers due to industrial and infrastructural development in the sparsely populated Kutch district. The report lists out activities and interventions to ensure effective influx management such as economic interventions, site infrastructure upgradation, social awareness, health education and social sensitization.
Project Phase (2007 to 2012)	Local Hiring and Purchase Plan, IL&FS Ecosmart Ltd, 2008	This is concerning the hiring of local workers for the Project and included the construction period into the early stages of operation. The document defined the process and guidelines for hiring workers in the Project's Area of Influence.
Project Phase (2007 to 2012)	Security Management Plan, IL&FS Ecosmart Ltd, 2008	The Plan lays out a participatory approach to resolve any security risks due to social issues in the study area and any conflict between the local community and the project personnel. The plan emphasises that the company security set up would adapt to modern technological advancements and established best practices and would use them to enhance the capacity and capability of the security personnel. The plan also states that CGPL-Mundra would achieve cooperation through its regular contact with Non-Governmental Organizations (NGOs), community leaders and other members of the local communities in order to understand their concerns, to minimize impacts and create community benefits.
Project Phase (2007 to 2012)	Environmental and Social Action Plan, CGPL	This lists down the action plans to mitigate the project related impacts as per IFC Performance Standards requirements.
Project Phase (2007 to 2012)	Resettlement Planning Document, CGPL	The short resettlement plan (RP) was prepared to mitigate adverse social and economic impacts from land acquisition and/or restrictions on affected persons use of land and to establish and maintain an ongoing relationship with the affected persons throughout the life of the Project. The RP included the following: (i) project components and land requirements; (ii) socio-economic profile and impacts; (iii) legal framework for resettlement and rehabilitation, eligibility and entitlement; income restoration plan public consultation and disclosure; institutional arrangements; grievance redress mechanism; monitoring and evaluation.
Project Phase (2007 to 2012)	Stakeholder Engagement Framework, CGPL	This was designed to outline a plan for stakeholder engagement through public consultation and disclosure. The document defines the area of influence, stakeholder

CGPL Project Stage	Study Title, Agency, Year	Highlights
		categories and prioritization, grievance procedures and mechanisms for monitoring and reporting.
Project Phase (2007 to 2012)	Situation Analysis and Participatory Needs Assessment of Modhva Village, Mandvi Block, Kutch District, TRIOs Development Support	The aim of the report was to develop strategy for the development in Modhva village. The current situation in Modhva village was mapped and assessed and the key issues were identified and listed. The key issues identified include lack of quality drinking water, education, Anganwadi centre, health, road and transport. Livelihood interventions were identified for fisheries, women and youth and access to basic services such as health, education and transport, awareness generation and promotion of education and social security measures were recommended.
Operation Stage (2013 Onwards)	GIS Mapping of 21 Villages, K-Link, 2013 Dec	The Ahmedabad based organisation conducted a GIS Mapping of households in 2013 at the end of the construction and beginning of the operation stage. ERM has used the same questionnaire as the 2013 K-Link survey to verify and compare socio economic trend across the years.
Operation Stage (2013 Onwards)	Health Need Assessment Survey in Surrounding Villages of CGPL, Jan 2014 by TALEEM	Assessed the effect of the CGPL power plant, if any on the health of surrounding population as perceived by the village community and to assess the health needs of the village community.
Operation Stage (2013 Onwards)	Value chain analysis in the marine capture-fishery subsector relevant to the livelihoods of fisherfolk at Tragadi Bunder, Aakar	The purpose of the report was to improve the quality of life of families engaged in small scale fishing at the Tragadi Bunder by identifying scope for increasing their income. The report gives a detailed account of the processes involved in the value chain, from input suppliers to buyers and the lifestyles and costs and expenses of the fishing community. However, the report falls short of giving any recommendations to improve their livelihood.

The impact assessment studies and environment clearance¹ for CGPL was initiated in pre-construction stage of the project. Along with a range of potential environment impact mitigation/management measures, the EC for CGPL included a budgetary provision of onetime capital cost and a recurring annual expenditure for Corporate Social Responsibility (CSR) activities. It also recommended a monitoring mechanism (annual social audit) through a government institute of repute in the region.

¹ CGPL submitted application for obtaining Environment Clearance (EC) on 10th Nov 2006 and the public hearing for the project was held on 19th Sep 2006. MoEF accorded the project Environment Clearance on 2nd Mar 2007. The EC was later amended on 5th Apr 2007 and 26th Apr 2007.

In pursuant to the conditions of EC, a Comprehensive Environment Impact Assessment (CEIA) was conducted by TCE in Aug 2007. The study concluded that the emissions from the proposed project would have negligible impact on ambient air quality of the surrounding areas. The surface and ground water samples and noise levels in the study area were also found to be within the specified limits. The impact on water, noise level, soil and land use is expected to be negligible. Impact on ecology, socio-economics, amenities and infrastructure of the study area is expected to be positive. And it recommended a range of pollution control measures for minimizing any impact foreseen due to proposed power project¹. The Environment clearance also recommended that CGPL should submit periodic reports on the environmental parameters as prescribed by MoEF, GOI.

CGPL conducted a Baseline Social Impact Assessment (BSIA) through Saline Area Vitalisation Enterprise Limited (SAVE) in 2007. The BSIA report was precursor to development of other mitigation plans including a baseline household survey of PAHs, Compensation Framework, Livelihood Restoration Plan (LRP), Public consultation and Disclosure Plan and Community Development Plan. A 'Household Survey and Needs Assessment Study' was commissioned by CGPL and the study was carried out by IL&FS Ecosmart. The household survey covered 1207 households² in 3 project affected villages.

The CRZ clearance was obtained based on the minimum modification of the coastal zone. The construction of the outfall channel was perceived to have affected livelihood of the fishing communities. CGPL commissioned studies by third parties to assess these perceived impacts. These independent studies conducted towards the end of the construction phase, provide a narrative of socio-economic life and livelihood of fishing communities. These studies help in depicting transition of the livelihood for the concerned communities. Therefore the profile of fishermen communities is provided in a distinct section.

These socio-economic studies used different parameters and relied on a range of data sources, such as data from Census of India, information collected from Gram Panchayat records, household surveys conducted by concerned assessment agencies and qualitative information collected through focused group discussions and interviews. Considering this variation in coverage and data sources, the findings of these earlier studies are summarized in five broad heads:

- Demography;
- Quality of Life;
- Livelihood Pattern;

(1) ¹ Comprehensive Environment Impact Assessment, Aug 2007 by TCE Consulting Engineers Limited, Executive Summary, pg.11.

(2) ² The Report also mentions that 160 households were not surveyed as they were found locked during the field survey.

- Access to Basic Amenities and Village Infrastructure; and
- Village Level Institutions.

1.7 *LIMITATIONS OF THE STUDY*

The Client acknowledges that report provided by ERM in relation to the provision of Services as specified in ERM's proposal for this assignment are delivered to the Client solely for the Client's internal use. ERM, its officers, employees, contractors, and agents shall owe no duties, obligations or liabilities to any persons in connection with any use of or reliance on the Materials. We make no warranties, express or implied, including without limitation, warranties as to merchantability or fitness for a particular purpose.

The report uses information from the secondary sources and information provided by client or available in reports of earlier studies. The verification of such information was not possible in many instances. Hence, it is assumed that the information made available to ERM was reliable and serves the purpose for which they were collected. The sample survey conducted by ERM was carried out as an independent agency and is based on the information provided by respondents. The qualitative information gathered from consultations with key informants and stakeholders reflect their perspectives and perceptions. The use of the information and feedback received is made in accordance to the scope of this study.

ERM is not engaged in social and environmental, health & safety consulting and reporting for the purposes of advertising, sales promotion, or endorsement of any client's interests, including raising investment capital or recommending investment decisions, or other publicity purposes. The client acknowledges that the report prepared by ERM are for exclusive use of the client and agrees that ERM's reports or correspondence will not be used or reproduced in full or in part for such promotional purposes, and may not be used or relied upon in any prospectus or offering circular. The client also agrees that none of its advertising, sales promotion, or other publicity matter containing any information obtained from these assessments or reports, either in parts or entirety, will make reference to ERM's trade name.

Nothing contained in this report shall be construed as a warranty or affirmation by ERM that the site and property described in the report are suitable collateral for any loan or that acquisition of such property by any lender through foreclosure proceedings or otherwise will not expose the lender to potential environmental or social liability.

1.8 *LAYOUT OF THE REPORT*

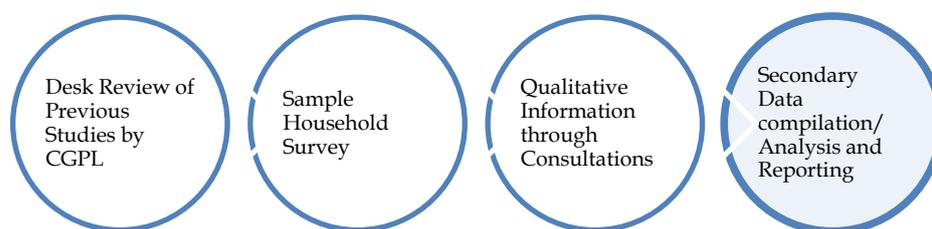
Keeping the objective of the study, this report is divided into nine Chapters and is structured as follows:

<i>Section 1 (this section)</i>	Introduction along with project background, objective of the study, scoping of the study and study methodology;
<i>Section 2:</i>	Approach and Methodology
<i>Section 3:</i>	Stakeholder engagements by CGPL;
<i>Section 4</i>	Overview of socio-economic interventions by CGPL;
Section 5	Assessment of socio-economic changes attributable to CGPL and broader area development
Section 6	Conclusion and Recommendation

Annexures to this report provides details on some of the aspects which were examined during this social assessment.

Annexure-1:	List of Private Land Owners for CGPL
Annexure-2:	Summary Record of Consultations, Interviews and Group Discussions
Annexure-3:	Photo documentation during the assessment.
Annexure-4:	Household Survey Questionnaire
Annexure-5:	Survey Questionnaire for Pagadiya Households

CGPL had commissioned a range of social studies which covered social issues of CGPL at different stages of the project. Some of them focused on specific issues or stakeholders. In order to consolidate the existing socio-economic information and assess the trends and status of key social issues for CGPL, ERM adopted an approach where the existing information can be used effectively. The study area and the local community had already participated in several past studies, and therefore, effort was made to keep the coverage of the study limited but intensive to understand key social issues. ERM cautiously adopted a four step approach as illustrated below.



2.1

DESK REVIEW OF PREVIOUS STUDIES

A desk-based review was undertaken of the major reports/ data/ documents provided by CGPL. This included, but was not limited to:

Table 2.1 *Previous Studies Conducted by CGPL*

Doc Date	Report	Author
2006 Aug	Socio-Economic Assessment Study Report	TCE Consulting Engineers Limited
2007 Nov	Report on Baseline Social Impact Assessment	Saline Area Vitalisation Enterprise Limited
2008	Household Survey and Needs Assessment Study	Infrastructure Leasing & Financial Services (IL&FS) Ecosmart Ltd.
2011	Interactive Karma Report covering Tragadi Village	Tata Institute of Social Sciences
2011	Socio-economic study of Modhva Report	TRIO
2012 to 2014	Social Audit of CSR Activities of CGPL in Peripheral Villages	Mahatma Gandhi Labour Institute (MGLI)
2013	GIS Mapping of 21 Villages	Geo-Soft and K-link
2014	Fish Catch Survey for Fishing Villages	AAKAAR and SWADEEP
2014	Health Need Assessment Survey in Surrounding Villages of CGPL Mundra, Kutch, Gujarat	TALEEM Research Foundation

Previous studies by CGPL were conducted with specific objectives and they covered different villages and used a range of specific socio-economic parameters. The diversity though was useful in covering a wider range of social issues, however was found to be of limited use for temporal comparison and examine trends of change over years. A brief overview of the information available in reports reviewed by ERM and its coverage and usefulness of the information is provided in table 2.2 below.

Table 2.2 *Summary of Information Used in the Report*

Sl. No.	Source of available data	Contents of the Data/Tables	Villages Covered	Remarks
1.	Baseline SIA, November 2007	<ul style="list-style-type: none"> Demography (Census 2001) Land use (Census 2001) Occupational Profile (Information shared by villagers during survey conducted by coastal salinity prevention cell – CSPC, August 2007) Details of livestock (Information shared by villagers during survey conducted by coastal salinity prevention cell – CSPC, August 2007) Educational facilities (Discussion with villagers and panchayat) Type of institution (primary and secondary) and no. of boys/girls for PAVs Cropping pattern 	<ul style="list-style-type: none"> PAV – (Mota Kandagra, Tunda, Nana Bhadiya) PAV PAV PAV PAV PAV 	<ul style="list-style-type: none"> This has been referred in Section 5.1 This has been referred in Section 5.4 The occupation profile includes large farmers (20.8%), small farmers (10.9%), agriculture labour (40.8%) and animal rearing (27.5%). As occupation profile data in IL&FS report was based on primary survey. Hence IL&FS data was used in 5.4.3. This has been referred in Section 5.4, Sub section 5.4.4 This has been referred in Section 5.2, Sub section 5.4.2 This has been referred in Section 5.4., Sub section 5.4.3

Sl. No.	Source of available data	Contents of the Data/Tables	Villages Covered	Remarks
2.	CEIA, 2007 Covers the study area – 20 villages in total (14 villages overlap for comparison purpose)	<ul style="list-style-type: none"> • Availability of health facilities (primary, community health centres, private dispensary, hospital etc.) – Discussion with villagers and panchayat • Demography (Census 2001) – Population, SC/ST • Workers Distribution (Census 2001) • Educational Institutions and No. of Students (Source: Gram Panchayat Official) • Caste composition (SC and ST) population distribution (Source: Gram Panchayat Official) • Important commodities grown (Census 2001) • Land holding size (Source: Gram Panchayat Official) • Number of cattle by villages (Source: Gram Panchayat Official) • Migration of families to other cities (Source: Gram Panchayat Official) 	<ul style="list-style-type: none"> • PAV • All villages in the study area (10 km radius) (including extras) • All villages in the study area (10 km radius) (including extras) • All villages in the study area (10 km radius) (including extras) • All villages in the study area (10 km radius) (including extras) • 16 villages in the study area (10 km radius) – (only 12 villages overlap for comparison) • 16 villages in the study area (10 km radius) • 16 villages in the study area (10 km radius) 	<ul style="list-style-type: none"> • This has been referred in Section 5.2, Sub section 5.2.5 • This has been referred in Section 5.1 • This has been referred in Section 5.2, Sub section 5.2.4 • The census data has been referred in Section 5.1 • This has been referred in Section 5.4, Sub section 5.4.3 • Land-holding size information was not obtained from Gram Panchayats, hence could not be compared. • This has been referred in Section 5.4, Sub section 5.4.4 • The migration data was not captured in the subsequent surveys and hence this data could not be

Sl. No.	Source of available data	Contents of the Data/Tables	Villages Covered	Remarks
				used for temporal analysis.
		<ul style="list-style-type: none"> Income (Source: Gram Panchayat Official) Number of wells for drinking and irrigation (Source: Gram Panchayat Official) Availability and means of transport (Source: Gram Panchayat Official) Availability of health facilities (numbers) and sanitation (welfare scheme etc.) (Source: Gram Panchayat Official) Availability of post office, bank and library (Source: Gram Panchayat Official) 	<ul style="list-style-type: none"> 16 villages in the study area (10 km radius) 16 villages in the study area (10 km radius) 16 villages in the study area (10 km radius) 16 villages in the study area (10 km radius) 16 villages in the study area (10 km radius) 	<ul style="list-style-type: none"> This has been referred in Section 5.4, Sub section 5.4.6 This has been referred in Section 5.2, Sub section 5.2.6 This has been referred in Section 5.2, Sub section 5.2.7 This has been referred in Section 5.2, Sub section 5.2.5 This has been referred in Section 5.2, Sub section 5.2.1
3.	ILFS, 2008 (Covers only PAV)	<ul style="list-style-type: none"> Infrastructure and facilities (education, commercial, health, veterinary, drinking water etc.) Demography (Source: primary survey) - Households, Population, caste, family type, vulnerable families, physically/mentally handicapped families Literacy levels and education levels across primary schools, middle schools, secondary schools, graduate level institutions etc. Break up - main workers, marginal workers etc. Break up of non-workers in PAV Occupational Pattern of workers in PAV 	<ul style="list-style-type: none"> PAV PAV PAV PAV PAV 	<ul style="list-style-type: none"> This has been referred in Section 5.2 The report has referred to the Census data This has been referred in Section 5.2 and Sub section 5.2.3. This has been referred in Section 5.3, Sub section 5.3.1 This has been referred in Section 5.3, Sub section 5.3.1 This has been referred in

Sl. No.	Source of available data	Contents of the Data/Tables	Villages Covered	Remarks
		<ul style="list-style-type: none"> Livestock population Household owning livestock Land use pattern for PAV Sources of drinking water supply in PAV Income categories among households Occurrence of diseases 	<ul style="list-style-type: none"> PAV PAV PAV PAV PAV 	<ul style="list-style-type: none"> This has been referred in Section 5.3, Sub section 5.3.3 This has been referred in Section 5.4, Sub section 5.4.4 This has been referred in Section 5.4, Sub section 5.4.2 This has been referred in Section 5.2, Sub section 5.2.6 This has been referred in Section 5.4, Sub section 5.4.5 This has been referred in Section 5.2, Sub section 5.2.5
4.	SE and benefit sharing, Interactive Karma, 2011 (Tragadi)	<ul style="list-style-type: none"> Village Directory for Tragadi (Census 2001) Water sources and distance from the house Ownership of house, household assets, Fishing Instruments Fish catch data, Rate of sale of fish, Income from fishing Annual household income 	<ul style="list-style-type: none"> Tragadi Village 	
5.	TRIOs, 2011 (Modhva)	<p>Need Assessment Survey</p> <ul style="list-style-type: none"> Investment on equipment/net, sale price, daily quantity of fish species for Modhva village 	<ul style="list-style-type: none"> Modhva Village 	<ul style="list-style-type: none"> This has been referred in Section 5.5
6.	MGLI, 2012 (Sample HH survey in 6 villages)	<p>Sample HHs survey:</p> <ul style="list-style-type: none"> Demography (Census 2001) - caste, family type, migration percentage among households) Migration data based on HH survey CSR interventions of CGPL in 4 villages (Vandh, Tunda, Mota Kandagra and Nana 	<ul style="list-style-type: none"> Tunda & Vandh (48 HHs), Modhva (34 HHs), Tragadi (32 HHs), Nana Bhadiya (38 HHs) and Mota Kandagra 	<ul style="list-style-type: none"> The census data has been used for comparative purpose in Chapter 5. The CGPL interventions have been captured in Chapter 4

Sl. No.	Source of available data	Contents of the Data/Tables	Villages Covered	Remarks
		Bhadiya) <ul style="list-style-type: none"> Land use pattern of PAV (Census 2001) Livestock data (livestock census 2007) for Tunda & Vandh and Mota Kandagra 	(98 HHs)	
7.	Health Survey, Taleem, 2014 (Covers 7 villages in the study area)	Sample HHs interviewed: <ul style="list-style-type: none"> Discontinuing of school and reasons Facilities (drinking water, electricity, cooking fuel, toilets etc.) Household assets Land ownership Livestock holdings Community perception on adverse effect on health Prevalence of chronic illness by age and sex Inception of chronic illness Prevalence of acute illness Sources of treatment Reasons for not using govt. health facilities Access to CGPL health camp Disability in the household Mortality in the household Maternal Health Child Health Adolescent Health Access and quality of govt. health services 	<ul style="list-style-type: none"> Tunda, Vandh, Mota Kandagra, Nana Bhadiya, Tragadi, Tragadi Bunder and Modhva 	<ul style="list-style-type: none"> The community health impact is not covered in this assessment as it is a specialized study area.
8.	AAKAAR (Tragadi Bunder)	<ul style="list-style-type: none"> Fresh fish catch data - October, 2013 to April, 2014 Dry fish catch data - October, 2013 to April, 2014 	<ul style="list-style-type: none"> Tragadi Bunder (20 selected households) 	<ul style="list-style-type: none"> This has been referred in Section 5.5
9.	K-Link Primary Survey, 2013 (Covers 19 villages in the study area)	HH Detail <ul style="list-style-type: none"> Name, religion, caste, caste category House type, BPL, ration card, election card Drinking water source, toilet, electricity, bank 	Tragadi, Modhva, Tragadi Bunder, Tunda, Vandh, Bidada, Maska, Pipri, Bag, Nana Bhadiya, Mota	<ul style="list-style-type: none"> This has been referred to across multiple sections and sub-sections of this report.

Sl. No.	Source of available data	Contents of the Data/Tables	Villages Covered	Remarks
		<ul style="list-style-type: none"> account Assets base - refrigerator, tv, computer, mobile, two-wheeler, four-wheeler, truck/tanker Livestock availability - cows, buffaloes, goats, sheep, camel, bullock, horse etc. and milk production (quantity in lts.) Availability of fishing tools - boat, net, anchor, ice box etc. Agricultural land available and land type (dry/irrigated) <p>HH Family Detail</p> <ul style="list-style-type: none"> Name, age, gender, marital status, education level, literate/illiterate, school going Main occupation, secondary occupation and categories Special skill Yearly income Serious illness Addiction Disability Associated with panchayat or any other organization or group Migration (Yes/No) and reason for migration (lack of livelihood or any other) Death Detail - number of deaths in the family in last 3 years <p>Village Survey</p> <ul style="list-style-type: none"> Institutions in the village (panchayat, post office etc.) - GPS Location Education facilities (primary/secondary and numbers) Health facilities (Availability/Non-availability of doctors, vaidh, veterinary 	Bhadiya, Gundiya, Mota Kandagra, Moti Khakkar, Nani Khakkar, Navinal, Siracha, Sheikhai Bag, Moravadi	

Sl. No.	Source of available data	Contents of the Data/Tables	Villages Covered	Remarks
		doctors, asha workers, health workers etc.)		
10.	SRP CGPL, 2008 - Resettlement Planning Document	• Land ownership by demographic profile - Tunda&Vandh	Tunda & Vandh, Mota Kandagra, Nana Bhadiya	

2.2

SAMPLE HOUSEHOLD SURVEY

The study team visited the site for initial reconnaissance and held preliminary consultations with key stakeholders. Based on the previous socio-economic and livelihood studies conducted in study area, key social issues were inferred. Based on the review of the previous socio-economic studies and consultations with the key stakeholders, a sample frame was determined. The sample frame demonstrates a statistically valid approach that gives reliable socio-economic context and is adequate to define these key socio-economic indicators.

An experienced team of social investigators undertook the primary data collection from the sample households. The overall sample size was approximately 8% of the total households of the study area. ERM team also undertook qualitative data collection using the following methods:

Village Walkthrough

ERM undertook a preliminary walk-through in the villages to be surveyed to observe and understand social and economic stratifications, the natural resource bases, common pool resources and status of the village infrastructure etc. The village walkthrough helped to identify categories of focused groups and key informants for collecting detailed feedback and socio-economic information.

Household Survey

Quantitative information was collected from a sample of households in the study area. K-Link and Geo-soft had carried out a census survey of all households in the study area for GIS mapping of households in 2013. The K-link data was used to determine the total number of households in the study area. The sample size constituted 22% households in project villages of the study area and 5% of the total households from peripheral villages. Overall, the total number of households covered in the socio-economic survey constitutes 8% of the total households in study area. The number of households covered in each of the villages was determined keeping the social

(caste) diversity of these villages. The detail distribution of the sample frame is provided in *Table 2.3*

Table 2.3 *Sample frame and Sample Size for Household Survey by ERM 2015*

<i>Zone</i>	<i>Village</i>	<i>Total Households (K-Link) in 2013</i>	<i>Number of Sample Households</i>	<i>Sample Size (% of Total Households)</i>
Project Area Villages	Tunda	279	39	14%
	Vandh	214	166	78%
	Mota Kandagara	563	18	3%
	Nana Bhadiya	258	22	9%
	Tragadi	122	21	17%
	Tragadi Bandar	86	75	87%
	Sub-Total	1522	341	22%
Peripheral villages	Bag	710	31	4%
	Bidada	2071	53	3%
	Gundiyali	386	17	4%
	Modhva	978	39	4%
	Shekhai Bag	186	23	12%
	Mora Vadi	57	6	11%
	Maska	186	24	13%
	Mota Bhadiya	701	29	4%
	Moti Khakhar	499	13	3%
	Nani Khakhar	498	25	5%
	Navinaal	270	41	15%
	Pipri	311	11	4%
	Siracha	203	20	10%
	Sub-Total	7056	332	5%
Study Area		8578	673	8%

A larger sample was covered in Vandh (78%) and Tragadi Bandar(87%). 166 households from 214 households were covered in Tunda which includes the households who sold their private land to CGPL. 75 households were covered out of the 86 households residing in Tragadi Bandar which is the adjacent fishing settlement on the beach front of CGPL.

The ERM sample frame during the initial household survey did not cover any of the households reported to practice Pagadiya fishing only. Hence, a sample of pagadiya households was surveyed on a later date.

2.3

QUALITATIVE ASSESSMENT THROUGH CONSULTATIONS

Focused Group Discussions (FGD) and Key Informant Interviews (KII):

Consultations with specific groups engaged in a particular livelihood or residing in a particular place were conducted (refer Table 6.4 for the list of FGDs). The focused groups identified included women, beneficiaries of CSR

interventions by CGPL, vulnerable social groups or minorities, senior citizens etc.

The key-informants were selected from the perspective of different livelihood practices and the challenges posed by the industrial growth of the area. Local civil society organization/ NGOs were consulted to understand their perspective in the changing scenarios of ownership and access to different productive resources for different sections of the community for the list of KIIs with Community and other Institutional Stakeholders).

The following table presents the key stakeholders that have been covered for the present assessment with the application of a range of tools/ methods including focus group discussions and key informant interviews.

Table 2.4 Consultations for qualitative data by ERM

Villages	Key Stakeholder Groups/Stakeholders
Modhva	<ul style="list-style-type: none"> • FGD with pagadiya fishermen - 4/5 members • KII with a trader (fish) from Una - 1 • KII with a trader (fish) from Modhva - 1 • FGD with women working as wage labour engaged in drying/processing fish - 3 members • FGD with boat owners - 3/4 members • FGD with mixed community group including men and women - 7/8 members • FGD with VDAC members - 2 members (Wagher)
Bidada	<ul style="list-style-type: none"> • FGD with family of Darbar (Jadejas) engaged in agriculture, wage labour etc. - 1 family (joint family) • FGD with mixed group of SC men and women engaged in wage labour etc. - 5/6 members
Tragadi	<ul style="list-style-type: none"> • FGD with male group - 4/5 members • KII with a dairy owner • FGD with women SHG members - 4 members • FGD with a family of node community • FGD with girls & women from Wagher community (boat owners) - 7/8 members <p>KII with Sarpanch ⁽¹⁾ of Tragadi</p> <ul style="list-style-type: none"> • FGD with wage labour employed in CGPL - 5/6 members (Goswami group) • FGD with Tragadi Boatmen (mainly fish at Jakhau Coast -4 • FGD with members of VDAC (4 members)
Tragadi Bunder	<ul style="list-style-type: none"> • KII with trader from Bhadreshwar • FGD with a mixed group • FGD with mixed group across all age groups and gender • KII with Aakaar field personnel • FGD with 2-3 members of VDAC
Gundiyali	FGD with kumbhar ⁽²⁾ community group - 5/6 members

(1) Sarpanch is the 'leader' of the Panchayat, which administers a cluster of villages

(2) Kumbhar is a hindu caste group and the community members are traditionally engaged in pottery as their main occupation.

Villages	Key Stakeholder Groups/Stakeholders
	<ul style="list-style-type: none"> • FGD with mixed group - 4/5 members
Moti Khakkar	<ul style="list-style-type: none"> • KII with Sarpanch of Moti Khakkar • FGD with ASHA & Anganwadi workers group (4 women members)
Mora Vadi	<ul style="list-style-type: none"> • FGD with general Rabari group • FGD with Rabari men
Sheikhai Bag	<ul style="list-style-type: none"> • FGD with youth group (4 boys), 1 teacher and 2 elders also present
Nani Khakkar	<ul style="list-style-type: none"> • KII with Sarpanch and his relative • FGD with 4-5 members of Dataniya • FGD with a family of SC community
NanaBhadiya	<ul style="list-style-type: none"> • KII with Sarpanch • FGD with women group
Maska	<ul style="list-style-type: none"> • FGD with women group - 5 members
Bag	<ul style="list-style-type: none"> • FGD with a mixed group - 4 male members and 8/9 female members and Sarpanch
Mota Bhadiya	<ul style="list-style-type: none"> • KII with Up-Sarpanch • KII with 2 school teachers and students in primary school
Navinal	<ul style="list-style-type: none"> • KII with Sarpanch • FGD with fishermen Wagher group • FGD with Dataniya group
Siracha	<ul style="list-style-type: none"> • FGD with 3-4 community members (brief discussion) and a few school kids - girls • KII with the Doctor at the health centre set up by Adani Foundation
Vandh	<ul style="list-style-type: none"> • KII with Up-Sarpanch, • FGD with women previously engaged with Kalaraksha, • FGD with women employed by CGPL, • KII with shopkeeper • KII with school teacher
Mota Kandagra	<ul style="list-style-type: none"> • FGD with youth employed by CGPL and Adani
Pipri	<ul style="list-style-type: none"> • FGD with mixed group- 2 male members, 1 female member and other 2 male members (including previous Up-Sarpanch) •
Discussions with select NGOs	<ul style="list-style-type: none"> • Meeting with VRTI • Meeting with K-Link • Meeting with WASMO • Meeting with Ujjas Sangathan • Meeting with Swadeep, AKSRP, Pratham
Government Departments Bank	<ul style="list-style-type: none"> • Meeting with Fisheries Department, Bhuj • Dena Bank, Mota Kandagra

Additionally, a review of the information available on the public domain and pertinent to the socio-economic context of the study area was undertaken. This review identified other industrial and developmental activities that could influence socio-economic context of the area.

Table 2.5 *Secondary Reports and Information Database used in this report*

Date	Report Title	Author/ Agency
1985	Marine Fisheries Profile Gujarat	Fishery Resources Assessment Division, Central Marine Fisheries Research Institute (ICAR), Cochin.
2005	Marine Fisheries Census, Part-III (10), Gujarat	Central Marine Fisheries Research Institute, Cochin.
2010	Marine Fisheries Census 2010, Gujarat	Central Marine Fisheries Research Institute, Cochin
2001	District Census Handbook, Kachchh	Directorate of Census Operations, Gujarat, Ahmedabad.
2011	District Census Handbook, Kachchh	Directorate of Census Operations, Gujarat, Ahmedabad.
1991	Village Directory, Kutch District	Directorate of Census Operations, Gujarat, Ahmedabad.
2001	Village Directory, Kutch District	Directorate of Census Operations, Gujarat, Ahmedabad.
2011	Village Directory, Kutch District	Directorate of Census Operations, Gujarat, Ahmedabad.
2014	Brief Industrial Profile of Kutch District	MSME- Development Institute, Government of India, Ahmedabad
2014	Industries in Gujarat, Statistical Information- 2014	Industries Commissionerate, Udyog Bhavan, Gandhinagar.
2010	Kutch Coast- People, Environment & Livelihoods	Study jointly conducted by Fishmarc & Kutch Nav Nirman Abhiyan with support from FES (Foundation for Ecological Security).

The quantitative data collected from the household survey and qualitative information from village walk through, FGDs and KIIs was analyzed. The findings were compared with previously collected information to assess the trends as well as authenticate the data already collected by CGPL.

CGPL has been engaged with the local community since the inception of the project. While some of the stakeholder engagements are part of the regulatory process i.e. public hearing or as part of the international standards and guidelines (IFC PS, ADB SPS etc.), others are voluntarily initiated and continue to be undertaken by CGPL in order to establish rapport and open communication channel with local community. A historical review and context for stakeholder engagements by CGPL is described in this section.

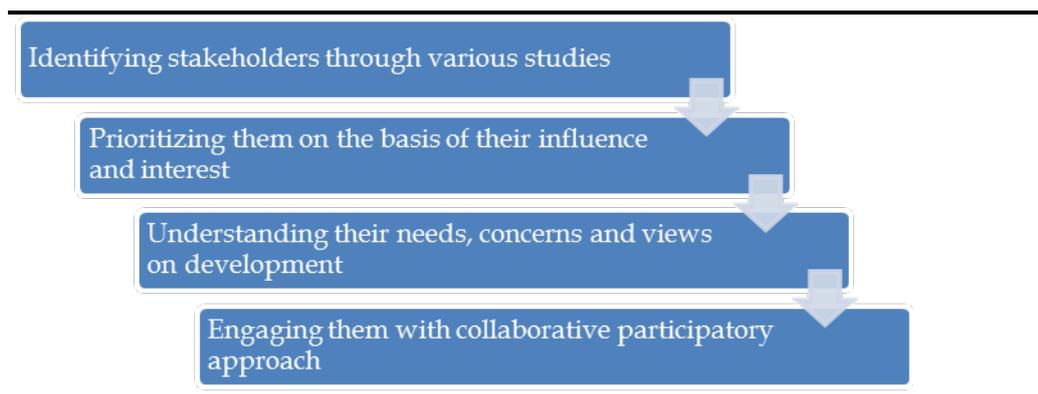
Since the project inception in 2007, CGPL has undertaken stakeholder engagement and supported the neighbouring communities in development of social infrastructure as part of Corporate Social Responsibility (CSR) activity. CSR Department, from the beginning, has been involved in the process of identification and addressing the needs of host community.

3.1

PROCESS AND APPROACH OF STAKEHOLDER ENGAGEMENT

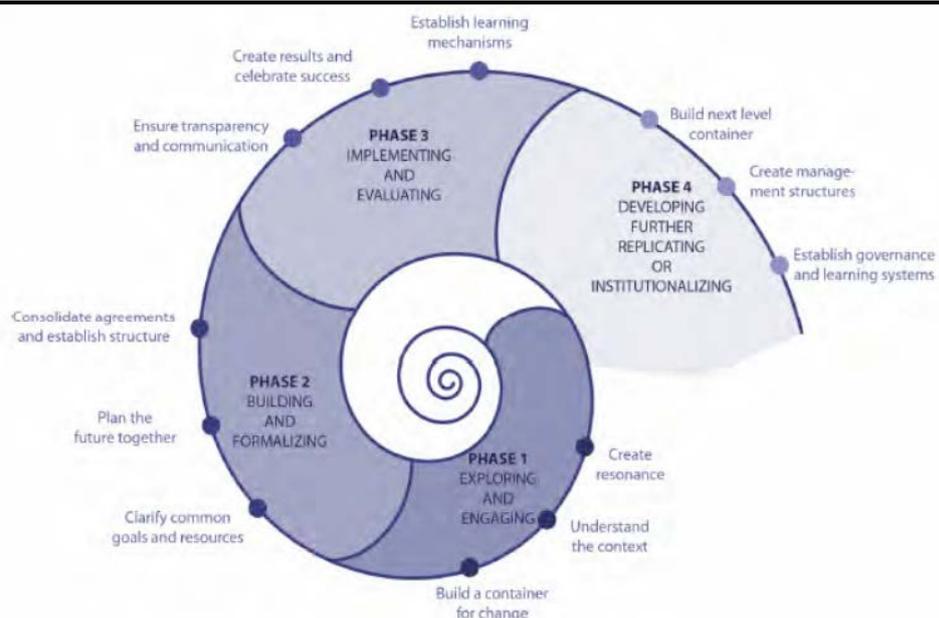
In initial stages, CGPL was primarily engaged in identifying and addressing needs of the community living adjacent and surrounding the various project components. One of the stated objectives of CSR department was to build an open channel to interact with host communities in order to improve the quality of life by increasing their socio-economic status, maintaining their cultural values as well as protecting the environment. CGPL has followed a structured process for dialogue with host communities. It includes 4 steps:

Figure 3.1 Process of Stakeholder Engagement adopted by CGPL



Community engagement has been done by developing participatory programmes such as joint community resource management projects through forming Gaushala Trusts, community RO water plants and training workshops such as skill development programme, tie and dye training programme, embroidery training programme, teacher training programmes etc. The evolution of the stakeholder engagement process since project inception is summarized in figure below.

Figure 3.2 *Evolution of the process of stakeholder engagement*



Source: Benchmarking Study, Independent Audit, 2013

3.2 OVERVIEW OF STAKEHOLDER ENGAGEMENT SINCE 2007

During project preparation, public consultations in the study area were held at village, Tehsil and District level ⁽¹⁾. Different consultation techniques such as interviews, public meetings, group discussions etc. were adopted. To understand the socioeconomic profile of the affected persons, a third party (IL&FS Ecosmart) collected information from three project affected villages (Tunda/Vandh, Mota Kandagra and Nana Bhadiya) in project area. The key consultations with the key informants and the local community who were consulted during the project preparation phase included:

Table 3.1 *Overview of Stakeholder Engagement by CGPL Since 2007*

Year	Short Title of the Meeting/Consultation
2007	<ul style="list-style-type: none"> Meeting with Project Affected Village Sarpanch Village Orientation and Interaction with villagers

(1) The local administration in India is divided into 3 administrative levels - District, Sub-District (Tehsil/Block) and Panchayat (cluster of villages).

<i>Year</i>	<i>Short Title of the Meeting/Consultation</i>
2008	<ul style="list-style-type: none"> • Identification of suitable agency for House Hold Survey and Need Assessment Survey • Hiring of Field Team for Community Development • Public Meeting for Land Compensation • Convergence Meeting With Animal husbandry department • Interaction with villagers for mitigation of Grazing land Issue • Interaction with Govt Department for mitigation of Grazing Land Issue • Opening up of Community Development Field Office in the Village and initiation of social development interventions • Visit to IRMA for understanding the Gaushala Initiative • Village Meetings with women groups for initiation of Self Help Group Initiative • Interaction with Land Losers for understanding their need • Need Assessment and PRA with Women group • Senior Leaders engagement with villagers and opinion leaders • Visit to Local NGOs for identification of common issues and partnership • Consultation with village chief (Sarpanch) and other Panchayat Raj Institutions members of Tragadi Village to understand community needs and develop relations. • Monthly periodic meeting with District officials • Deployment of CSR field staffs for regular interaction with the Community • Participation of CGPL volunteers in the development activities in the village in close coordination with the community • Employability Assessment Initiative survey
2009	<ul style="list-style-type: none"> • Engagement with local villagers for mitigation of access issue • Meeting with private land loser for new access road to be constructed for Project • Establishment of Grievance Redressal System at CGPL • Initiation of village level Monthly meetings • Meeting with Deputy Director DRDA Department for sanitation • Formulation of Formal CSR committee • Quarterly visit of site leaders and senior leaders to villages • Visit to Fisheries department to understand about how fisherfolks obtain a license and other statutory registrations related to fisher folks. • Met and discussed with leaders of MASS and Tragadi Matsya Udhog Sahkari Mandali to discuss the outfall channel • Visited a local NGO SETU (an NGO working for fishing community) to understand the seasonal fishing works in the area • Series of Meeting and establishment of procedures for Employment issue • Establishment of Institute for Livelihood Education Development (iLead Centres) • Interaction with villagers of Vandh for alternative access to temple and crematorium • Interaction with villagers for alternative land for their sports and cultural activity • Villagers Exposure visit to Mumbai to get an idea on functioning of Power Plant and Conveyor Belt • Convergence with district education department foe School entrance programme • Convergence with district Social defence office for disability related programme • NGO Exchange Programme with SHG member • Monthly periodic meeting with District officials • Continuous field interaction with Community by the CSR Field Team • Participation of CGPL volunteers in the development activities in the village in close coordination with the community

<i>Year</i>	<i>Short Title of the Meeting/Consultation</i>
2010	<ul style="list-style-type: none"> • Initiation of Water Conservation Initiatives - Study and implementation • Partnership with WASMO for drinking water programme • Establishment of Village Development Committees in villages • Meeting With GLPC Bhuj for SHG • Regular Trust Meetings • Learning Improvement Programme Launched with Hiwall • Meeting With Research institution for Dew Harvesting • NGO Exchange Programme with Farmer • Continuous field interaction with Community by the Field Team • Monthly periodic meeting with District officials • Participation of CGPL volunteers in the development activities in the village in close coordination with the community
2011	<ul style="list-style-type: none"> • Meeting With BAIF • Meeting With NGO VRTI • Tragadi Fisherman Livelihood grant • Village Meetings with Adolescent Girls groups for initiation of AGLC • Partnership with VRTI for the Development activities in the vicinity • Partnership with Hiwell for implementation of E Learning in the selected schools • Continuous field interaction with Community by the Field Team • Participation of CGPL volunteers in the development activities in the village in close coordination with the community
2012	<ul style="list-style-type: none"> • NGO Exchange Programme with cattle owner • Establishment of CIC for Community interaction • Partnership with Pratham for execution of comprehensive education upliftment program • Participation of CGPL volunteers in the development activities in the village in close coordination with the community
2013	<ul style="list-style-type: none"> • Extensive meeting with the VDAC, Village Panchayat , Government authorities • Partnership with AKSRP for implementation of Sagarbandhu Program for the holistic development of the Fishermen community • Partnership with Swadeep-Aakar for the systematic intervention with social development activities in Tragadi Bunder • Meeting with Senior Government functionaries in Gandhidham for briefing and soliciting the programmatic inputs for effective implementation of CSR activities • Village meeting\Community Interactive program on Education • Periodic meeting with the cattle owners • Monthly periodic meeting with District officials • Continuous field interaction with Community by the Field Team • Partnership with Learning Delight
2014	<ul style="list-style-type: none"> • Meeting with Senior Government functionaries in Gandhidham for briefing and soliciting the programmatic inputs for effective implementation of CSR activities • Village meeting\Community Interactive program on Education • Periodic monthly meeting with the cattle owners • Monthly periodic meeting with District officials • Continuous field interaction with Community by the Field Team • Periodic meeting VDAC, Village Panchayat , Government authorities and recording in the Samvad

3.3 *STAKEHOLDER ENGAGEMENT APPROACHES*

3.3.1 *Setting up of Village Developmental Advisory Committees*

Village Development Advisory Committees (VDACs) was formed in 3 project affected villages – Modhva in 2011, Tragadi and Tragadi Bunder in 2014. This committee was formed mainly to have a platform to discuss various issues and demands that these communities may raise. The CGPL has developed this as a medium and a channel for open communication between community and company representatives. Discussions with the members of Modhva VDAC suggested that there have been interventions/activities in the form of construction of access road, construction of 4 wells, supply of solar lights for all boat owners, kits for smaller nets for Pagadiya. VDAC members also conduct informal surveys in the village to understand community needs. Discussions with the community members suggest that such a platform has helped in prioritizing needs and concerns.

3.3.2 *Collaborating with specialized agencies for need assessment and planning interventions*

CGPL has undertaken continuous assessments and studies in the project area

- TRIO for Modhva dated November, 2011
- TALEEM for health need assessment survey in surrounding villages of CGPL Mundra, Kutch dated November, 2013
- MART for village micro-plans, 2014
- AKSRP for fish value chain analysis, 2014

CGPL has also carried out independent evaluations and also social audits by autonomous institutions and organizations on a periodical basis to assess the impact of community development programs initiated by CGPL and also capturing the perception of the community towards the same. Based on the feedback of such audit reports, CGPL has endeavoured to strengthen their community outreach programmes and have shaped them to be more participatory and inclusive. These studies include: MGLI (Mahatma Gandhi Labour Institute) social audits, Independent evaluation – benchmarking study, NIO (National Institute of Oceanography) marine impact study, BNHS (Bombay Natural History Society) study, TISS (Tata Institute of Social Sciences) study.

3.4 *GENDER CONSIDERATIONS IN COMMUNITY ENGAGEMENT PROCESS*

Some examples of meeting specific needs of women that have been implemented by CGPL through NGOs are:

- Generation of local employment and promotion of equal opportunities for women's employment;
- Improved awareness on health status especially on HIV/AIDS counseling;
- Strengthening women's skill base by provision of trainings pertaining to handicrafts, tie & dye etc.
- Formation and management of SHG

Women SHGs group were formed in nearly 14 villages in the study area. Discussions with local community members and women groups suggested that such groups have not been very active at present in all the villages. However in villages Tunda, Vandh, Mota Kandagra, Nana Bhadiya, Tragadi among others, women have received and benefitted from embroidery training. In villages including Nana Bhadiya and Tragadi, some of the women have received tie and dye training program. After the training some of the women members were attached with the marketing outlets income generation. In addition, CGPL has also provided support to women engaged in handicrafts for showcasing these works in the exhibition with Kalaraksha on an annual basis.

4.1 REFERENCE FRAMEWORK FOR CGPL'S CSR PROGRAM

The TATA Group has a strong culture of Corporate Social Responsibility (CSR) and is driven by the thoughts of its founder, J N Tata who had expressed that 'in a free enterprise, the community is not just another stakeholder in business but is in fact the very purpose of its existence.' The Group has a strong CSR and Sustainability policy and each company in the group is responsible for implementing its own CSR/community interventions. As part of the Tata Group of Companies, CGPL also has a broader CSR vision and corporate CSR policy. Therefore, CGPL's CSR interventions in the study area are inclusive of its obligations under the national laws and regulations, its internal corporate policies and commitments to its lenders to follow international social safeguard standards.

Box 4.1 Sustainability Policy of Tata Power

At Tata Power, our Sustainability Policy integrates economic progress, social responsibility and environmental concerns with the objective of improving quality of life. We believe in integrating our business values and operations to meet the expectations of our customers, employees, partners, investors, communities and public at large.

- We will uphold the values of honesty, partnership and fairness in our relationship with stakeholders.
- We shall provide and maintain a clean, healthy and safe working environment for employees, customers and the community.
- We will strive to consistently enhance our value proposition to the customers and adhere to our promised standards of service delivery.
- We will respect the universal declaration of human rights, International Labour Organization's fundamental conventions on core labour standards and operate as an equal opportunities employer.
- We shall encourage and support our partners to adopt responsible business policies, Business Ethics and our Code of conduct Standards.
- We will continue to serve out communities:
 - By implementing sustainable Community Development Programmes including through public/private partnerships in and around its area of operations.
 - By constantly protecting ecology, maintaining and renewing bio-diversity and wherever necessary conserving and protecting wild life, particularly endangered species.
 - By encouraging our employees to serve communities by volunteering and by sharing their skills and expertise.
 - By striving to deploy sustainable technologies and processes in all our operations and use scarce and natural resources efficiently in our facilities.
 - We will also help communities that are affected by natural calamities or untoward incidence, or that are physically challenged in line with the Tata Group's efforts.

The management will commit all the necessary resources required to meet the goals of Corporate Sustainability.

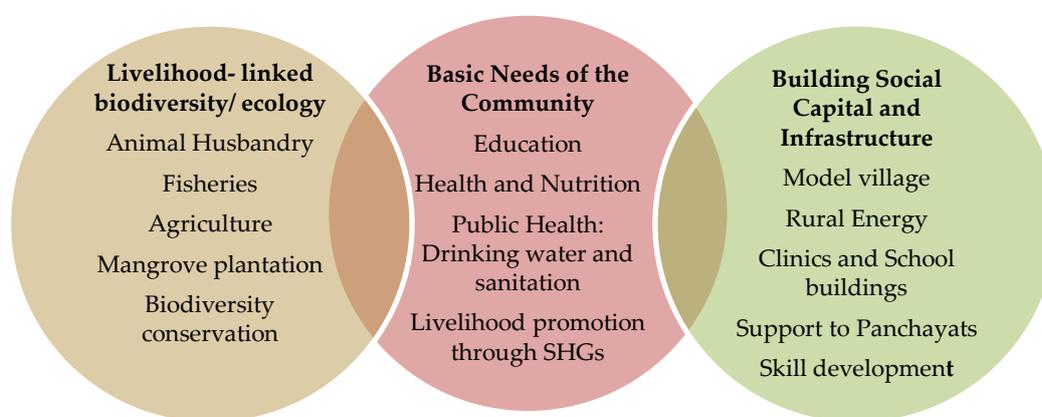
4.1.1 The Policy for CSR in CGPL

CGPL believes in integrating its business values and operations to meet the expectations of its critical stakeholders. The CGPL's strategic approach in formulating its CSR vision is based on (a) a Strategic Intent developed by the

company, (b) TATA Power's paradigm of adopting the 80:20 formula (80% aligned to the macro perspectives of the region and 20% on micro level issues in its immediate vicinity) and (c) requirements under Section 135 (Schedule VII) of the Company's Act 2013.

The strategic intent for CGPL identified 3 broad areas for CSR activities, namely: (1) Livelihood linked eco-system development, (2) Areas of basic needs (such as education, health, water and sanitation), and (3) building social capital and infrastructure (determined from a need assessment). The CSR strategy takes into consideration growing industrialization and changes in local ecology. Its CSR strategy is guided by a series of studies to understand social, environmental and biodiversity scenario of the region.

Figure 4.1 *Sustainability/ CSR Themes in Strategic Intent of CGPL*



4.1.2 *CGPL and Partnership with NGOs for Implementation*

CGPL undertakes all community activities by forging strong partnerships and working in association with Government bodies and voluntary agencies. All activities are also undertaken in consultation with the community and for every program undertaken community level institutions are made such as Water Committee, Education Committee, co-operatives etc. Thus, CGPL has focused on building local community institutions to increase ownership and participation of the community and strengthen community relations. The community is involved in all stages of planning, implementation and review and participate in the day to day management of the project. The table below lists the key partners of CGPL in implementing the CSR activities:

Table 4.1 *List of key partners*

Category	Name of the Institution	Year of Partnership
Community Institution	Gauseva Charitable Trusts	Since 2008
	Village development Advisory Committees	Since 2011
	Water Committees of the Panchayat	Since

Category	Name of the Institution	Year of Partnership
Research and Study partners	MART	2013-2014
	Central Marine Fisheries Research Institute (CMFRI)	2012-2013
	Taleem Research Foundation	2013-2014
	Tata Institute of Social Sciences	Since 2009- 2011
	Mahatma Gandhi Labor Institute	Since 2012
	K-Link	2010
	Geosoft system	Since 2013-2014
Implementation Partners	Aga Khan Rural Support Program	AKRSP
	Tata Projects Limited	Since 2012
	Tata Power Solar System Limited (TPSSL)	Since 2012
	Tata Power Community Development Trust (TPCDT)	Since 2011
	Aakar Consultancy	2013-2014
	Swadeep	Since 20014-15
	Hole in the Wall	2011
	Pratham	2012-2013
	Learning Delight	2013-2014
	Bhoja Sarvodaya Trust	2013-2014
	FISHMARC	2012-2013
Supporting Partners	ALA Grand Academy	2013-2014
	Kala Raksha	Since 2009
	Parjanya Ecology	Since 2015-16
	Helpage	Since 2015-16
	CSPC	Since 2015-16
	Geo Science	Since 2015-16
	ACT	Since 2015-16
Abhiyan	Since 2015-16	
Documentation Partners	4 th Wheel	Since 2011
Government Partnerships	Gujarat Livelihood Promotion Company	Since 2011
	Gujarat Green Revolution Company	Since 2015-16
	Water and Sanitation Management Organization (WASMO)	Since 2010

Source: CGPL

4.2

AREAS OF FOCUS

CGPL CR activities broadly focus on 3 areas as mentioned below:

- Access to Basic Amenities and Village Infrastructure
 - Rural Education System
 - Healthcare Facilities
 - Water and Sanitation Facilities
 - Social Infrastructures
- Livelihood and Employment
- Social Capital and Village level Institutions

Each of the areas and the project activities undertaken under each of them has been detailed below in the following sections:

4.2.1

Access to Basic Amenities and Village Infrastructure

Rural Education – Shiksha Sarathi

For improving the quality of education in the area, CGPL has initiated four broad areas of engagement in the surrounding villages of Mundra and Mandvi Taluka. The Shiksha Sarathi project was implemented in partnership with Pratham.

Infrastructure Improvements in Schools

CGPL has supported construction of 3 classrooms in the school of Maska. In addition it has also contributed to improve the sanitation at schools. CGPL has provided benches in schools of Mota Kandagara and Nana Bhadiya; desktop computers are provided in Mota Kandagara for documentation work by staffs; libraries have been setup in 18 schools in 17 villages to enhance the learning environment for students.

Table 4.2 *Infrastructure investments*

Work Undertaken in Schools	Total Number Provided	Total Children Benefitted
Benches	87	111
Sports kits	2	412
Desktop Computers	10	476

Source: 'Reflections', 2014

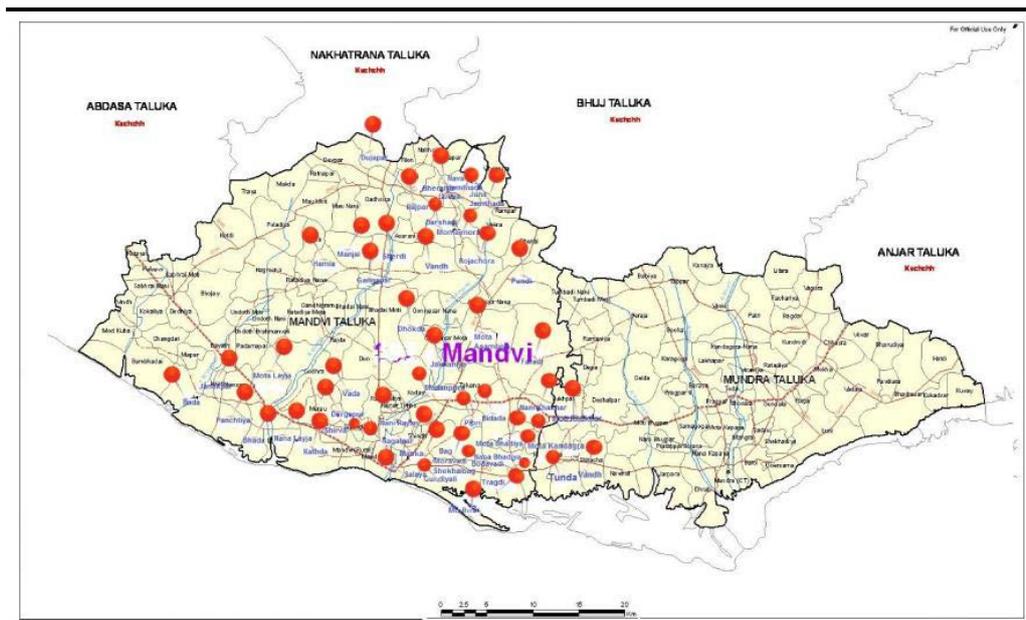
Project Shiksha Saarthi

The Shikha Sarathi Project started with an aim to improve learning achievements of children, from the academic year 2012-13 and was implemented in 157 villages across Mandvi and Mundra Taluka. Based on initial experience, the program strategy was changed and it was decided that more time was required to be spent in fewer schools in order to improve learning. Improving learning achievement aimed to improve basic reading and basic mathematics. A science program was also added to this to harness the student's creative abilities.

Under this initiative Teaching Learning Materials (TLMs) were developed for mothers of the school children and were trained on how to use the same at home. This has also improved learning habits among women which subsequently reflected in the test scores of students. The NGO Partner, Pratham had undertaken a baseline study to assess the current levels of students in Maths and Gujarati and to strengthen their competency in the subjects learning camps were organised. 22 days learning camps are organized in each school, divided into three camps. Around 10,000 children are targeted through this programme.

The program coverage was limited to 50 villages in Mundra Mandvi Taluka. The coverage of the program is shown in figure below.

Figure 4.2 Coverage of Siksha Sarathi education program in partnership with Pratham



Source: Pratham Shikha Sarathi Annual Report 2013-14, page-4.

Pravesh Utsav, is another key component aimed to ensure a sustained attendance and participation of children in the education programs designed for them. Under this programme new students entering the school are provided with school kits.

Table 4.3 Program statistics for Shikha Saarthi

Program	Total Schools covered		Total Students covered	
	2013-14	2014-15	2013-14	2014-15
Pravesh Utsav	50	45	1200	2000
Mother Engagement activity	50	83	2741	2840
Science Fair	16	9	647	2480
Science Program		20		1347
Community Engagement		18		1121
Learning Camps	49	44	2089	

Source: 'Reflections', 2014,

The detailed coverage of the program is provided in the Table 4.4 below:

Table 4.4 Efforts for improvements of learning experiences in schools within study area

SN	Village	No.	School Name	Activities conducted in schools				
				Activity with Std 1-2	Learning Camp	Library	Science Workshop	Science Fairs
1	Tunda	1	Tunda Primary School	√	√	√	√	
2	Vandh (Mundra)	2	Vandh Primary School	√	√	√	√	
3	Mota Kandagra	3	Mota Kandagra Primary School	√	√	√	√	
		4	Chavdetar Primary School	√				
		5	Mota Kandagra Vadi Primary School	√				
4	Moti Khakkar	6	Moti Khakkar Primary School	√	√	√	√	
		7	Moti Khakkar vadi School no. 1	√				
		8	Moti Khakkar vadi School no. 2	√				
5	Mota Bhadiya	9	Mota Bhadiya Primary School			√	√	√
		10	Mota Bhadiya Primary School 1	√				
		11	Mota Bhadiya Primary School 2	√				
		12	Mota Bhadiya Primary School 3	√				
6	Modhva	13	Modhva Primary School	√	√	√	√	
7	Pipri	14	Pipri Primary School	√	√	√	√	√
8	Bag	15	Bag (Maska) Primary School	√	√	√	√	√
		16	Bag Vadi Primary School	√			√	
		17	Hurdrai Bag Primary School	√				
9	Maska	18	Kurrbharvada Primary School	√	√			
		19	Maska Group Primary School	√	√	√	√	√
		20	Ramnagari Primary School	√				
		21	Piyava Maska Primary School	√				
		22	Maska Sumravas Primary School	√	√			
		23	Maska Octroy Primary School	√				
10	Tragadi	24	Tragadi Primary School	√	√	√	√	√
11	Nana Bhadiya	25	Nana Bhadiya Primary School	√	√	√	√	√

SN	Village	No.	School Name	Activities conducted in schools				
				Activity with Std 1-2	Learning Camp	Library	Science Workshop	Science Fairs
12	Bidada	26	Bidada Primary School	√	√	√	√	
		27	Bidada Mafatnagar Primary School	√	√		√	√
		28	Kothravadi Primary School	√				
		29	Nararbag Primary School	√				
		30	Kailash Nagar Primary School	√				
		31	Bhanatar Primary School	√				
13	Nani Khakhar	32	Bhabhutiya vadi Primary School	√				
		33	Nani Khakhar Primary Schhol	√	√	√	√	
14	Bodavadi	34	Bodavadi Primary School	√				
15	Moravadi	35	Moravadi Primary School	√				
16	Salaya	36	Salaya Group Primary School 1	√	√	√	√	√
		37	Salaya Primary School 2	√	√		√	
		38	Salaya Primary School 3	√				
17	Gundiyaali	39	Gundiyaali Group Primary School	√	√	√	√	
		40	Lalbag Primary School	√				
18	Shekhaibag	41	Shekhaibag Primary School	√	√	√	√	√

Source: Project Report by Pratham on Shikshya Sarathi Program

Project Sujaan

The project was initiated in partnership with Hole in the Wall to introduce IT enabled Fun based learning mechanisms through technology based learning pedagogy in rural schools. 5 schools covering 997 students have been covered under this program. Along with this CGPL also partnered with a social enterprise named 'Learning Delight' to improve teacher effectiveness and increase the use of technology in classrooms.

Read India Program

The learning camps implemented in the past two years have shown good result. Therefore, CGPL in partnership with Pratham will be scaling up this program as Read India and Read India Plus program under Shiksha Saarthi. Read India program aims to improve the reading, writing and basic arithmetic

skills of children. This program will be focussed on children from std. 3 to 5. The learning camp model will follow the process of:

- Assessment of children through a basic tool for reading and arithmetic – to identify children who need support and ‘catching up’;
- Focussed activities will be conducted with the targeted number of students for a period of 30 days over a period of two to three months;
- Activities will be carried out based on the competencies of the child and helping them to climb up at least two levels forward from the baseline condition.

Health Facilities

A Health Need Assessment Survey in Surrounding Villages of CGPL was conducted by TALEEM Research Foundation, Ahmedabad in 2014. The study team which included qualified health professionals examined the medical history of rural population in general and those who had complaints of respiratory and/or skin diseases.

The Health Need Assessment study covered 1294 households, including 1195 married women and 350 adolescent girls. The study found 28% households reporting chronic illnesses including joint pain, respiratory illness, skin disorder and diabetes. Around two third of the patients of skin disease and almost one fourth of the patients with respiratory diseases had history of prolonged illness for over two years or more. The study concluded that none of these cases can be attributed to the pollution caused by CGPL plant.

The study pointed out lack of basic health services in the villages in study area. Health workers were not visiting regularly for ANC and postnatal follow-up. PHCs were not easily accessible and CHCs were located in the taluka headquarters. Consequently, the community largely depended on private clinic/hospitals located in Mundra and Mandvi for general and specialised health services.

To bridge the gap in the availability of health care for the less privileged population, CGPL has undertaken various programs for healthcare services and cleanliness in villages. CGPL undertakes school and community health camps under *Project Arogya*, and aims at providing health services to the community at their doorstep. The number of health camps (general as well as specialized camps for eye check-up and elderly people) conducted since 2008 in different villages across study area is provided in table below.

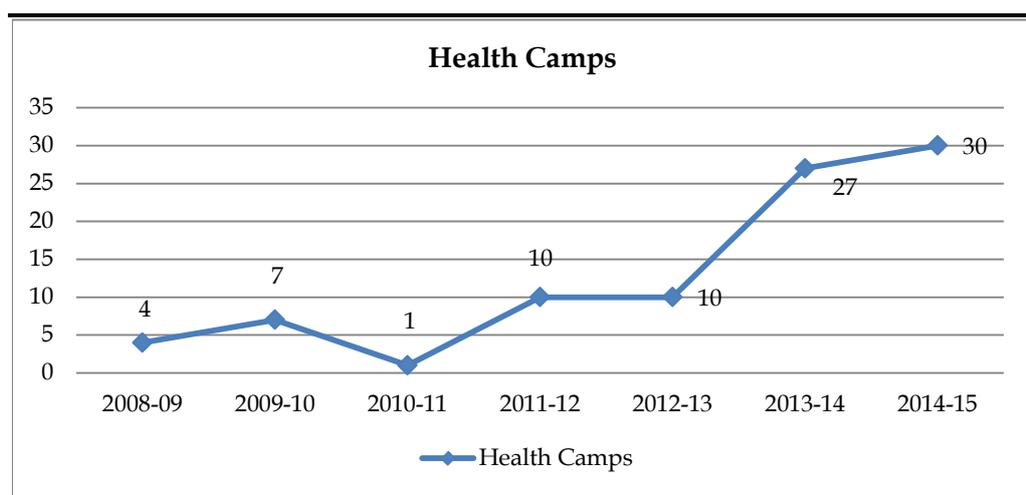
Table 4.5 *Number of health camps conducted since 2008 by CGPL in Study Area*

Name of village	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
Tunda	1	2		1	1	2	1
Vandh	1	3		1	2	2	3
Kanadagra		2		1	1	2	1

Name of village	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
N.Bhadiya	2		1	1	1	2	2
Tragadi				4	1	2	2
Tragadi Bunder				1	2	2	5
Modhva				1	2	3	5
Gundiyari						1	1
Maska						1	1
Pipari						1	1
Shekhai Bag						1	1
Nani Khakhar						1	1
Moti Khakhar						1	1
Mota Bhadia						1	1
Zarpara						1	1
Bhujapur						1	1
Bag						1	1
Saiaya						1	1
Faradi						1	0
Total	4	7	1	10	10	27	30

Source- CGPL-2015

Figure 4.3 *Trend of organizing health camps by CGPL*



Source: CGPL-2015 CSR

Till date a cumulative number of 8629 persons have benefitted directly from these health camps.

Water & Sanitation

Cleanliness drives have also been conducted in villages, community dustbins have been provided and fumigation services provided to three villages. A closed drainage has been installed in Mota Kandagara and partnering with WASMO (Water and Sanitation Management Organisation); CGPL has also undertaken awareness activities for water conservation, maintenance of water bodies, usage of water etc.

CGPL has provided RO plants in schools in 2010-11, under *Project Jalamani* which is supported by the Government and coordinated by agencies empanelled by WASMO for installation and maintenance of RO Plants in Schools. The RO plants are managed by the school authorities with active support from WASMO and regularly monitored by CGPL. Schools in following villages were covered under this program: Nana Bhadia, Gundiyali, Bidada, Mota Bhadia, Nagalpar, Shirva, Sambhrai, Bayath, Devpar, Mota Ashmbiya, Moti Rayan, Koday, Talavana. In continuation to its effort to provide safe drinking water to children in schools, CGPL in 2013-14 distributed 221 water purifiers. The List of the villages where water purifiers have been installed in schools is provided in the table below.

Table 4.6 *Coverage of Supply of RO water in Study Area villages*

Village	R O Plant (Community)	School R O Plant
Tunda	1(1000LPH) 2009-10	1
Vandh	1 (500 LPH) 2011-12	
Mota Kandagra	1 (1000LPH) 2011-12	3
Nana Bhadia	1 (500 LPH) 2011-12	1 (Jalamani) 2010-11
Tragadi	1 (1000LPH) 2011-12	
Gundiyali	1 (1000LPH) 2012-13	1 (Jalamani) 2010-11
Pipari	1 (500 LPH) 2012-13	
Shekhai Bag	1 (500 LPH) 2013-14	
Bidada	1 (1000LPH) 2012-13	1 (Jalamani) 2010-11
Nani Khakhar	1 (1000LPH) 2012-13	
Mota Bhadia	1 (1000LPH) 2013-14	1 (Jalamani) 2010-11
Bag	1 (1000LPH) 2014-15	

Source: CGPL-CSR database, 2015

The RO plants are managed by the school authorities with active support from WASMO and regularly monitored by CGPL. Schools in following villages were covered under this program: Nana Bhadia, Gundiyali, Bidada, Mota Bhadia, Nagalpar, Shirva, Sambhrai, Bayath, Devpar, Mota Ashmbiya, Moti Rayan, Koday, Talavana. In continuation to its effort to provide safe drinking water to children in schools, CGPL in 2013-14 distributed 221 water purifiers. The List of the villages and number of water purifiers provided to the schools in these villages is provided in the table below.

Table 4.7 *Distribution of water purifier in schools by CGPL*

Sr. No.	Village	Water Purifier in Schools (in Number)
1	Tunda	7
2	Vandh	7
3	Mota Kandagra	15
4	Nana Bhadia	7
5	Tragadi	4
6	Gundiyali	15
7	Modhava	8
8	Maska	34

Sr. No.	Village	Water Purifier in Schools (in Number)
9	Pipari	8
10	Shekhai Bag	5
11	Bidada	30
12	Nani Khakhar	10
13	Moti Khakhar	12
14	Mota Bhadia	24
15	Bag	17
16	Saiaya	18
	Total	221

Source: CGPL-2015

In addition, CGPL provided 17 RO plants to be installed at villages for supplying potable drinking water to the village community between 2010 and 2015. The capacity of the RO plant and their respective date for installation and commissioning is provided in table below.

Table 4.8 *RO plants installation and commissioning by CGPL*

Sr. No.	Village Name	Installation & Commissioning Date	R O Plant Capacity L P H
1	Tunda	5/6/2010 Reinstalled in 2014-15	1000 L P H
2	Vandh	15/10/2012	500 L P H
3	Mota Kandagra	15/8/2012	1000 L P H
4	Nana Bhadiya	17/08/2012	500 L P H
5	Tragadi	2/5/2012	1000 L P H
6	Gundiyali	17/04/2013	1000 L P H
7	Pipari	16/04/2013	500 L P H
8	Nani Khakhar	18/04/2013	1000 L P H
9	Bidada	6/10/2013	1000 L P H
10	Bhadreswar	4/10/2013	1000 L P H
11	Bag	3/6/2015	1000 L P H
12	Shekhaibag	18/03/2014	500 L P H
13	Mota Bhadiya	20/03/2014	1000 L P H
14	Bhujapar	11/5/2014	1000 L P H
15	Shree Ramnagar	3/6/2014	500 L P H
16	Dhindh	28/03/2015	500 L P H
17	Zarpara	31/3/2015	1000 L P H

Source: CGPL- 2015

On the other hand, Project *Swach Jal* is concerned with provision of clean drinking water in the villages. Under this program, RO has been installed in 17 villages providing potable water to approximately 48,000 households. The machine is supplied by Tata Project and the village panchayat is responsible for identifying space for the plant and for its operation and maintenance. A full time plant operator is appointed from the village and a minimal charge of 20 paise per liter is levied by the Village Water Committees to cover the expenses for R.O maintenance and operations.

Drinking water pipelines have also been laid in collaboration with an NGO named Hansraj Foundation from Gundiyaali to Modhva stretching up to 7km to create regular drinking water supply for Modhva village. The CGPL has also made arrangements for supply drinking water at Tragadi Bunder. Women in Tragadi Bunder appreciated it and acknowledged its contribution. “In all the other Bunders, getting access to drinking water is very difficult particularly for families with kids. Even for washing fish, now clean fresh water is used.”

Social Infrastructure

Project Surya Prakash- Promoting Solar Power

This is the solar street lighting initiative undertaken by CGPL since 2012 to meet the community need of improving outdoor lighting in the vicinity. Six villages benefitted from this initiative. The number of street lights installed in these villages so far is 81, and 142 solar boat lights are distributed among fishermen in Modhava, Tragadi and Tragadi Bunder.

Table 4.9 *Solar Street Lamps and Solar Boat Lamps provided by CGPL in Study Area*

Items	Village	FY-2012-13	FY 2013-14	Total
Solar Street Light	Tragadi	15	5	20
	Nani Khakhar	15	6	21
	Gundiyaari	3	14	17
	Daneswer		6	6
	Mota Kandagra		5	5
	Modhva	6	6	12
	Total		39	42
Solar Boat Light	Modhva	65		65
	Tragadi		29	29
	Tragadi Bunder		48	48
	Total	65	77	142

Source: CGPL-2015.

Project Annapurna- Promoting use of Bio-Gas

The aim of the project is to promote the use of Biogas under CGPL’s Green Village Concept with optimum use of cow dung which is abundantly available in the region. Before initiation of the project, a community consultative process is carried out for obtaining the views of the community, awareness on usage, feedback on the units as installed last year, its benefit and also the contribution from the community. Total cost of each bio-gas plant is 26,000 Rupees out of which Rs 18,000 is invested by CGPL and 8200 is contributed by the household. The project has been implemented in seven villages, namely, Moti Khakhar, Nani Khakar, Bidada, Mota Bhadia, Nana Bhadia, Tragadi and Vandh. CGPL so far has contributed to installation of 36

bio-gas plants in these seven villages. Significantly all the 36 bio gas plants are functioning satisfactorily.

Project Varsha- Water Harvesting and Management

CGPL has made efforts to improve the water availability in the study area considering the limited rainfall it receives. CGPL has made efforts for water harvesting through Roof Rain Water Harvesting (RRWH) structures, well recharging, construction of Check Dams and Renovating Ponds. Under project Varsha, rain water harvesting, pond deepening and well recharge work is undertaken in the villages to ensure regular water availability. Mota Kandagara and Mota Bhadiya have been covered in the project area with emphasis on watershed management with community participation.

Roof Rain Water Harvesting System (RRWHS) has been taken up in Modhva and 41 RRWHS plants has been constructed at household level with the consent of community members and 10% of fund for it is collected from the beneficiaries. CGPL has renovated 6 ponds, has built 3 Check Dams, installed 31 RRWHs, and 21 well recharge structures so far since 2008-09. The summary of CGPL's contribution to improve the water harvesting in the study area is summarized in table below.

Table 4.10 *GGPL's efforts for water harvesting and ground water recharge in study area*

SN	Village	Pond Renovation	Check Dam	RRWH	Well Recharge
1	Tunda	1 (2007-2008)		1 (2009-10)	
2	Mota Kandagra		1 (2013-14)		6(2008-9) 1(2011-12)
3	Nana Bhadia	1 (2011-12)	1 (2011-12)		4 (2011-12)
4	Tragadi	2 (2011-12)			7 (2011-12)
5	Gundiyali	1 (2012-13)			
6	Modhava			30 (2014-15)	
7	Moti Khakhar				
8	Mota Bhadia	1 (2013-14)			
9	Faradi		1 (2015-16)		

Source: CGPL-2015.

This has been a significant intervention of the CSR initiatives of CGPL. In the context of low precipitation and high salinity (also high TDS in borewells), the water harvesting structures have been a effective support to the local community, specially the farmers. The impacts of these initiatives have not been measured in a focussed manner, though the Community Satisfaction Index reflects that the community recognises CGPL's work in water harvesting and conservation as a key input.

Case Study – Faradi Dam Deepening Project (May, 2015)

Faradi village of Mandvi Taluka in Kutch is one of the many villages dependent mostly on rainwater for their household and agriculture usage. The TDS count in the borewells of the village was observed to be very high rendering agricultural productivity low.

Faradi Dam is one of the most significant water harvesting structures on the region, serving a huge catchment area stretching over a 10 kms radius catering to 9 villages. Under CGPL's "Varsha" initiative, it was identified that dams help in collecting and conserving rain water, which replenishes and recharges the ground water in wells of surrounding areas. Hence, the project initiated to deepen the existing dam at Faradi village since May, 2015 with the help of panchayat members and local community members.

The intervention is expected to benefit 9 villages, covering 2500 farmers and irrigating 1700 acres of land. 90% of the project cost is being contributed by CGPL and the remaining 10% is being contributed by the community.

Other Social Infrastructures

Apart from these focused initiatives on use of sustainable energy sources (solar and bio-gas) and water harvesting and conservation, CGPL has contributed in enhancing rural community infrastructures. Such infrastructures include, community hall, Concretisation of rural roads, Community Halls, Crematoriums, Gaushalas, Play Ground etc. The summary of all infrastructural development undertaken by CGPL is mentioned in the table below:

Table 4.11 Mapping of Social Infrastructure initiatives by CGPL in the Study Area (2008 to 2015)

Village	2008	2009	2010	2011	2012	2013	2014	2015
Tunda		CC road (Mota Kandagara to Tunda)	Sitting platform around tree - 3 unit	Cricket ground, Panchavati Garden, RRWH in Anganwadi	R.O. plant room, Pond Deepening (Viram Talav), Culvert-individual		Cattle trough & Renovation of well, Elevation Village Entrance Gate, CC Road (inside village)	Community hall, Gym Tunda, Area grading of Cricket Ground opposite land & tree plantation, Tree Guard-140
Tunda-Vandh		Sanitation - 301 unit	Gaushala Storage shed - 2 nos. & Cow shed - 5 nos.			Gaushala improvements- Bifurcation wall, Area Grading, CGPL Boundary Wall near Graveyard Road at Gaushala	Gaushala Improvements- Cattle trough & Over head water tank, Beautification of Front Boundary Wall, Storage Shed Gate-2	
Vandh	Prayer hall roof (PVC sheet with fabrication work)			Community hall		CC road - internal, R O Plant Room, GSB Road Shouldering		Construction of prayer hall
Mota Bhadia	Supply of steel for Gaushala				CC road		R.O. plant room, Supply of Steel & Cement for Community Hall, Pond Deepening, Pre-cast boundary wall around Anganwadi	Box culvert
Mota Kandagara	Speed breaker	Well recharge - 7 nos.			Gaushala boundary wall- MKGCT		Crematorium boundary wall- Unit 1 & 2, Underground Sewerage Line	
Tragadi					Pond deeping (Dhani bava Talav, Sultanasa Talav), Farm Bunding, Well Recharge-7 Nos			

<i>Village</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>
Tragadi bunder						GSB road (Tragadi village to Tragadi Bunder), Drinking water Tank- 3 Units	Pipe culvert	
Modhva				Earthen road, WBM Road	Underground drinking water well - 4 unit	Elevation village entrance gate , Wind Mill	Rain roof water harvesrtng structure-30 unit, VDAC Office, Supply of Cement for CC Road, Pipeline from Gundiya, Flour Mill Room, CC Road.	
Bhadreswer Faradi Gundiya						R.O. plant room		Pond deepening
Maska						Pond deeping	Supply of Cement for CC road , Bore for pipeline for Modhva	
Moti Khakhar							Crematorium boundary wall - Unit 1, 2 &3, Bore, Riverbank strengthening	School rooms - 3 nos.
Nana Bhadiya			Cattle breed Center		Renovation of Community hall, Prayer hall roof, Sanitation Unit in School, Well Recharge- 4 Nos, Farm Bonding, Pond Deepening		R.O. plant room, Check-dam	Construction of Community hall -2
Nani Khakhar							Crematorium work (Boundary wall, Store room, Sitting room, Agnidah room)	

Source: CGPL- 2015

Self-help Groups: Livelihood and Income to Women

CGPL since 2008 has initiated the self-help group (SHG) program with the aim of empowering women and bringing about gender equality. Currently there are 49 SHGs in Mundra and Mandvi and through this program CGPL formed bank linkages, offered credit support, provided training and capacity building workshops to the women to start their own ventures. CGPL has leveraged the *Sakhi Mandal* scheme of the Government in forming the SHGs.

Table 4.12 *Number of SHGs (Sakhi Mandal) formed in different villages since 2008*

Village Name	2008	2009	2010	2011	2012	2013	2014	Cumulative
Vandh	6	2	1			1		10
Tunda	4						4	8
Mota Kandagara	2	1			1	3	2	9
Nana Bhadiya			2					2
Tragadi			4			2		6
Modhva					2	3		5
Gundiya						2		2
Bidada						2	1	3
Nani Khakhar							4	4
Total	12	3	7	0	3	13	11	49

Source: CGPL- 2015

Table 4.13 *Statistics on Sakhi Mandals*

Description	Values
Total number of SHGs	49
Total bank Accounts opened	47
Total villages reached through SHGs	9
Average monthly savings of a single SHG group	1,000 Rupees
Average monthly savings of all SHGs	49,000 Rupees
Total Savings of all SHGs as on April 2015	16,80,100 Rupees
Total internal loan dispersed	4,50,000 Rupees
Total repayment of loan	3,00,000 Rupees
Total bank loan dispersed	12,00,000 Rupees
Total repayment of bank loan	6,50,000 Rupees

Source: CGPL- 2015

ERM visited the local bank where 29 CGPL SHGs have their accounts. The groups have a savings of Rs.2,81,170 at DENA bank. Since most of the groups have been operating successfully over the last few years, they are now eligible for Rs.50,000 to Rs,1,00,000 loan from DRDA (District Rural Development Agency). 13 groups have availed a loan of Rs.50,000 and 2 groups have availed a loan of Rs. 1,00,000. It was reported by a CGPL representative that most of the women utilise the loan for reasons such as children's education, meeting marriage expenses in family, home renovation or investing in husbands business. CGPL has been training the SHG members on various income generation activities, but the local market has not been lucrative enough for SHG members to initiate large number of business activities. Only few women

have stated their own small enterprises (based on local handicrafts) with the loan amount.

4.2.2 *Livelihood and Employment - Project Kanthi Area Livelihood Programme (KALP): Livelihood Support to Livestock Rearing*

Gauseva Charitable Trusts

Animal Husbandry is one of the main occupations of the surrounding village communities around CGPL. Along with water shortage, lack of availability of fodder has been identified as a key concern in the entire Kutch region. With an aim of supporting and boosting this traditional occupation, CGPL has constructed a 'Gaushala' to launch an integrated livestock and dairy development program. The Gaushalas have been registered as a Trust and members of the Trust include community members and two representatives from the company. Two Trusts have been formed, Mota Kandagara Gauseva Charitable Trust (MKGCT) and Tunda Vandh Gauseva Charitable Trust (TVGCT). Fodder for the livestock of both the Trusts are sourced from various vendors and supplied to the Gaushala. CGPL has signed a MoU with Tunda-Vandh with respect to supply of fodder. Other infrastructural development work has been undertaken in the Gaushalas including constructing a drinking water line for cattle trough, construction of Overhead tank for cattle, weighbridge and fodder storage yard.

Number of cattle and number of cattle owners benefited from this program is provided in the table below. There has been a steady increase in the number of cattle who have benefited from these two Gauseva Trusts. Supply of fodder to the local pastoralists in the neighbourhood is viewed as a critical CSR initiative.

Table 4.14 *The coverage of cattle and beneficiaries in fodder program by CGPL*

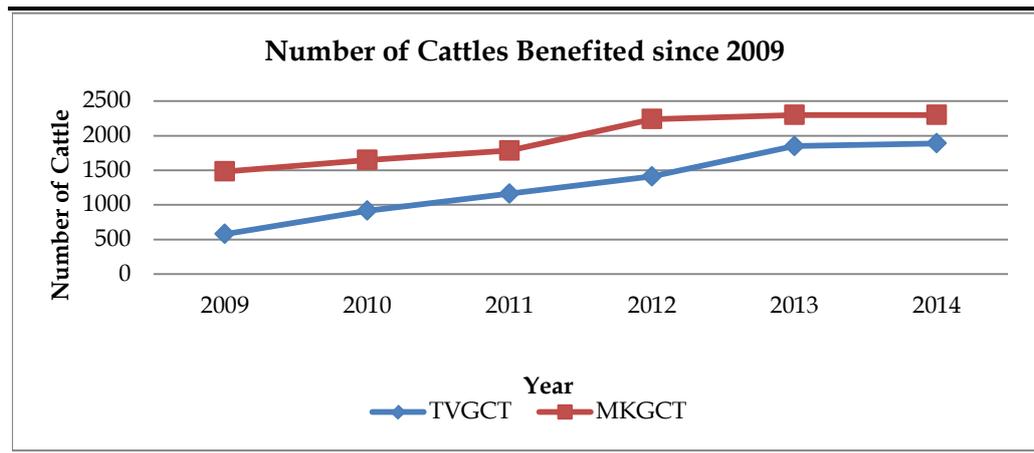
Year	Cattle population Benefited		Cattle Owners Benefited		Cattle heads per Beneficiary	
	TVGCT	MKGCT	TVGCT	MKGCT	TVGCT	MKGCT
2009	578	1481	122	174	4.74	8.51
2010	914	1648	161	242	5.68	6.81
2011	1162	1785	161	242	7.22	7.38
2012	1411	2239	155	197	9.10	11.37
2013	1850	2300	205	205	9.02	11.22
2014	1888	2300	207	237	9.12	9.70

Source: CGPL-, 2015.

At present, 244 families from Tunda, Vandh, and Kandagara are benefiting from these two Gaushalas. These Gaushalas support 4188 milch cattle with fodder and water. The number of cattle benefiting from these Gaushalas has increased in these five years and the trend is presented in the chart below. The number of cattle benefited from the fodder supply program through these two Gaushalas is noticed to have increased between 2009 and 2012. The number of

cattle thereafter has stabilized for both Gaushalas since 2013. The number of cattle owners benefited in Tunda-Vandh increased significantly in 2013 as more people turned to cattle keeping towards the end of the construction phase of CGPL. Similarly, in Mota Kandagara the drop in number of cattle owners benefited between 2011 and 2012 is reported to be due to some of the cattle owners discontinuing the cattle keeping. However, there has been an increase in number of beneficiaries in Mota Kandagara in subsequent years.

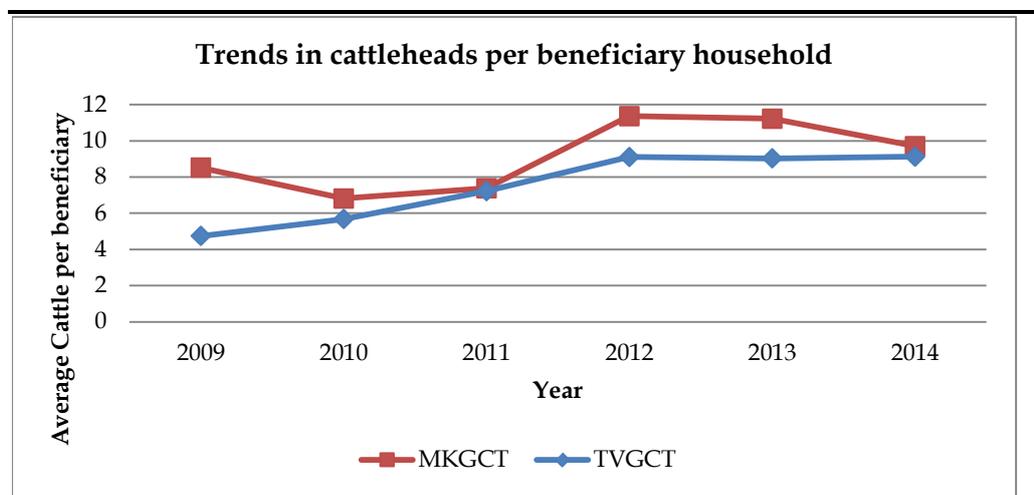
Figure 4.4 *Trend in number of cattle benefited through fodder supply program by CGPL since 2009*



Source: CGPL-2015

It is significant to note that the count of average cattle head per beneficiary for Tunda-Vandh has almost doubled between 2009 and 2013 and shows a steady increase over these years. The count of average cattle head per beneficiary in Mota Kandagara shows a decline between 2010 and 2011 and it peeks up in 2012 and 2013. The overall trend shows that the average cattle head per beneficiary households has increased in comparison to 2009. The increase in cattle head per household is also reflected in consequent increase in household incomes.

Figure 4.5 *Trends in average cattle heads per beneficiary since 2009*



Source: CGPL-2015

Milk Collection Centers

The MGLI Social Audit report of CSR activities of CGPL has assessed the impact of establishing milk collection centres in Nana Bhadiya and Tragadi villages and reported that on average 70 cattle owners are monthly benefitting from these centre and making a good earning. The report mentions that monthly income of cattle owners have increased in the range 19 to 24%. Even during ERM consultations at Tragadi a local dairy farmer reported that a person owning 10-12 cows/buffaloes would make about Rs 2,000 per day profit from dairying. Moreover, as the above table suggests the number of milch animals has significantly increased in Tunda-Vandh and Mota Kandagara which reveals the positive impact of the Gaushalas.

Project Sagarbandhu: Livelihood Support to Fishermen

During the construction of the Outfall channel for the power plant, a consultation was held with fishermen of Tragadi Village and a livelihood support grant of Rs. 1 lakh each was given to 162 fishermen in response to address their difficulties in accessing Tragadi Bunder from Tragadi village. Thereafter, CGPL constructed a road with a causeway and also a bridge to enable fishermen to access the Tragadi Bunder with ease.

Simultaneously, CGPL started “Utkarsh” in partnership with VRTI (2011) and Sagarbandhu project in 2012 which focused on development of fisherfolk. Sagarbandhu has been continued to cater to livelihood and developmental needs of the fishermen. This program aims at creating livelihood avenues for the fisher folk, to equip them with knowledge and technology. Three villages have been covered under this program; Modhva, Tragadi and Tragadi Bunder. The summaries of interventions made in these three three villages with fishermen population is provided in the table below:

Table 4.15 CGPL Interventions for Fishermen since 2011-12

Village	Detail of Activitiy	Rs.In Lakhs	Total No of Beneficiaries	PIA	Activity Period				
					FY 11-12	FY 12-13	FY 13-14	FY 14-15	FY 15-16
Modhva	Need Assessment	2.30	NA	TRIOs Development Support (P) Ltd	√				
Modhva	Construction of CC Road	5.02	1	CGPL			√		
Modhva	Distribution of Fishing Nets	126.52	317	CGPL		√			
Modhva	Installation of Solar Lights	1.00	6	TPCDT		√			
Modhva	Distribution of Fibre Boats	4.46	2	CGPL		√			
Modhva	Construction of Well	8.01		TPCDT		√			
Modhva	Health Camps (Gen, Skin, Eye, school health)	0.31	812	CGPL& Bhojay& KCRC	√	√	√	√	
Modhva	Cloth distribution in winter through employee volunteerism	0.00	2	CGPL		√			
Modhva	Launch a unique programme for Fisherfolks titled"Sagarbandhu Project" (value chain analysis).	69.84	1	AKRSP		√	√	√	
Modhva	Earthen Road at village	1.95	1	CGPL		√			
Modhva	Livelihood Support - Fishing nets for Pagadiya Fishermen and fish sale Equipments Fisherwomen	112.50	400	CGPL		√			
Modhva	Sea Weed Training and stipend to 30 fisherwomen by Fisheries Dept (Bhuj)	0.04	30	CGPL			√		
Modhva	Distribution of Educational Kits	0.05	50	Pratham		√	√	√	√
Modhva	Solar Boat Light	9.75	520	TPCDT		√			
Modhva	Low Cost Wind Mill (Pilot Project) Innovation	1.04	1	CGPL			√		

Village	Detail of Activitiy	Rs.In Lakhs	Total No of Beneficiaries	PIA	Activity Period				
					FY 11-12	FY 12-13	FY 13-14	FY 14-15	FY 15-16
Modhva	Fishing Net Support to Modhva Fishermen	30.87	311	CGPL			√	√	
Modhva	Pipeline Connectivity with Stand Post	1.00	1275	TPCDT				√	
Modhva	Village gate	2.86	1275	CGPL			√		
Modhva	Livelihood Equipment Support	75.25	301	CGPL		√			√
		452.77							
Tragadi Budner	Health Camps	0.55	925	CGPL& Bhojay, KCRC & HelpAge	√	√	√	√	√
Tragadi Budner	Drinking Water Supply	48.60	15000 liters daily	TPCDT & CGPL&Swadeep		√	√	√	√
Tragadi Budner	Construction of Roads and Pipie culverts	93.00	84 (HH)	CGPL	√	√	√		
Tragadi Budner	Sagrabandhu Programme (Educational Initiatves and Other Support)	90.76	84 (HH)				√	√	√
Tragadi Budner	Drinking water Tank with proper paltform and distribution line	1.00	84(HH)			√			
Tragadi Bunder	Solar Boat Light	7.20	48				√		
Tragadi Bunder	Mobile Sanitation Unit	15.00	84 (HH)				√	√	
Tragadi Bunder	Livelihood Equipment Support	12.60	84 (HH)						
Tragadi Bunder	Support for Fishing Accessories (Tarpaulin and Bamboo)	9.80	84 (HH)						
		278.21							
Tragadi	Health Camp	0.55	987	CGPL& Bhojay, KCRC , VRTI & HelpAge		√	√	√	√
Tragadi	Project Utkarsh	16.51	216 (HH)	VRTI	√				
Tragadi	Livelihood Grant Support	164.00	162	CGPL	√	√			
Tragadi	Livelihood Support (Pagadiya Fishermen (Nets)	104.00	260	CGPL				√	

Village	Detail of Activitiy	Rs.In Lakhs	Total No of Beneficiaries	PIA	Activity Period				
					FY 11-12	FY 12-13	FY 13-14	FY 14-15	FY 15-16
Tragadi	Solar Boat Light	4.35	29	TPCDT			√		
Tragadi	Livelihood Support for Fisher Women	7.42	70	CGPL			√		
Tragadi	Livelihood Equipment Support	56.00	140						
Tragadi	Soalr street Light	4.86	216 (HH)	TPCDT				√	
		357.69							
	Grand Total	1088.67							

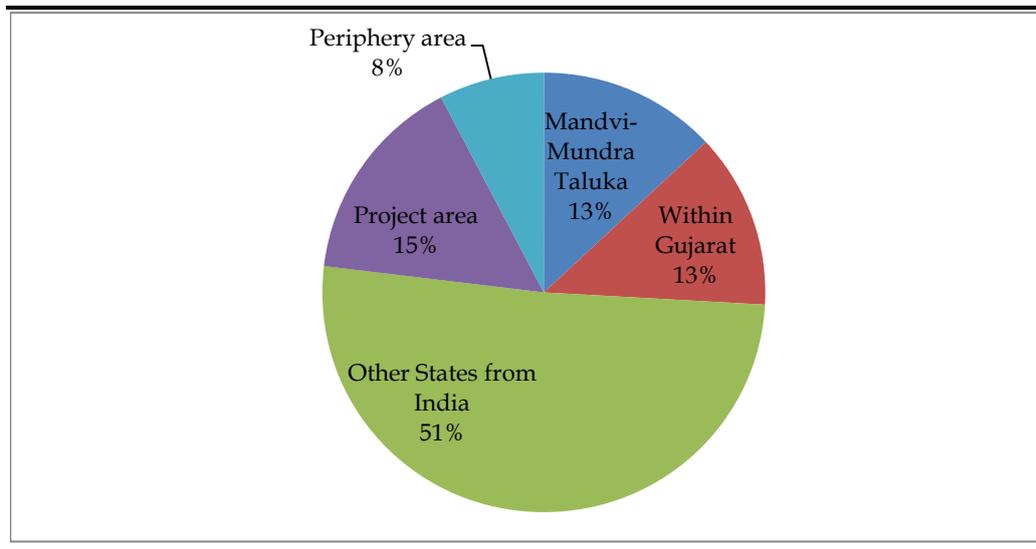
All the programs for the village and the fisher folk is undertaken by first consulting with the VDACS (Village Development Advisory Councils). Solar lights, tailor-made for fishermen (to be used in boat while in sea and at home as well) by Tata Power Solar System Limited were provided in these three fishing villages. The boat lights were especially useful for night time fishing, and fishermen benefitted from longer fishing hours in the night. Also, the solar lights replaced use of burning of diesel which used to be the normal practice during night time fishing.

Since February 2014, a Fishermen information Centre (FIC) has been established at Tragadi Bunder which acts as a catalyst between the fishermen and CGPL in spreading awareness about Government schemes, community needs, CGPL programs and interventions for fishermen. Monthly meetings with men and women are conducted at FIC to understand their perceptions on development at Tragadi Bunder. CGPL has also provided fishermen with fishing equipment (fishing nets and weighing machines) to enhance their household income by not only increasing fish-catch, avoiding incurring debt from traders as well.

Employment Opportunities Provided by CGPL

CGPL has 335 employees on its payroll. In addition, as on Sep 2015, CGPL has 1642 workers employed through various sub-contractors. Out of these indirect workers, 15% are from villages in project area and another 8% are from villages in periphery area. Hence, 23% of the current workforce is employed from the study area.

Figure 4.6 *Local employment by CGPL as on Sep 2015*



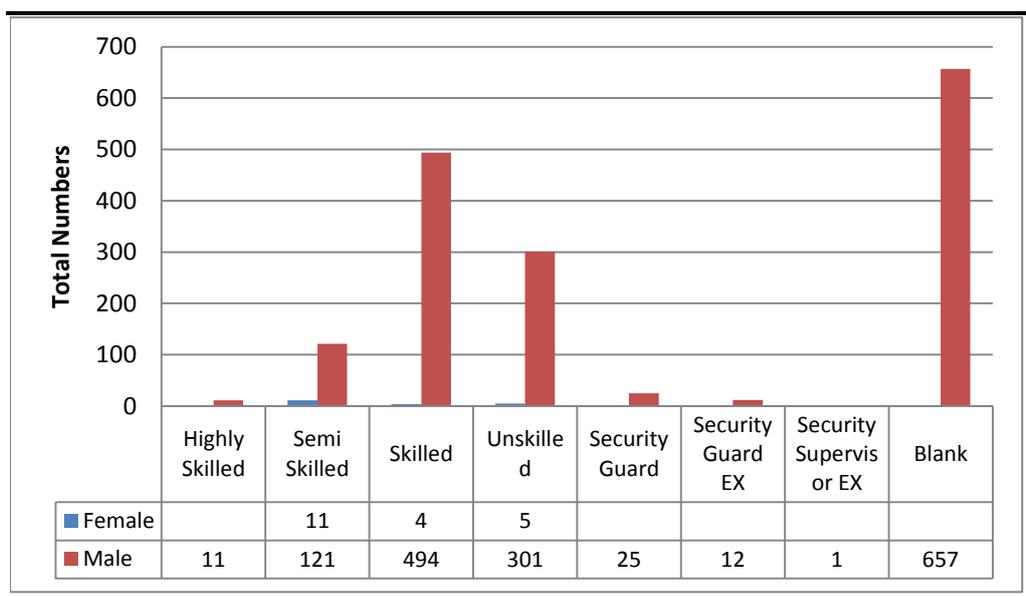
Source: CGPL-2015

More than half (51%) of the workforce is sourced from outside Gujarat. The total employment provided from the Mundra-Mandvi taluka comprises 13% of the total workforce. Another 13% of the total workforce belong to other

parts of Gujarat. The male workforce is dominant; out of 1642 workmen, 121 are female staff and 1521 are male staff.

The joining year of the current workforce suggests that most of the workforce is employed on contractual terms. Over 95% of the total workforce was reported to have joined in 2015 and another 2% have joined in 2014. Very few employed in the construction stage have continued in the operation phase. However, though the jobs are fixed term and contractual in nature, they are renewed in regular interval and therefore provides dependable employment opportunities for these workers. The breakup of the employee categories is provided in figure below.

Figure 4.7 Employee categories and gender break-up of CGPL employees as on Sep 2015



Source: CGPL-2015

Only approximately 30% of the workforce is skilled workforce and 9% is semi-skilled (including security guards) and less than 1% is highly skilled. The remaining 60% of the workforce is un-skilled labour.

4.2.3 Social Capital and Village level Institutions

CGPL has supported social and cultural life of the communities in its neighbouring villages and encouraged village level institutions to be built and sustained. Following interventions have helped achieving this objective.

Village Development Advisory Committees

To encourage transparency and involvement of larger number of community members, CGPL has encouraged forming Village Development Advisory Committees (VDAC) in the villages where it has planned to undertake any community development programs. The VDACS have been formed in Modhva, Tragadi and Tragadi Bunder. VDAC is also a platform for CGPL to gauge the specific needs of the community members which helps in

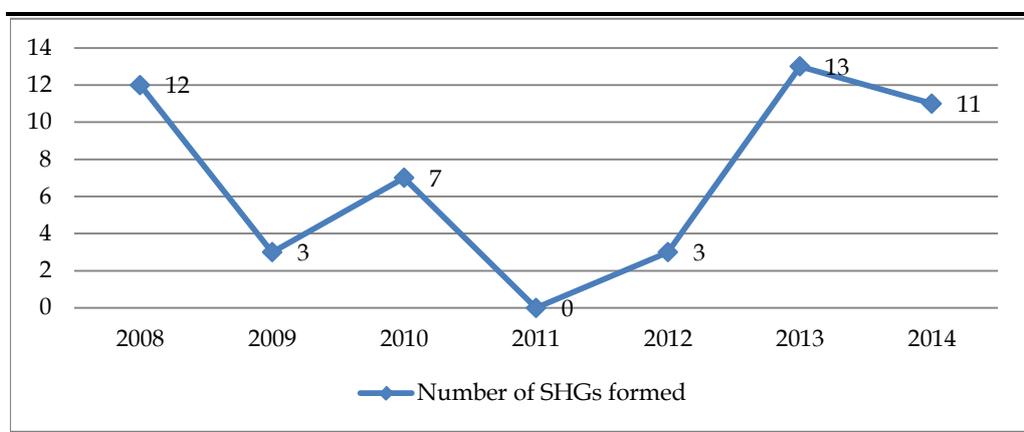
strategizing and prioritizing the community development interventions. For example: road and tanka constructions have been initiated by CGPL in Modhva village on request of the VDAC members.

This has helped in empowering community members specially women to participate in the decision making and contribute to the overall development of their community.

Formation of SHGs

CGPL has formed and promoted 49 SHGs in 9 villages in the study area to this effect since 2008. The trend of forming SHGs since 2008 is provided in figure below.

Figure 4.8 *Trend of formation of SHGs by CGPL since 2008*



Source: CGPL- CSR database, 2015

Cultural Program

CGPL had organized cultural events for the fisherfolk in the form of Qawwali¹ at Tragadi Bunder. In total, 6 Qawwali programs were organized in the year 2014-15 and 1 Qawwali program in 2015-16. In addition, 2 Lok Dyro² programs were organized during the year 2011-12, one each in Nana Bhadiya village and Tragadi village.

¹ A form of Sufi devotional folk music popular in South Asia and is used for raising awareness and social change by Government as well as NGOs as a grassroots communication strategy.

² A gathering of people to watch a stage show performed in Gujarati language and is used by Government and NGOs to spread social awareness.

This section of the report is based on a summary assessment carried out through a sample survey of households and supplemented with qualitative information collected through interviews and group discussions held with a range of stakeholders. This section also uses information from different published statistical accounts of Kutch and Mundra-Mandvi region.

5.1

DEMOGRAPHY

The demographic profile of the initial socio-economic assessments for the project draws data from 2001 and 2011 census. IL&FS report in 2008 was the first household level survey conducted in four villages, i.e., Tunda and Vandh, Mota Kandagara, and Nana Bhadiya. The demographic changes of the pre and post project scenario therefore could be studied for these three villages. The K-Link survey undertaken in 2013 aimed to map all households in the study area. Though socio-economic information of the households was collected during this survey, the database was found to be incomplete in several aspects. After excluding the households for which incomplete and inconsistent data was, the K-Link database was used. The K-Link survey data, therefore is not considered as a census of the study area, though it covers a substantial portion of the households in study area. ERM survey undertaken in 2015 was a smaller sample done with the objective of verifying the K- link data. While assessing changes in demographic profile, both databases were compared and were found to be consistent on broad demographic parameters. Hence, in this section, the K-Link data has been used as it is representative of a substantive sample, as compared to the ERM sample.

5.1.1 Demographic Changes in PAVs

Table 5.1 Demographic Changes (In-flux) in project area between 2001 and 2013

Villages	Total Households				Differences Between		
	2001	2008	2011	2013	2001-2008	2008-2011	2008-2013
Tunda	241	317	3134	493	32%	889%	56%
Mota Kandagara	454	529	1015	388	17%	92%	-27%
Nana Bhadiya	179	181	1011	225	1%	459%	24%
Total	874	1027	5160	1106	18%	402%	8%

Source: Figures for 2001 and 2011 are from Census 2001 and 2011 respectively, and figures for 2008 are from the IL&FS household survey in 2008. All figures for 2013 is from K-Link Survey 2013

The total households surveyed by IL&FS primary survey is reported to be 1027 households¹ in 2008. The increase in number of households in these three

¹ The report mentions that 160 houses were found locked during the survey hence were not covered during the survey. Though the IL&FS survey is not a Census, however the number of households can be considered to be not less than 1027. Therefore, 2008 figures are most conservative enumeration of number of households.

villages was 18% between 2001 and 2008. Between 2008 and 2011, however there was a fourfold increase (or 402%) in the total number of households. This increase in the households and the associated population can be attributed to in-migration of labour/workers during the construction phase. The K-Link survey in 2013 covered 1106 households in these three villages, which shows marginal increase (8%) in comparison to the number of households in 2008. Based on these figures, it is safe to conclude that the population level stabilised after the construction period got over in 2013.

The total number of households in Tunda has increased 56% over what it was in 2008 and the number of households in Nana Bhadiya has increased 24% over 2008. It is likely that some of the in-migrant population employed in industries have selected Tunda and Nana Bhadiya to reside. In Mota Kandagara, the number of households increased from 529 to 1015 in 2011 (+92%). After the construction stage, the K-Link survey records only 388 households in Mota Kandagara which is 27% less than 2008.

5.1.2 *Population Influx in Study Area*

The population influx is not confined to these three project affected villages (PAVs) and might not be only due to construction of CGPL alone. It is significant to note that construction period of the Adani Power Plant also overlapped and changes are probably the cumulative impact of both projects. No pre-project primary survey covered the villages in the study area and hence there is no record on the in-migration and influx situation in the study area villages. The demographic changes in villages in the study area can be examined by comparison of the 2001 and 2011 census data. The demographic changes in villages in the study area are provided in Table 5.2 below.

Table 5.2 *Demographic Changes in Study area between 2001 and 2011*

Village Name	Total Households			Trends of Change Between 2001 and 2011	Trends of Change Between 2001 and 2013
	2001	2011	2013		
Project Area (total)	1308	5716	1169	337%	-11.89%
Tunda	241	3134	493	1200%	104.5%
Mota Kandagara	454	1015	388	124%	-17.01%
Nana Bhadiya	179	1011	225	465%	20.44%
Tragadi	143	216	179	51%	20.11%
Periphery Area (total)	5981	8032	5252	34%	-13.88%
Bag	476	613	687	29%	30.71%
Bidada	1491	1915	1177	28%	-26.68%
Gundiya	891	1249	838	40%	-6.32%
Maska	932	1141	611	22%	-52.54%
Mota Bhadiya	511	624	586	22%	12.80%
Moti Khakhar	324	436	300	35%	-8.00%
Nani Khakhar	645	691	409	7%	-57.70%
Navinal	241	602	207	150%	-16.43%
Pipri	283	332	245	17%	-15.51%
Shiracha	187	429	949	129%	80.30%

Village Name	Total Households			Trends of Change Between 2001 and 2011	Trends of Change Between 2001 and 2013
	2001	2011	2013		
Study Area	7289	13748	6421	89%	-13.52%

Source: Census 2001, 2011 and K-Link Survey, 2013

Total households and the associated population in the study area increased 89% between 2001 and 2011. The project area records an increase of 337% (between 2001 and 2011) while periphery area records an increase of only 34%. Hence, most of the workers and other in-migrant population appear to be accommodated within the project area villages. In the periphery area, significant increase in number of households was noticed in Navinal and Shiracha between 2001 and 2011. This in turn indicates considerable presence of in-migrant population in these villages.

Population influx linked to construction phase of the industrialisation influences can also be seen in the sex-ratio of the area. The sex ratio of these villages from 2001 and 2011 census is presented in Table 5.3. The table also presents the sex-ratio calculated from K-Link survey which covered a substantial number of households in these villages. The sex-ratio (number of female population per one thousand male populations) was examined from 2001 to 2013 and trends emerging from this are provided in table 5.3.

Table 5.3 *Sex-ratio from 2001 to 2013*

Villages	Sex Ratio			Trends Between	
	2001	2011	2013	2001-2011	2001-2013
Project Area					
Tunda	988	107	921	-881	-107
Mota Kandagara	1005	635	952	-370	-53
Nana Bhadiya	1028	135	463	-893	-565
Tragadi	1050	947	803	-103	-247
Periphery Area					
Bag	963	987	923	24	-40
Bidada	977	967	952	-10	-25
Gundiyali	979	965	889	-14	-90
Maska	985	964	925	-21	-60
Mota Bhadiya	992	968	914	-24	-78
Moti Khakhar	970	943	849	-27	-121
Nani Khakhar	1013	941	879	-72	-134
Navinal	916	288	921	-628	5
Pipri	977	985	1002	8	25
Shiracha	1024	605	957	-419	-67

Source: Census 2001, 2011 and K-Link Survey, 2013

Project area villages in 2001 recorded healthy sex ratio, notably, some of them had more female population than male. Even some of the periphery area villages such as Nani Khakar and Shiracha, female population were more than male population. Apart from Pipri, all villages showed a negative change in

sex ration in 2011. The villages such as Tunda, Nana-Bhadiya and Navinal showed abnormally low sex ratio in 2011 which might be the consequence of in-migration of male work-force employed in construction works.

The sex ratio shows marked improvement in 2014 for villages where bulk of the in-migrant population for the construction phase had resided indicating the return of the influx population. It is to be noted that the sex-ratio in the villages of the study area has not fully returned to its 2001 (pre-project) status. Most of these villages, excluding Pipri and Navinal, show decrease in sex-ratio in comparison to 2001 level.

Population influx in general changes the social composition of the study area. The population of the Scheduled Caste (SC) and Scheduled Tribe (ST) is provided in table 5.4 and changes in social composition of the project area are examined. It is evident that during construction phase, the percentage of the SC and ST population with respect to the total population decreased. The villages where most of the in-migrant population was accommodated, such as Tunda, the SC population comprised 5.6% of the total population in 2001. In 2011, when in-migrant population was present in this area, the SC population comprised only 0.9% of the total population.

Table 5.4 SC and ST Population from 2001 to 2013

Villages	SC Population (% of Total)			ST Population (% of Total)		
	2001	2011	2013	2001	2011	2013
Project Area						
Tunda	5.6%	0.9%	1.6%		0.1%	0.0%
Mota Kandagara	13.7%	8.0%	6.0%	6.2%	2.5%	0.0%
Nana Bhadiya	41.3%	9.1%	9.0%	5.4%		4.0%
Tragadi			0.0%			0.0%
Periphery Area						
Bag		0.1%	0.0%	1.3%	0.1%	0.0%
Bidada	18.1%	20.0%	5.7%	4.2%	3.5%	0.3%
Gundiyali	8.3%	8.8%	1.4%	3.1%	0.3%	0.0%
Maska	4.2%	3.8%	2.1%	2.3%	0.8%	1.2%
Mota Bhadiya	13.5%	15.0%	2.8%	0.5%		0.0%
Moti Khakhar	21.0%	18.5%	4.2%	3.8%	5.3%	0.0%
Nani Khakhar	15.8%	17.8%	1.8%	7.4%	4.5%	0.6%
Navinal	16.5%	8.4%	6.9%	8.6%		0.0%
Pipri	3.9%	4.0%	0.0%	0.4%		0.0%
Shiracha	50.2%	17.2%	9.4%	6.4%	0.6%	0.2%

Source: Census 2001, 2011 and K-Link Survey, 2013

After the bulk of the in-migrant population left the area in 2014, the SC population comprised of 3.9% of the total population. Similar trend is witnessed across all the villages in the study area.

There is a very little presence of Scheduled Tribe (ST) population in study area. The ST population in Mota Kandagra in 2001 was reported to comprise

6.2% of the total population. The proportion of their population decreased to 2.5% in 2011 when in-flux population was present. In 2013, they comprise negligible proportion of the total population. A similar decrease in ST population is noticed in Nana Bhadiya in project area and other periphery area villages as well.

5.1.3 Literacy

The literacy rate of 2011 is expected to include the literacy status of in-migrant population who were also enumerated. The literacy rate in 2013 therefore is considered to show the literacy rate of the original and long term residents of the study area villages. The literacy rates of almost all villages in project area show significant improvement except Tunda.

Table 5.5 Literacy Composition between 2001 and 2013

Village Names	Total Literacy Rate (in %)			Female Literacy Rate (in %)		
	2001	2011	2013	2001	2011	2013
Project Area						
Tunda	46.2	81.3	66.5	50.0	58.8	70.7
Mota Kandagra	60.6	70.1	82.7	61.1	65.8	78.4
Nana Bhadiya	60.8	73.6	75.9	59.8	62.8	82.4
Tragadi	34.1	46.3	77.3	35.2	46.1	68.9
Periphery Area						
Bag	53.8	60.3	84.7	53.1	62.5	74.6
Bidada	66.0	69.3	78.3	67.1	71.7	82.7
Gundiya	46.3	53.2	76.7	46.9	55.3	71.9
Maska	59.3	66.2	78.5	59.9	68.8	75.4
Mota Bhadiya	47.6	56.9	80.7	42.6	57.9	75.4
Moti Khakhar	53.9	62.5	86.1	52.1	65.6	77.4
Nani Khakhar	60.1	66.8	87.1	62.7	68.3	66.9
Navinal	50.1	77.0	68.7	50.3	64.6	83.5
Pipri	48.6	57.0	75.6	44.7	52.4	56.8
Shiracha	51.9	69.1	75.4	52.1	64.4	70.5

Source: Census 2001, 2011 and K-Link Survey, 2013

Nana-Bhadiya shows a steady increase in literate population over these years. In 2001, Nana-Bhadiya had 60.8% literacy. The literacy increased to 73.6% in 2011 and in 2013 it is 77.7%. Villages in periphery area mostly have better literacy rate than the villages in project area, except Navinal. Navinal shows better literacy rate during 2011 than what is recorded in 2013.

Most of the villages show a jump in female literacy between 2001 and 2013. The female population in in-migrant population was negligible. Hence, improvement in female literacy must pertain to the resident population of the area. Many of the villages, particularly Tragadi, Bag, Mota Bhadiya, Moti Khakhar and Nana Bhadiya have shown marked improvement in female literacy. However, in villages such as Nani Khakkar and Pipri, the female literacy has not improved much.

The education interventions (particularly Shiksha Sarathi) by CGPL started from 2012-13. Hence, changes in literacy appear to be result of government led Sarva Shiksha Abhiyan¹ (SSA) which aims at universalization of elementary education and other literacy programs.

5.2

QUALITY OF LIFE

Pre-project socio-economic studies had not covered parameters that could be used for assessing changes in quality of life. The K-Link survey in 2013 was found to cover the housing condition and ownership of modern consumer durables. The changes in quality of life though are not directly attributed to CGPL, however are indication of overall indirect and induced impacts of the industrialisation process in study area. The ERM sample survey undertook in 2015 covered the same set of parameters used in K-Link study in 2013. As the time difference between ERM and K-Link survey is only 2 years, and both surveys were conducted after the construction phase of CGPL, the changes are not indicative of pre and post project situation. The ERM sample survey data was used to verify the reliability of K-Link data and this section uses K-Link data as it covered a substantial sample-frame. The following section discusses this in detail.

5.2.1

Housing Condition

The table 5.6 below shows the number of households who live in pukka houses, have access to tap water and toilet.

Table 5.6 *Housing Condition in Study Area*

<i>Row Labels</i>	<i>Total HHs Surveyed</i>	<i>Pucca house</i>	<i>%</i>	<i>Tap water</i>	<i>%</i>	<i>Toilet</i>	<i>%</i>
Mota	388	241	62%	388	100%	320	82%
Kadangara							
Tragadi	122	35	29%	3	2%	65	53%
Tragadi Bunder	57	0	0%	0	0%	0	0%
Tunda	191	67	35%	181	95%	167	87%
Tundavandh	186	56	30%	185	99%	179	96%
Project Area	944	399	42%	757	80%	731	77%
Baag	687	317	46%	297	43%	595	87%
Bidada	1177	424	36%	828	70%	953	81%
Gundiyali	386	216	56%	386	100%	194	50%
Maska	611	185	30%	435	71%	441	72%
Modhva	211	6	3%	0	0%	3	1%
Moravadi	55	0	0%	55	100%	39	71%
Mota Bhadiya	586	63	11%	90	15%	413	70%
Moti Khakhar	300	71	24%	128	43%	146	49%

¹ SSA has been implemented since 2001 and acquired a mission mode in 2010 due to 86th Constitutional Amendment which accepted Right to Education (RTE) as a fundamental right for children in 6-14 age-groups.

Nanabhadiya	225	102	45%	225	100%	190	84%
Nani Khakhar	409	226	55%	409	100%	331	81%
Navinal	207	97	47%	179	86%	134	65%
Pipri	245	21	9%	160	65%	78	32%
Shekhai baag	186	9	5%	186	100%	165	89%
Shiracha	192	113	59%	170	89%	158	82%
Periphery Area	5477	2249	31%	4305	68%	4571	66%
Study Area	6421		37%		74%		72%

Source: K-Link Survey, 2013

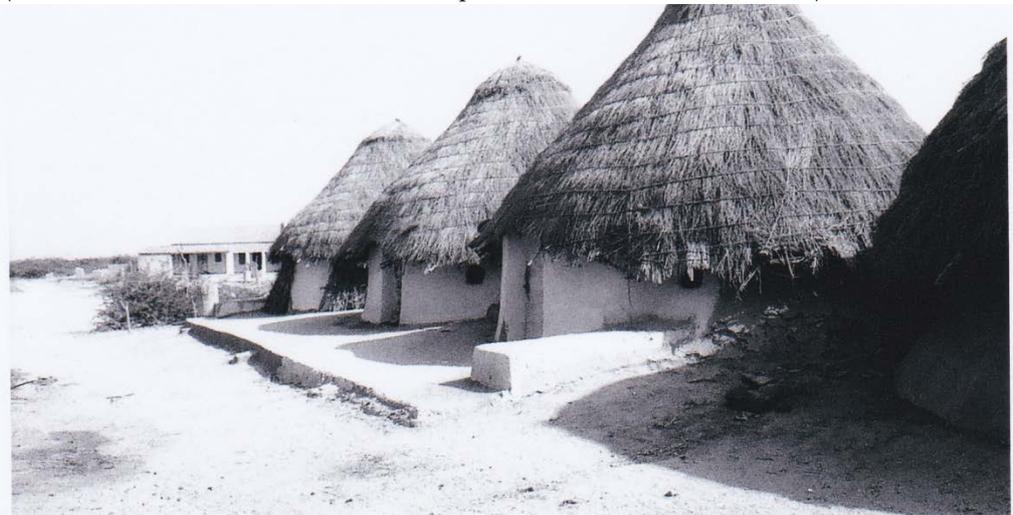
In 2013, 37% of the households in study area lived in Pucca households. The Tragadi Bunder, which is a temporary fisherfolk settlement reported to have no Pukka structures. In project area villages, 42% households live in Pukka households in comparison to 31% households in the villages in periphery area. It was learnt during community consultation in Vandh and Tunda among the land-seller households that most of them used the money for constructing houses or extending their existing structures. The change in housing conditions in Vandh is quite noticeable. Vandh as a Rabari settlement comprised of round mud walled and thatched houses locally known as Bhunga. The change in the housing structures in Vandh is depicted in Figure 5.1 below.

The modernisation of the houses has included provisions for tap water and toilet facilities. The survey indicated that 80% of the households in project area reported to have access to tap water. If Tragadi Bunder is excluded, then almost all houses in project area have access to tap water. The supply of tap water in other villages in periphery area is merely 20% in comparison to project area. Similarly, provision of toilets at the households in project area is 77% and that of the periphery area is 16%.

Figure 5.1 *Tunda Vandh*



(A View of Tunda Vandh in 1999 from the personal archive of a Researcher)



(The close-up view of Rabari traditional houses knows as Bhunga and the School Building as the only modern structure in background as in 1999)



A dilapidated traditional Bhunga and modern houses in the background as in 2014.

Source: Field Visit in 2014 and Photo Archive of an earlier Researcher from 1999 visit to Tunda Vandh

5.2.2

Possession of Assets - Consumer Durables

Possession of consumer durables is indicative of life-style changes at the household level. In project area, 9% households have refrigerators, 71% have television, 72% have mobile phones, 22% have motor cycles and 2% have four wheelers. Television and mobile phones emerge as more popular consumer durable items possessed by households. In periphery area, among the surveyed households, 15% have refrigerators, 59% have television sets, 58% have mobile phones, 57% have motor cycles and 2% have four wheelers.

Table 5.7 *Possession of modern consumer durables in the total households in the study area*

Zone	Village	Total HHs	HHs with Refrigerator	HHs with TV	HHs with Mobile	HHs with Two Wheeler	HHs with Four Wheeler
			%	%	%	%	%
Project Area	Mota kandagara	388	10%	83%	68%	6%	4%
	Nana Bhadiya	225	12%	70%	64%	13%	3%
	Tragadi	122	5%	65%	77%	74%	4%
	Tragadi Bunder	57	0%	0%	0%	82%	0%
	Tunda	191	15%	70%	89%	21%	0%
	Vandh	186	4%	73%	91%	13%	1%
Sub Total		1169	9%	71%	72%	22%	2%
Periphery Area	Bag	687	11%	80%	67%	54%	3%
	Bidada	1177	9%	34%	2%	90%	1%
	Gundyali	386	14%	61%	80%	30%	1%
	Maska	611	36%	76%	93%	47%	3%
	Modhava	211	1%	19%	52%	12%	0%
	Moravadi	55	4%	64%	0%	49%	5%
	Mota Bhadiya	586	1%	99%	99%	88%	0%
	Mota Khakar	300	24%	62%	89%	39%	1%
	Nani Khakar	409	48%	83%	87%	66%	3%
	Navinal	207	2%	14%	15%	3%	0%
	Pipari	245	27%	51%	87%	44%	0%
	Shekhai Bag	186	4%	69%	7%	2%	0%
	Shiracha	192	1%	6%	51%	49%	2%
Sub Total		5252	15%	59%	58%	57%	2%
Study Area		6421	14%	61%	60%	51%	2%

Source: K-Link survey, 2013

Hence, ownership of consumer durables in project area is noticed to be higher than the periphery area. The fishing villages show lesser possession of modern consumer durable items in comparison to villages with non-fishing communities. This was expected as these communities are mobile and accumulate fewer assets.

The access to amenities, services, and social/ physical infrastructure determine the quality of social life at the community level. Previous social studies for CGPL used different secondary information sources such as Census of India and records of Gram Panchayat to describe the civic amenities and infrastructure available. These sources are used in this section to assess the pre and post project situation in study area. Wherever, no previous dataset was available for comparison, the ERM survey in 2015 and K-Link survey in 2013 data sets milestones for future evaluation studies.

5.3.1 Access to Electricity

The coverage of electricity connection to the households in study area is presented in the table below. The ERM sample survey undertook in 2015 indicated a similar trend as that of K-Link data. This data has not been captured in the primary surveys during the pre-construction phase of the project and hence comparative analysis could not be made. As K-link survey covered a larger sample of households, this section is refers to K-link data.

Table 5.8 Availability of electricity to households in study area

Zone/ Village	K-Link Survey- 2013		
	No Electricity	Own Meter	From Neighbour
Project Area	1.92%	84.3%	13.8%
Mota Kandagara	0.00%	80.9%	19.1%
Tragadi	6.6%	63.9%	29.5%
Tunda	4.2%	90.6%	5.2%
Vandh	0.5%	98.4%	1.1%
Periphery	6.6%	78.1%	15.2%
Baag	10.0%	79.5%	10.5%
Bidada	5.3%	84.6%	10.1%
Gundiyali	0.0%	78.5%	21.5%
Maska	4.3%	79.2%	16.5%
Modhva	52.6%	15.2%	32.2%
Moravadi	0.0%	74.5%	25.5%
Mota Bhadiya	10.2%	88.1%	1.7%
Moti Khakhar	26.3%	44.0%	29.7%
Nana Bhadiya	2.2%	81.8%	16.0%
Nani Khakhar	6.6%	68.0%	25.4%
Navinal	6.3%	81.6%	12.1%
Pipari	2.9%	52.2%	44.9%
Shekhai Baag	0.0%	84.4%	15.6%
Shiracha	7.8%	83.3%	8.9%
Study Area	7.7%	76.6%	15.7%

Source: K-Link Survey- 2013

Only 6.6 % of households in project area did not have electricity connection in 2013. Some of the households who do not have an independent connection (Own meter) share it with their neighbour. The number of such household is

seen to have decreased over past years. This is attributable to overall development in the region and industrialization which has led to an increase in accessibility to electricity connections. It is interesting to note that nearly 78% households have their own metered electricity connection.

CGPL has also provided solar lights to in the fishing village in Modhva, Tragadi and Tragadi Bunder. These solar lights are being used in the household for lighting purpose as well as in the boats for fishing during night.

5.3.2 *Education Facilities & Infrastructure*

The social study of the 4 project affected villages in 2007 (SIA Baseline) and in 2008 (IL&FS Baseline and Need Assessment) and the survey of 12 villages in the study area in 2007 (CEIA) ⁽¹⁾ provides data on education facilities/ infrastructure and total number of students across various education levels (primary, secondary, higher secondary etc.) based on the information available in Census or from records of Gram Panchayat. In case of K-Link survey, the database covers coordinates of education and infrastructure facilities for 12 villages, out of 19 villages in the study area. The available information in K-Link survey was referred to and used if it had updated the information provided in 2011 census.

The CEIA and ILFS data shows that there was at least 1 primary school each across all villages, 3 villages had secondary schools and 1 village had a technical institute. Mota Kandagra and Nana Bhadiya had secondary schools (high schools), whereas Tunda only had primary school (upto 7th standard). The primary data of education levels in the ILFS data in 2008, for instance, reports only a small fraction (3%) of the population has achieved a higher than matriculate level of education. This was correlated with the infrastructure gap that existed in higher and secondary school infrastructure in study area.

Based on census data 2011, overall the government infrastructure for primary education in the study area has improved since 2001. The implementation of Sarva Shikshya Abhiyan and the implementation of government policy of Right to Education are among the reasons that have contributed to such improvement. The table below shows the changes in number of government primary schools in villages in study area. In comparison to census 2001 and primary surveys of 2007, the total number of primary schools has increased in 2011.

However, the infrastructure for secondary school is not enough. Half of these villages in study area do not have secondary schools within the villages. The nearest government secondary school for 4 villages is located within a distance of five kilometres. However, villages such as Siracha and Tunda have secondary school in more than ten kilometres away.

(1) The CEIA data excludes Mota Kandagra village.

Table 5.9 *Current position of the school infrastructure in study area*

Village	Govt Primary School (Numbers)		Availability	Secondary School (2011)	
	2001	2011		Nearest Village	Distance Range
Tunda	1	2	NA	Mandvi	10+ km
Nana Bhadiya	1	1	NA	Patri	<5 km
Kandagara Mota	1	3	Yes		
Tragadi	1	1	NA	Nana bhadiya	<5 km
Bag	3	3	NA	Mandvi	<5 km
Bidada	8	7	Yes		
Gundiyali	3	6	Yes		
Maska	2	4	Yes		
Mota Bhadiya	3	4	NA	Nana bhadiya	<5 km
Khakhar Moti	3	3	Yes		
Nani Khakhar	2	2	NA	Bidada	5-10 km
Navinal	1	1	Yes		
Pipari	1	1	Yes		
Shiracha	1	1	NA	Mundra	10+ km

Source: Census of India-2011 and 2001.

The facilities for higher education in terms of senior secondary schools and colleges in the study area are presented in the table below based on the census data. These villages are dependent on Mandvi, Mundra and even farther on Bhuj for higher education. Nana Bhadiya is the only villages which has senior secondary school. Hence infrastructure for higher education has not increased with the general industrialisation in the area.

Table 5.10 *Facilities for Higher Education in Study Area*

Village	Senior Secondary School		Arts and Science Degree College	
	Nearest Village/Town Name	Distance Range	Nearest Village/Town Name	Distance Range
Tunda	Mandvi	10+ km	Mandvi	10+ km
Kandagara Nana	Mundra	10+ km	Bhuj	10+ km
Kandagara Mota	Mundra	10+ km	Mandvi	10+ km
Tragadi	Nana Bhadiya	<5 km	Mandvi	10+ km
Bag	Mandvi	<5 km	Mandvi	5-10 km
Bidada			Mandvi	10+ km
Gundiyali	Mandvi	5-10 km	Mandvi	5-10 km
Maska			Mandvi	<5 km
Mota Bhadiya	Nana Bhadiya	<5 km	Mandvi	10+ km
Khakhar Moti	Mundra	10+ km	Bhuj	10+ km
Nani Khakhar	Mandvi	10+ km	Mandvi	10+ km
Navinal	Mundra	5-10 km	Mandvi	10+ km
Pipari	Mandvi	10+ km	Mandvi	10+ km
Shiracha	Mundra	10+ km	Mandvi	10+ km

Source: Census of India-2011

5.3.3

Health Facilities & Infrastructure

The pre-construction social survey of the 3 project affected villages in 2007 (SIA Baseline) and in 2008 (ILFS) and the survey of 12 villages in the study area in 2007 (CEIA) ⁽¹⁾ throw light on the availability of health facilities. Further, the ILFS data 2008 mentions the occurrence of diseases among the PAVs.

As per the SIA data (2007) and ILFS data (2008), a primary health centre was available only in Mota Kandagra among the PAVs and one allopathic private clinic was available across all PAVs. Community health centres and referral hospitals were not available in the PAVs.

As per the Census 2011 data, only five villages in the study area have Primary Health Care (PHC) centers within the village. Even in 2011, as indicated in 2007 data, among the PAVs, the PHC is available only in Mota Kandagra. The PHCs are located within 5-10 km distance for most of the villages. Even the distance to government dispensaries is within 5-10 kms for some villages, and for the rest it is more than 10 kms. Considering this relatively low concentration of government run health care facilities, the population is mostly served through private clinics and health care practitioners.

Table 5.11 Status of the Health Infrastructure in Study Area

Village	PHC Distance		Primary Health Centre (Numbers)		Sub-centre Distance Range in km		Maternity and child care hospital Distance Range in km		Allopathic hospital Distance Range in km		Alternate medicine Hospital Distance in Km		Dispensary Distance in km		Veterinary Hospital	
	Number	Distance Range in km	Numbers	Distance Range in km	Numbers	Distance Range in km	Numbers	Distance Range in km	Numbers	Distance Range in km	Numbers	Distance Range in km	Numbers	Distance Range in km	Numbers	Distance Range in km
Tunda	10+	<5	0	<5	5-10	10+	10+	0	<5	0	10+	0	<5	0	10+	
Nana Bhadiya	5-10	10+	0	10+	5-10	10+	10+	0	10+	0	10+	0	10+	0	10+	
Kandagara	10+	1	1	10+	10+	10+	10+	0	10+	0	10+	0	10+	0	10+	
Mota	10+	0	5-10	5-10	10+	10+	10+	0	10+	0	10+	0	10+	0	10+	
Tragadi	10+	0	5-10	5-10	10+	10+	10+	0	10+	0	10+	0	10+	0	10+	
Bag	<5	0	<5	<5	<5	<5	<5	0	<5	0	<5	0	<5	0	<5	
Bidada	10+	1	1	10+	10+	10+	10+	1	1	1	1	1	1	1	1	
Gundiyali	5-10	1	1	5-10	5-10	5-10	5-10	0	5-10	0	5-10	0	5-10	0	5-10	
Maska	<5 m	1	<5	<5	<5	<5	<5	1	1	0	<5	0	<5	0	<5	
Mota Bhadiya	5-10	0	5-10	5-10	5-10	5-10	5-10	0	5-10	0	5-10	0	5-10	0	5-10	
Nani Khakhar	5-10	1	1	10+	10+	10+	10+	0	5-10	0	5-10	0	5-10	0	5-10	
Khakhar Moti	5-10	0	5-10	5-10	10+	10+	10+	0	10+	0	10+	0	10+	0	10+	
Navinal	5-10	0	5-10	5-10	5-10	5-10	5-10	0	5-10	0	5-10	0	5-10	0	5-10	
Pipari	<5	0	<5	5-10	5-10	10+	10+	0	5-10	0	5-10	0	10+	0	10+	
Shiracha	10+	0	10+	10+	10+	10+	10+	0	10+	0	10+	0	10+	0	10+	

Source: Census of India-2011.

(1) The CEIA data excludes Mota Kandagra village.

The K-Link survey in 2013 did not capture data on the health infrastructure available in the study area villages. The consultations held by ERM captured aspects such as availability/non-availability of doctor, vaidh, veterinary doctor, nurse, asha worker, and health worker etc. in each of the villages. The data indicates that in majority of the villages, there is a presence of a doctor and a Asha (health) worker available.

The IL&FS data (2008) the diseases prevalent among the people in PAVs include asthma, joint pain, diabetes, cardiac ailments and blood pressure. Occurrences of malaria and tuberculosis have also been recorded in the region. The ERM survey data (2015) also reports blood pressure, bone related problems, cardiac ailments, stone and tuberculosis etc as prevalent health problems for the population in PAVs.

Consultations with select asha workers and private practitioners across the project area and periphery area villages revealed that the incidence of malaria and tuberculosis has reduced. Consultations with the community members and Asha workers suggested that overall there is a greater awareness towards health and hygiene and there has been an improvement particularly in the maternal and child health practices.

5.3.4 *Drinking Water & Sanitation*

The primary survey for CEIA report and IL&FS Baseline and Need Assessment Report had thrown some light on the number of wells for drinking irrigation and their ownership. While the IL&FS data covers only the PAVs, the CEIA data covers 12 villages in the study area (which overlap with subsequent surveys carried out during the operation phase). The CEIA data indicates that drinking water in all villages is supplied through borewells. Every village has an overhead tank through which the water is supplied via pipelines to the individual houses. Of this, a majority of the wells in the study area are with pump, relatively few are without pumps. The IL&FS data shows that in 2007 among PAV households, 84% have their own source of drinking water, whereas the balance 16% is dependent on community sources. In comparison to this pre-project studies, the K-link survey in 2013 showed (see Table 5.6 in Section 5.2.1) that access to tap water in PAVs (Mota Kandagara, Tunda and Vandh) have achieved almost full coverage. The access to tap water in periphery area is reported to cover 20% of households.

Based on census 2011, the status of the sources of water in the villages in study area is summarized in table 5.11 below. Tank and ponds in some villages serve as source for supply surface water. However, due to limited rainfall in the region, the surface water sources often dry up. Therefore, communities meet their water requirement by extracting ground water through hand pumps or tube wells. Some of these villages also have traditional covered dug wells which supply water. However, the drinking water supply for most of the villages is through tap where water is typically untreated. The ground water quality in the area is hard and communities complaint about the increase in

salinity of the ground water. There is therefore a demand for water treatment to address the hardness of the water and making it potable.

Table 5.12 *Water sources provided by Government*

Village	Tap water (untreated)	Covered well	Uncovered well	Hand Pump	Tube well	Tank/Pond
Tunda	A	NA	NA	NA	A	NA
Kandagara Nana	A	NA	NA	NA	A	NA
Kandagara Mota	A	NA	NA	NA	A	NA
Tragadi	A	NA	NA	NA	NA	NA
Bag	A	A	NA	NA	NA	NA
Bidada	A	NA	NA	NA	NA	NA
Gundiyali	A	NA	A	NA	NA	NA
Maska	A	NA	NA	NA	A	NA
Mota Bhadiya	A	NA	NA	NA	A	A
Nani Khakhar	A	NA	NA	NA	A	A
Khakhar Moti	A	NA	NA	NA	A	A
Navinal	A	A	NA	NA	A	NA
Pipari	A	NA	A	A	A	A
Shiracha	A	NA	NA	NA	A	NA

Source: Census of India, 2011.

CGPL has installed RO plants in 12 villages (including all project area villages) to treat the hardness of the water and provide villages healthier drinking water. Consultations with the community suggested that there is a high level of salinity in the water (untreated tap water) and RO plants (treated form of tap water) have been able to improve the quality of water. In addition, installation of water purifier in Schools of 15 villages in the study area has also led to better access to quality drinking water for children.

The status of the waste water drainage and solid waste management system for these villages is presented in table 5.14 below.

Table 5.13 *Status of waste water drainage and sanitation facilities*

Village	Waste water Drainage			Drain water discharged into water bodies?	Community Toilet Complex (excluding bath) for general public	Community solid waste disposal system after H to H collection	Community bio-gas or recycle of solid waste for production use
	closed drainage	open kuccha drainage	no drainage				
Tunda	NA	NA	A	NA	NA	NA	NA
Kandagara Nana	NA	A	NA	NA	NA	NA	NA
Kandagara Mota	A	NA	NA	A	NA	NA	NA
Tragadi	NA	A	NA	A	NA	NA	NA
Bag	NA	A	NA	A	A	NA	NA
Bidada	NA	A	NA	A	NA	A	NA
Gundiyali	NA	A	NA	A	A	NA	NA

Maska	NA	A	NA	A	NA	NA	A
Mota Bhadiya	NA	A	NA	A	A	NA	NA
Nani Khakhar	NA	NA	NA	A	NA	NA	NA
Khakhar Moti	NA	NA	A	NA	A	NA	NA
Navinal	A	NA	NA	NA	NA	A	NA
Pipari	NA	A	NA	A	NA	NA	A
Shiracha	NA	NA	A	NA	A	NA	NA

Source: Census of India, 2011

In most of the villages, the households discharge the waste water into open *kutch*a drains. Only part of the Mota Kandagara and Navinal has closed drainage facilities for households to discharge their used waste water. The waste water generated from the households is mostly discharged into water bodies. Hence, the contamination of the water in rainy season has higher chances.

Only Bidada and Navinal are reported to have a house to house collection of solid wastes. The rest of the villages do not have any waste management system. Maska and Pipari are reported to use part of the solid waste to generate bio-gas or other productive usage. CGPL has identified use of solid waste to produce bio-gas and manure and has undertaken pilot initiatives to promote better solid waste management.

As per the ERM survey data, 77% of the households in project area reported to have private toilets, in comparison to 70% of households in periphery area. The households with toilet facilities in Tragadi Bunder and Modhava, which are fishing villages, were lower than other villages. If we exclude these two fishermen settlements, the households with toilets in project area is 82% in comparison to 73% in periphery area. Hence, households in project area have greater access to toilets in their households in comparison to households in periphery area.

CGPL has planned to continue its drinking water and sanitation interventions to achieve the following:

- Covering remaining villages in study area with drinking water treatment (RO) facilities in partnership with WASMO and to hand over to local panchayats for their maintenance.
- To saturate 3 blocks: Mandhvi, Mundra and Bhuj with sanitation facilities and to make them open defecation free (ODF);
- Post ODF status support through BCC (behavior change communication) and participatory methods to ensure sustainability of behavior;
- Special drive in schools for promotion of personal, domestic and environmental hygiene

The traditional occupation profile of different caste or community groups in three villages of Tunda, Vandh and Nana Bhadiya reported in IL&FS study of 2007 is provided below.

Table 5.14 *Caste Composition and their traditional livelihood pursuits in PAVs in 2007*

Village	Usual Occupation Profile
Tunda	Muslims - Agriculture/ Making Mud utensils Darbar - Agriculture Brahmin - Priests/Trade & commerce Scheduled Caste - Agriculture Labour / Charcoal Making Jains - Migrated to Mumbai for Trade & Commerce
Vandh	Rabari- Animal rearing
Nana Bhadiya	Muslim- Agriculture/ Agriculture labor Harijan- Agriculture/ Agriculture labor Vaishnavs - Trade Jains - Migrated t Mumbai Devipujak - trade of local tooth brush

Source: Baseline Social Impact Assessment, UMPP by SAVE 2007

In addition to this, the social studies conducted in Modhva and Tragadi report that fishing households belong to a community called Wagher who are mostly followers of Islam. Thus, agriculture, animal rearing, fishing, trading and a range of services that these key-livelihood pursuits required formed the pre-industrial spectrum of livelihood in this area.

The occupational profile of the study area in earlier socio-economic studies was based on the secondary data available from Census of India 2001. Hence, the changes in broad occupational composition are examined by using data of 2011 census. The comparison between 2008 and 2015 occupational profile for these three villages therefore was possible and is presented in section 5.4.3. The occupations across different age-groups are not available for 2008; hence a comparison was not possible.

5.4.1 *Work Participation Rate, Main and Marginal Workers*

The work participation rate (WPR) which is defined as the total number of main workers and marginal workers to the total population ranges from 30.4% in Mota Kandagara to 50.1% in Tunda as on 2001. As on 2011, the work participation rate ranged from 34% in Bag to 89% in Tunda.

Table 5.15 *Proportion of break-up of working population in the villages*

Villages	Year 2001			Year 2011		Difference in WPR %	
	WPR (%)	Main Workers % to total workers	Marginal workers % to total workers	WPR (%)	Main Workers % to total workers		Marginal workers % to total workers
<i>Project Area Villages</i>							
Tunda	50.1	79.7	20.3	89.0	62.6	8.0	38.9

Vandh	43.1	89.0	11.0	52.3	92.0	37.4	9.2
Mota							
Kandagara	30.4	85.7	14.3	53.2	90.1	9.9	22.8
Nana							
Bhadiya	36.0	94.4	5.6	84.8	98.9	1.1	48.8
Tragadi	53.4	18.4	18.4	47.0	97.8	2.2	-6.4
<i>Periphery Area Villages</i>							
Bag	42.6	63.5	36.5	33.9	85.8	14.2	-8.7
Bidada	39.0	75.5	24.5	38.3	85.4	14.6	-0.7
Gundiyali	40.1	71.6	28.4	36.0	86.7	13.3	-4.1
Maska	35.4	85.1	14.9	40.2	82.2	17.8	4.8
Mota							
Bhadiya	41.4	84.1	15.9	48.6	82.2	17.8	7.2
Moti							
Khakad	35.5	91.2	8.8	37.7	63.6	36.4	2.2
Nani							
Khakad	40.6	76.7	23.3	42.1	86.9	13.1	1.5
Navinal	29.4	89.6	10.4	68.5	82.3	17.7	39.1
Pipiri	44.5	68.7	31.3	43.4	99.6	0.4	-1.1
Siracha	38.2	79.6	20.4	46.5	97.9	2.1	8.3

Source: Census, 2001 and 2011

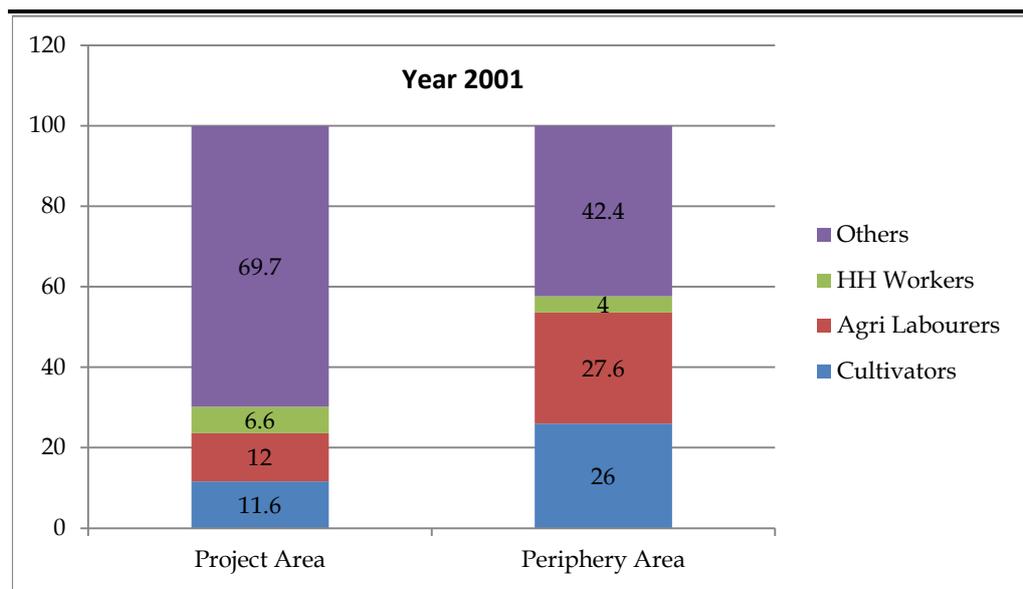
There is an increase in the WPR in 2011 across all villages except Bag, Bidada, Pipri and Gundiyali where a minor drop in the work participation rate is observed, which may be an exception. Whereas villages such as Tunda, Mota Kandagra, Nana Bhadiya and Navinal indicate sharp rise in WPR (upto 40%) over the decade. Some of this may be attributed to the increase in employment opportunities due to industrialization.

The relative improvement in the employment situation is also demonstrated in increase of percentages of main working population over marginal working population. The employment opportunities in the project area villages appear to be better in comparison to periphery area villages, though not significantly.

5.4.2 *Occupational Categories of Main Workers*

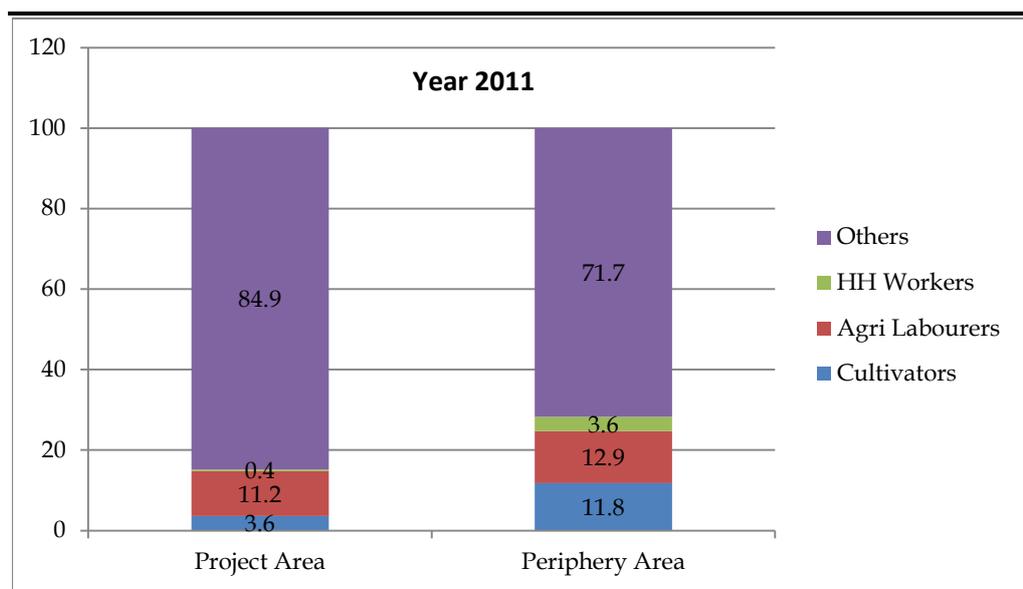
The census data further categorises the workers into cultivation, agriculture labour, household workers and others. The census data on distribution of main workers for 2001 and 2011 has been presented in the figures below.

Figure 5.2 Occupation Profile of Main Working Population - 2001



Source: Census Data, 2001

Figure 5.3 Profile of Main Working Population - 2011



Source: Census Data, 2011

The proportion of people engaged as cultivators (3.6%) in 2011 has reduced from 11.6% in 2001 in project area; and to 11.8% in 2011 from 26% in 2001 in periphery area villages. In contrast, the proportion of workforce under the category of other workers (or non-farm livelihoods) has increased from 70% to 85% in the project area; and from around 43% to 72% in the periphery area between 2001 and 2011.

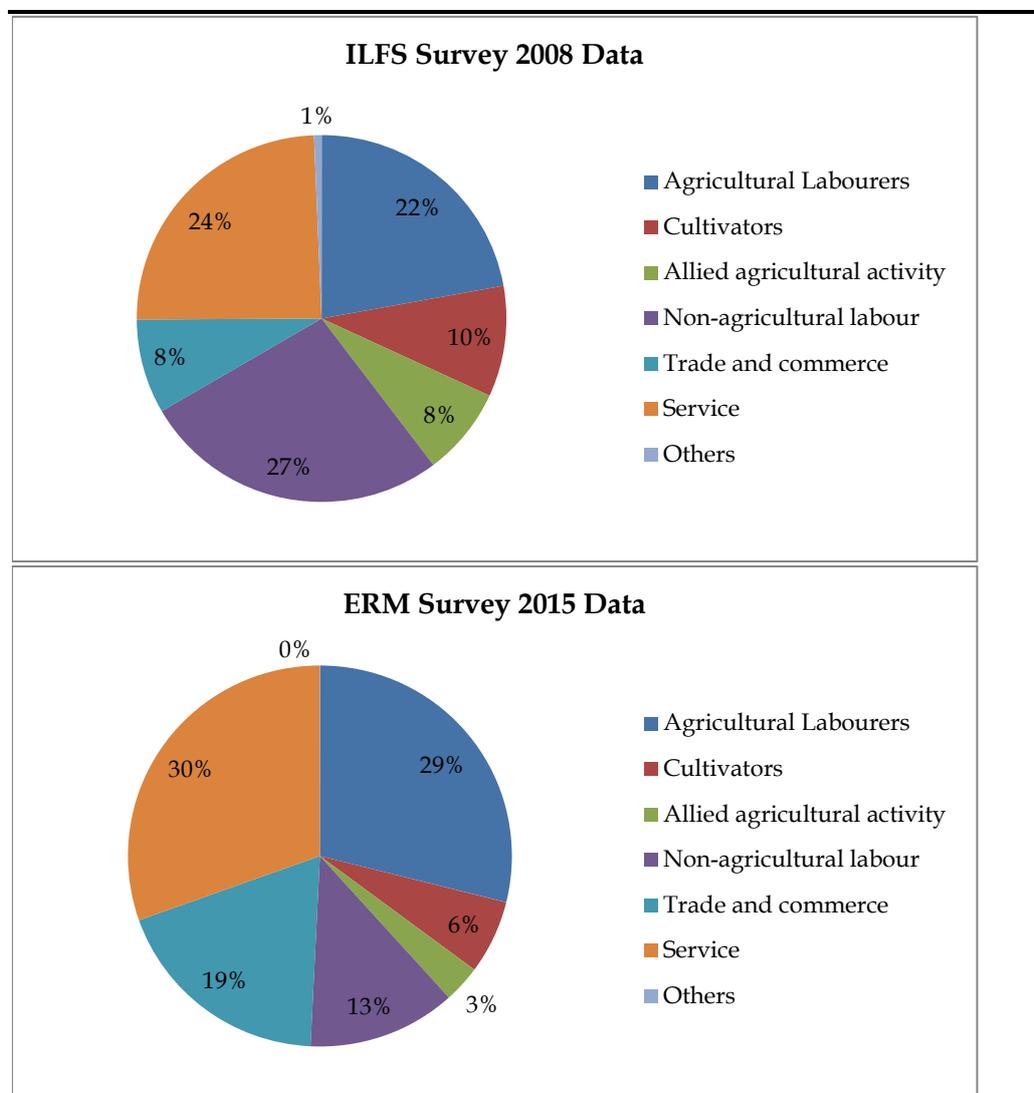
The total population engaged in agriculture (including cultivators and agriculture labour) has reduced in the periphery area villages from 54% in 2001 to 24% in 2011. This shows a drift from traditional agriculture to industrial vocations in the study area.

5.4.3

Change in Occupations in the Project Affected Villages

The social survey of the project affected villages in 2007-2008 on the occupation and livelihood profile of the project area villages is used for understanding the changes in occupation composition of the study area. The 2007-08 IL&FS study reveals that among the PAVs approximately 40% of the working population was engaged in agricultural activity and 60% of the working population in non-agricultural activity. The responses of the households surveyed during the ERM survey on occupational categories slightly differed from the IL&FS survey. In order to compare, the responses on occupation in ERM survey were re-classified to match the categories of earlier IL&FS survey. Therefore, the allied agricultural activities include livestock rearing; trade and commerce activities include large and small scale business and services include mechanic, driver, and tailor.

Figure 5.4 *Comparison of occupational composition in 2008 and 2015*



Source: ILFS 2008 and ERM 2015

There is a reduction in the proportion of cultivators from 10% in 2007-08 to 6% in 2015. There has been an increase in the agriculture labourers from 22% in 2007-08 to 29% in 2015. There is increase in the service and trade and

commerce sector as well. 'Services' is reported to be the occupation for 30% people in 2015 compared to 24% in 2007-08. The involvement in trade and commerce has risen from a mere 8% in 2007-08 to 19% in 2015. This clearly shows that the occupational patterns have shifted from traditional agriculture to industrial (which includes services, trade and commerce).

5.5 AGRICULTURE & ALLIED

As indicated in the previous section, agriculture and allied activity formed a critical source of livelihood and income for the families residing in the study area. However, over a period of time, with industrialization and development, the livelihood options and choices have undergone change. The share of agriculture has reduced in the study area. This section will examine the land-use, i.e. the area under agriculture and irrigation, the cropping pattern and livestock population to understand the scenario of change in traditional occupations of people.

5.5.1 Land under Cultivation

The overall land use pattern in the project affected villages, based on the SIA baseline data (2007), indicated that a high proportion of the cultivated land was unirrigated. Only Mota Kandagra village had a higher proportion of irrigated land. Borewells were the main source of irrigation.

The pre-project social studies used 2001 census or Gram Panchayat sources. More recent data from same secondary sources is used here to examine the changes in broad land-use of the study area. The detail of the cultivated land of villages in study area is provided in table below.

Table 5.16 Cultivated Land in study area from 1991 to 2011

Zone/ Village Name	Total Cultivated Land (hectares)			Changes in Cultivated Land		
	1991	2001	2011	1991-2001	2001-2011	1991-2011
Project Area	3266.9	2707.44	2522.22	-17%	-7%	-23%
Kandagara Mota	1189.76	1272.42	1272.41	-7%	0%	-7%
Bhadiya Nana	1119.4	518.46	400.49	-54%	-23%	-64%
Tragadi	483.01	483.01	688.55	0%	-43%	-43%
Tunda	474.73	433.55	160.77	-9%	-63%	-66%
Periphery Area	10223.28	9855.07	9327.7	-4%	-5%	-9%
Bag	801	801	0	0%		
Bidada	2303.02	2167.56	2167.72	-6%	0%	6%
Gundiyali	2349.7	2349.7	2278.83	0%	3%	3%
Khakhar Moti	1158	962.79	1018.22	-17%	6%	-12%
Maska	821.91	821.91	1064.11	0%	29%	29%
Mota Bhadiya	369.74	374.05	376.88	1%	1%	2%
Nani Khakhar	743.53	757.67	576	2%	-24%	-23%
Navinal	495	561.31	615.73	13%	10%	24%
Pipari	362.38	364.62	364.82	1%	0%	1%

Zone/ Village Name	Total Cultivated Land (hectares)			Changes in Cultivated Land		
	1991	2001	2011	1991-2001	2001-2011	1991-2011
Shiracha	819	694.46	865.39	-15%	25%	6%
Grand Total	13490.18	12562.51	11849.92	-7%	-6%	-12%

Source: Census of India- 1991, 2001, 2011

Cultivated land (including both irrigated and un-irrigated land) in periphery area is seen to have reduced by 4% between 1991 and 2001, much before the industrialisation of the area started. The reduction in subsequent decade (between 2001 and 2011) is 6%. Thus, the pace of change in cultivated land in subsequent decades has been more or less the same.

Similarly, in project area the reduction of cultivable land is 17% and 7% for 1991-2001 and 2001-2011 respectively. Some of the villages, such as Nana Bhadiya reports significant reduction of cultivated land in 1991-2001. There is a reduction of 270 ha cultivated land in Tunda village between 2001 and 2011 CGPL has acquired 187ha of private land from Tunda.

Some of the villages in periphery area show increase in the cultivable land. For example, in Maska total cultivated land has increased 29% in comparison to 1991. Similarly, increase in cultivated land is reported in Navinal (10%) and Siracha (24%) between 2001 and 2011. The data suggests expansion and intensification of agriculture practice in some villages and diversion of cultivated land in certain others. The reasons for such divergent trends are not clear and require further study.

5.5.2 Land under Irrigation and Sources of Irrigation

The agriculture in project area villages was mostly rainfed. This is reflected in the statistics of the percentage of irrigated land to the total cultivated land which is presented in following table.

Table 5.17 Proportion of irrigated area vis-à-vis the total cultivated land

	Total Cultivated Land (hectares)			Total Area Irrigated (in Hectares)			Total Irrigated Land as a % of Total Cultivated Land		
	1991	2001	2011	1991	2001	2011	1991	2001	2011
Project Area	3266.9	2707.4	2522.2	659.1	373.8	324.6	20.1%	13.8%	12.8%
Kandagar	1189.76	1272.42	1272.41	142.14	153.78	300	11.95%	12.09%	23.58%
a Mota									
Bhadiyaa	1119.4	518.46	400.49	400.4	121.41	0	35.77%	23.42%	0.00%
Nana									
Tragadi	483.01	483.01	688.55	38.15	68.26	0	7.90%	14.13%	0.00%
Tunda	474.73	433.55	160.77	78.45	30.35	24.6	16.53%	7.00%	15.30%
Periphery Area	10223.2	9855.07	9327.7	3902.7	4953.0	1620.6	38.1%	50.2%	17.3%
Bag	801	801	0	801	801.00	0	100.00%	100.00%	0.00%
Bidada	2303.02	2167.56	2167.72	1297.31	1161.85	129.3	56.33%	53.60%	5.96%
Gundiya	2349.7	2349.7	2278.83	730.86	1227.6	0	31.10%	52.24%	0.00%
Khakhar	1158	962.79	1018.22	275.27	545.53	710.22	23.77%	56.66%	69.75%

	<i>Total Cultivated Land (hectares)</i>			<i>Total Area Irrigated (in Hectares)</i>			<i>Total Irrigated Land as a % of Total Cultivated Land</i>		
	<i>1991</i>	<i>2001</i>	<i>2011</i>	<i>1991</i>	<i>2001</i>	<i>2011</i>	<i>1991</i>	<i>2001</i>	<i>2011</i>
Moti									
Maska	821.91	821.91	1064.11	417	464.57	489.64	50.74%	56.52%	46.01%
Mota	369.74	374.05	376.88	89.74	194.05	77.89	24.27%	51.88%	20.67%
Bhadiya									
Nani	743.53	757.67	576	160.4	293.40	81.24	21.57%	38.72%	14.10%
Khakhar									
Navinal	495	561.31	615.73	60	121.41	66.92	12.12%	21.63%	10.87%
Pipari	362.38	364.62	364.82	43.17	62.72	25	11.91%	17.20%	6.85%
Shiracha	819	694.46	865.39	28	80.93	40.47	3.42%	11.65%	4.68%

Source: Census 1991, 2001 and 2011

The irrigated land as a proportion of cultivable land is seen to have reduced across the project area villages (except for Mota Kandagra which has witnessed an increase of nearly 10%). To some extent, this is attributable to an overall reduction in the cultivable land, as indicated in the previous section.

While the reduction in the cultivated land in the project area is 17% and 7% for 1991-2001 and 2001-2011 respectively, the reduction in the irrigated land is 8% and 1% respectively. Tragdi and Nana Bhadiya have witnessed significant reduction from 2001 figures, whereas in Tunda and Mota Kandagra, the irrigated area has increased (above ~ 8 %). In the periphery area villages, there is a consistent reduction in the irrigated area (except Moti Khakkar).

The sources of irrigation for agriculture were noticed to have changed in the last three decades. The area under surface water irrigation (canals, tanks and lakes) has not changed much. In fact the reliance on surface water for irrigation was negligible. The irrigation in the study area was more reliant on ground water, with farmers using well and tube wells for irrigation. The total area under irrigation from wells/tube wells in project area has decreased from 667.28ha in 1991 to 258.28ha in 2001 and then has increased to 324.66ha in 2011. Similarly, in periphery area the total area under ground-water irrigation was 3902.75ha in 1991 which increased to 4497ha in 2001. However, the area under irrigation from ground-water drastically decreased to 1464ha in 2011. The variations in the area irrigated from ground-water for individual villages in study area are provided in the table below.

Table 5.18 Changes in Sources of Irrigation in study area

Zone	Village Name	Canals Area (in Hectares)			Wells/Tube Wells Area (in Hectares)			Tanks/Lakes Area (in Hectares)		
		1991	2001	2011	1991	2001	2011	1991	2001	2011
Project Area	Tunda	0	0	0	78.45	30.35	24.6	-	0	0
	Bhadiya Nana	0	40.4	0	400.4	80.94	0	-	0	0
	Kandagara Mota	0	0	0	142.14	62.73	300	-	0	0
	Tragadi	0	0	0	38.15	68.26	0	-	0	0
	Bag	0	0	0	801	801	0	-	0	0
	Bidada	0	0	0	1297.3	1029.1	125.6	-	16.2	3.7
Periphery Area	Gundiyali	0	0	0	730.86	1227.6	0	-	0	0
	Maska	0	0	0	417	464.57	489.6	-	0	0
	Mota Bhadiya	0	0	49.3	89.74	194.05	1.39	-	0	27.2
	Nani Khakhar	0	0	5	160.4	0	5	-	0	71.2
	Khakhar Moti	0	0	0	275.27	545.53	710.2	-	0	0
	Navinal	0	0	0	60	121.4	66.9	-	0	0
	Pipari	0	0	0	43.17	62.72	25	-	0	0
	Shiracha	0	0	0	28	50.58	40.4	-	0	0

Source: Census of India-1991, 2001, and 2011.

It is significant to note that the area irrigated from ground water sources in Mota Kandagara has increased from 62.73ha in 2001 to 300ha in 2011. Maska and Moti Khakar in periphery area show increase in the area irrigated through ground water sources.

5.5.3 Cropping Pattern

The SIA baseline report (2007) and CEIA report (2007) did mention the agriculture activity and the main crops grown in the study area. It is to be noted that the CEIA data relied on the Census 2001 data to identify the main crops grown in the study area. Hence, corresponding data from 2011 Census is used in this section for a comparative analysis.

Based on the discussions with the villagers, the SIA baseline data suggests that the proportion of food crops grown is high in Nana Bhadiya and Mora Kandagra, whereas the cash crops are majorly grown in Mota Kandagra followed by Tunda and Nana Bhadiya. The dependence on agriculture and the crops grown are relatively less in Tunda Vandh village.

The most important crops grown in the study area, as per Census 2001, are pulses, cotton and bajra in the villages in Mandvi Taluka and cotton, wheat, and groundnut in the villages in Mundra Taluka. This is followed by wheat, groundnut, jowar, bajra, mung, castor seeds and guvar in the villages across both the Talukas. Previously, as indicated, only a few farmers had wells in their farm through which they could reap two crops. The rest of the farmers were dependent on rains and could only take one crop i.e. jowar and bajra.

There has been a change in the cropping pattern in the last decade. Previously, the main crops grown were pulses, cotton, wheat and bajra (as also indicated in the ILFS study in 2008) whereas as per census 2011, the main crops grown were sorghum, groundnut, and pearl millet, sesame etc., The 2011 data therefore indicates that there has been a shift from food crop to cash crops in the area.

Table 5.19 Area Irrigated and Cropping Pattern

Zone	Village Name	2001			2011		
		Area Irrigated (in Ha)	Agri Commodities (First)	Agri Commodities (Second)	Area Irrigated (in Ha)	Agri Commodities (First)	Agri Commodities (Second)
Project Area Villages	Tunda	30.35	cotton	guvar	24.66	sorghum Pearl millet/	cotton
	Nana Bhadiya	121.41	jowar	bajri	0	bajra	mung bean
	Mota Kandagara	153.78			300	cotton	pearl millet/ bajra
	Tragadi	68.26	bajri	jowar	0	cotton	wheat
	Bag	801.00	cotton	bajri	0	cotton	wheat
Periphery Area Villages	Bidada	1161.85	bajri	groundnut	129.3	sorghum pearlmillet /bajra	mung bean
	Gundiyali	1227.61	bajri	cotton groundnut	0	/bajra	sorghum
	Maska Mota	464.57	bajri	ut	489.64	cotton	groundnut pearl
	Bhadiya	194.05	bajri	mug	77.89	wheat pearlmillet	millet/bajra
	Nani Khakhar	293.40	cotton	wheat	81.24	/bajra	wheat
	Khakhar Moti	545.53	cotton	wheat	710.22	cotton pearlmillet	castor
	Navinal	121.41	cotton	wheat	66.92	/bajra	wheat pearl
	Pipari	62.72	wheat	bajri	25	sesame pearl millet/ bajra	millet/bajra
	Shiracha	80.93	wheat	bajri	40.47	bajra	mung bean

Source: Census 2001 and 2011

5.5.4 Community Dependence on Common Property (Land) Resources

The common land pool in the study area on which local communities show a varied range of dependence includes the designated cultivable waste and forest land and pasture lands. This land though is under the ownership of government, is used by villagers to support their livestock, collect fire-wood, and other edible herbs. The change in this common land pool is examined in this section.

Out of the total land required for the project, 320 ha was transferred to CGPL by MSEZ and 181 ha was privately owned land. The remaining land was

obtained from Government of Gujarat. The social impact assessment studies for CGPL had identified communities or groups whose livelihood was dependent on these common property resources (CPR).

The classification and categorization of the land in Village abstracts published by Census of India has undergone changes between 2001 and 2011. Prior to 2011, the classification of the total revenue land for the village included five categories, i.e. forest land, total irrigated land, total unirrigated land, culturable waste land and area not available for cultivation. In 2011, the land category of “area not available for cultivation” was replaced with five other sub-categories including barren uncultivable land, permanent pasture and grazing land, area for non-agricultural use, fallow lands (current fallow and other than current fallow). This posed constraints for comparison of 2001 and 2011 data on common land pool which was not privately owned.

The forest land and area not available for cultivation as per village abstract data of 2001 was considered as the common land pool. For village abstract 2011, barren uncultivable land, permanent pasture and other grazing land were considered as the common land pool. The comparison of the common land pool available for village communities is provided in table 5.20 below.

Table 5.20 *The Common Land Pool in Study Area*

<i>Zone/ Village Name</i>	<i>Total Geographic Area in Ha</i>	<i>Common Land Pool in Ha</i>		<i>Change 2001-2011 in ha</i>
		2001	2011	
Project Area	6709.44	2423.8	1871.5	-552.30
Kandagara Mota	2084.96	534.15	102.26	-431.89
Tragadi	1456.88	727.46	734.25	6.79
Bhadiya Nana	1853.3	547.95	503.80	-44.15
Tunda	1314.3	614.24	531.19	-83.05
Periphery Area	13705.21	1956.31	2502.14	545.83
Bag	813.96	12.96	12.96	0.00
Bidada	2758.99	48.18	446.85	398.67
Gundiyali	2898.52	340.82	547.00	206.18
Khakhar Moti	1250.77	85.43	192.09	106.66
Maska	1393.07	362.22	243.72	-118.50
Mota Bhadiya	436.76	20.77	49.88	29.11
Nani Khakhar	981.91	85.09	372.03	286.94
Navinal	1038.33	300.65	118.62	-182.03
Pipari	456.26	19.02	64.62	45.60
Shiracha	1676.64	681.17	454.37	-226.80
Grand Total (Study Area)	20414.65	4380.11	4373.64	-6.47

Source: Village Abstract, Census of India 2001 and 2011.

The common land pool available for meeting community needs for fodder and fire-wood is reduced in project area by 552.3ha. The reduction is significant in Mota Kangagara, though Tunda and Nana Bhadiya also have minor reduction. Though some of the villages such as Siracha, Navinal and Maska

also show reduction in common pool land, the reclassification of lands in Periphery area has increased the common pool land area by 543.83ha. Thus, the effect of the reduction of common pool land is expected to be limited to these villages.

A clear classification of permanent pastures and other grazing land area was made in 2009 and the data was compiled in Census 2011. The details of currently available permanent pasture and other grazing land area are provided in table below.

Table 5.21 *Availability of Permanent Pasture Land and Other Grazing Land in Study Area in 2011*

Zone	Village Name	Total Geographical Area (in Hectares)	Permanent Pastures and Other Grazing Land Area (in Hectares)	% of Total Area
Project Area	Tunda	1314.3	214.41	16%
	Kandagara Mota	1853.32	97.37	5%
	Tragadi	2084.96	48.56	3%
	Nana Bhdiaya	1456.88	67.2	4%
	Sub-Total	10013.4	376.79	6%
	Bag	813.96	0	0%
Periphery Area	Bidada	2758.99	414.94	15%
	Gundiyali	2898.52	547	19%
	Maska	1393.07	129.5	9%
	Mota Bhadiya	436.76	11	3%
	Nani Khakhar	981.91	178.15	18%
	Khakhar Moti	1250.77	101.98	8%
	Navinal	1038.33	17.42	2%
	Pipari	456.26	52.6	12%
	Shiracha	1676.64	212.2	13%
	Sub-Total	13705.21	1664.79	12%

Source: Village Abstract, Census of India 2011

The available pasture and grazing land in project area constitutes 6% of the total geographical area. Tunda village in 2011 has 16% of its total geographical area as pasture and grazing land. Tunda still has the highest and Tragadi has the lowest pasture and other grazing land available in project area.

In periphery area, the available pasture and grazing land comprises of 12% of the total geographic area. Villages which have higher percentage of grazing land in buffer zone are Bidada (15%), Gundiyali (19%), Nani Khakhar (18%), Pipari (12%) and Shiracha (13%).

5.5.5 Livestock Rearing

Livestock rearing/animal husbandry is a critical livelihood option along with agriculture. The traditional semi-nomadic pastoralist community residing in Vandh had no or very little agricultural land, but raised a large herd of cattle.

The surveys in the pre-construction phase in the SIA baseline data and CEIA data provide data on the total livestock population in the villages. While the SIA study covered only the PAV villages, the CEIA data included 12 villages (excludes Mota Kandagra among PAVs). The CEIA report mentions 54 cattle for Tunda in 2008 citing source of the information as Gram Panchayat Official. The records of the TVGCT recorded the total cattle population benefited to be 578. The IL&FS report mentions the total cattle (cow+buffaloe+Ox) to be 651 for Tunda. Hence, the IL&FS data looks more reliable in comparison to CEIA report. As IL&FS report covers only three project affected villages, this section will examine the changes in livestock numbers with reference to these project affected villages.

In order to compare the number of livestock in these three villages were examined from K-Link and ERM sample survey. The livestock numbers from K-link survey was found to be highly unreliable as it recorded high cattle population from Tragadi Bunder and very small numbers of livestock in Tunda Vandh. The cattle population benefited from the fodder distribution at Gaushalas was taken as a dependable minimum livestock number for Tunda and Mota Kandagara. For other categories of livestock, the only comparative data for current year was from ERM survey. As ERM survey was only a representative sample survey, the livestock numbers from all sources were converted to per household figures for 2008 as well as for 2015. The comparison is limited to major livestock, i.e, cattle (which includes Ox, bullock, buffalo, and cows) and Sheep/Goat and Camel. The comparison is provided in table below.

Table 5.22 *Livestock Numbers per household in Project Affected Villages for 2008 and 2015*

Village	Cattle		Camel		Sheep Goat	
	2008	2014	2008	2015	2008	2015
Tunda	5.3	9.1	19.0	0.0	11.6	15
Mota Kandagara	4.1	9.7	1.3	0.0	7.5	1.0
Nana Bhadiya	2.5	NA	1.0	0.0	1.8	0

Source: 2008 data is from IL&FS Report, 2008, 2015 data is from ERM Sample Survey, 2014 data is from TVGCT and MKGCT.

The average per-household cattle head in Tunda was recorded to be 5.3 in 2008 which has reached 9.1 per household in 2014. Similarly, the increase in cattle heads for Mota Kandagara is noticed from 4.1 in 2008 to 9.7 in 2014. However, it seems the practice of camel keeping which was reported in 2008 from Tunda appears to have been discontinued now. The average number of sheep/goat in 2015 in Tunda has increased in comparison to 2008 as well. However, the average number of sheep/goat per household in Mota Kandagara and Nana Bhadiya has reduced.

5.5.6

Household Income

The previous sub-section discussed the livelihood options and changes in the occupation pattern. This sub-section will throw light on the household income (cash) patterns associated with the livelihoods.

The IL&FS survey report of 2008 gives the household income and expenditure of the PAVs. The household income for other villages is not available. Hence, the discussion in the change of household income from the pre-project scenario limits to PAVs only. The household income data in IL&FS report is provided in terms of number of households having income in a defined range. This section therefore retains the same structure of presenting household income data. The following Table shows household falling under different income category classes¹.

Table 5.23 *Distribution of household in different income category classes*

Village	<0.80 Lakhs*	>0.80- 1.6 lakhs	>1.60-2.40 lakhs	>2.40-3.20 Lakhs	>3.20 lakhs	Total
Tunda	302	9	2	1	3	317
Mota	480	38	5	1	5	529
Kandagara						
Nana	161	15	5	0	0	181
Bhadiya						
Total	943	62	12	2	8	1027
% of HHs	91.8	6.04	1.17	0.19	0.78	

Source: Household Survey and Needs Assessment Study For Ultra Mega Power Project, Mundra, IL&FS, 2008

* 1 Lakh is one hundred thousands, or 0.1 million.

In 2007-08, only a few households in the project area villages earned more than 3.2 lakhs per annum. Majority (91.8%) of the household is falling under the first category of income classification (Rs < 0.80 Lakhs). Since maximum concentration of household was observed in the first income category, the range was further split into four equal segments (income classes). It was observed that out of 92% of the household, 33% fell in the income category of less than Rs 21000, 46.75% is in the range of Rs 21000 to Rs. 42000. The average annual family income in the PAV was estimated to be about Rs.44,267. The average annual family income for Mota Kandagaa village was found to be maximum at Rs.45,603 in 2008. The average annual income in 2008 for Nana Bhadiya was Rs.44,101 and Tunda was Rs.44,077.

The comparative income data has been captured in the K-Link survey and ERM survey across the PAV. As there were gaps identified in the K-link

¹ These income ranges are not benchmarked against any national or international index. The World Bank international poverty benchmark of 1.25 USD a day at the yearly average exchange price of 1 USD=43.78 INR for 2008 makes the poverty level at 19,975 INR for 2008. The international poverty line for 2015 at 1.78 USD per day at yearly average exchange price of 1 USD=64.12 INR for 2015 defines the poverty level at 41,659 INR. Hence, the income ranges considered are much above the international poverty line definitions for the respective years.

survey pertaining to the income data, the ERM data has been presented in table 5.24 below.

Table 5.24 *Distribution of household in different income class*

Village Name	<0.80 lakhs	>0.80- 1.6 lakhs	>1.60- 2.40 lakhs	>2.40- 3.20 Lakhs	>3.20- 5.00 Lakhs	>5.00 Lakhs	Total
Tunda	8	6	1	1	1	2	19
Mota Kandagara	10	4					14
Nana Bhadiya	12	5			2		19
Total	30	15	1	1	3	2	52
% of HHs	57.69%	28.85%	1.92%	1.92%	5.77%	3.85%	

Source: ERM survey, 2015

The ERM sample survey-2015 data indicates that there are fewer households under the income bracket of <0.8 lakhs. For instance: while 91.8% of the households in the PAV were under the first income bracket in 2008, only 57.6% of the households in the PAV are in this income range in 2015. On the other end of the spectrum, while 0.78% of the households had annual income above Rs. 320,000 in 2007, about 9.62% of the households in 2015 have annual income above Rs. 320,000.

The IL&FS survey report also revealed that annual expenditure per Household was maximum in Mota Kandagara (Rs. 38430/-), followed by Nana Bhadiya (Rs. 37399/-), and Tunda (Rs. 35766/-). It was observed that food rations accounted for a major share of the total annual expenditure (30%). Transport (12%) and water and electricity bills (10%) also accounted for a sizeable share of expenditure. The expenditure data has not been captured in the subsequent surveys in K-Link and ERM. Hence, changes in the pattern of household expenditure could not be assessed.

The current average household income in 2015 for other villages in the study area is provided in table below. This would serve as benchmark for any future studies.

Table 5.25 *Household Income in Other Villages in Study Area*

Villages	<0.80 lakhs	>0.80- 1.6 lakhs	>1.60-2.40 lakhs	>2.40-3.20 Lakhs	>3.20- 5.00	>5.00
Bag	13	4	2		2	2
Bidada	18	8	1			
Gundiyali	11	5				
Maska	13	6		1		
Mota Bhadiya	14	8	2			
Nani Khakkar	9	7		1	1	
Navinal	10	11	1			
Pipri	8	2				

Siracha	8	8				1
Tragadi	14	9				
Total	118	68	6	2	3	3
(in % of Total HHs)	59.00%	34.00%	3.00%	1.00%	1.50%	1.50%

Source: ERM Survey-2015

There are 59% of the households in other villages of the study area who fall within the income range of less than 0.8 lakhs per annum. The distribution of households in other income ranges more or less matches the project area villages. However, the percentage of high income households (>3.2 lakhs) is more in project area villages in comparison to other villages in study area.

ERM made an effort to examine the variation of income from different sources or livelihood options. The average income from different livelihood options was reported in CEIA report. The responses to livelihood options in ERM survey and previous CEIA survey differed. Hence, comparison for the entire range of livelihood options for these two data sets was not possible. The changes in average annual income from agriculture, service and trade for different villages is presented in table below.

Table 5.26 Average Annual Income from Different Occupations/Livelihood Pursuits

Village	Agriculture income in Rs per annum		Service/ Employment income in Rs per annum		Trade/ Business income in Rs per annum	
	2015	2008	2015	2008	2015	2008
Bag	10,000	50,000	71,820	10,000	1,11,666	40,000
Bidada	90,333	12,000	73,666	6,000	83,777	36,000
Gundiyali	1,01,667	40,000	72,500	20,000		35,000
Maska		5,000	83,889	14,000	1,51,500	50,000
Mota	89,375	50,000	94,600		63,000	50,000
Bhadiya						
Nani	65,000	50,000	84,200		1,01,500	
Khakkar						
Navinal	1,06,667		76,095		92,833	
Pipari		2,50,000	77,000		90,000	60,000
Siracha	96,667	50,000	86,666		45,750	
Tragadi	1,09,000	20,000	49,167		35,000	50,000

Source: 2008 data is from CEIA report , 2015 data is from ERM survey-2015.

There is an increase in average agricultural income for most of the villages except Bag. . There is a marginal increase in income from trade and business as well. However, the increase of income from employment/ service is of several folds higher

5.6

FISHING PRACTICES

As CGPL is located on the coastline, the fishing population in the neighbourhood of CGPL practice marine fishing. The fishing communities

involved in marine fishing traditionally live in separate settlements alongside other coastal communities. These settlements comprised of homogenous fishing communities and are recognised as fishing villages. The marine fishing survey conducted in every five year interval covers these fishing villages along with fish landing centres (locally known as Bunders). The fishing villages are permanent settlements, while some of the Bunders may serve as temporary settlements. Fishing families from several coastal villages of Kutch migrate and stay at Tragadi *Bunder* around mid-August to end of May every year.

The fishing communities in coastal area lead a semi-nomadic lifestyle and depend on fishing resources spread across in a wider area. Therefore, the changes in fishing practices of the local fishing communities needs to be understood in the wider regional (ecosystem) context (Kutch coastline). The information available in previous Marine Census of 2005 and 2010 is found useful to understand this wider context. A Situation Analysis and Participatory Needs Assessment Study of Modhva (a fishing village) was conducted by TRIOs in November 2011. The report provides information on infrastructure and other facilities available in Modhva and has rudimentary information on fishing practices. The report has little relevant information which could be used to understand any trends of changes in livelihood patterns. Another study by AAKAR (SWADEEP) covers Tragadi Bunder. This study report includes the value chain analysis of the fishing activities at Tragadi Bunder. It also collected primary data from a sample of households on the fish catch and examined the impact of CGPL on fishing.

The first Marine Fishing survey of 1980 records 51 villages and 1118 households engaged in marine fishing along the coastline of Kutch District. In 2005, there were 62 fishing villages in the coast of Kutch with 3358 families living in them. According to the latest survey in 2010, there were 68 fishing villages and 3505 fishermen families. Fishing families numbers, therefore, are on the rise as also establishment of new fishing villages along the coastline of Kutch.

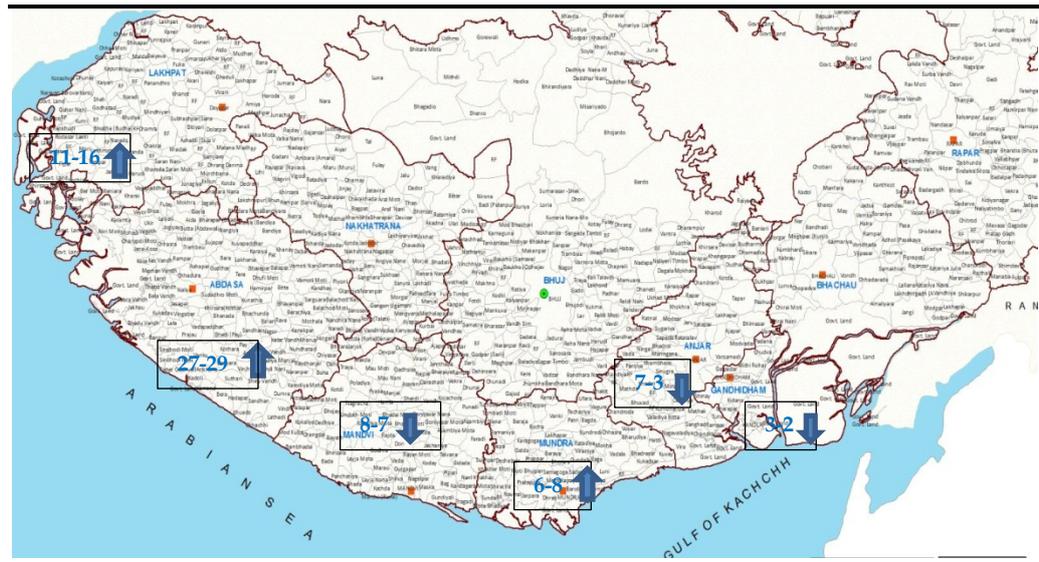
Table 5.27 Numerical Increase in Coastal Fishing Villages in Kutch since 1980

Particulars	1980	2005	2010
Total Number of Villages	51	62	68
Abdasa Taluka		27	29
Anjar Taluka		7	3
Gandhidham Taluka		3	2
Lakhpat Taluka		11	16
Mandvi Taluka		8	7
Mundra Taluka		6	8
Total Fishermen Households	1118	3358	3505
Total Active Fishermen		4890	4499
Landing Centers		19	22

Source: Marine Fisheries Census, 2010, 2005, 1980.

The number of fishing villages in Abdasa and Lakhpat has increased significantly, while fishing villages in Anjar and Gandhidham taluks have reduced. Anjar shows a reduction of 4 settlements and neighbouring Mundra shows increase of 2 settlements. This suggests coastal fishing settlements in Kutch coast are moving westward, though Mundra-Mandvi region is still the closest and preferred locations. As per consultation with local fishermen, establishment of a series of ports and associated industrial development in Anjar and Gandhidam region has contributed to such a shift.

Figure 5.5 *Marine Fishing Villages in Kutch Coast*



There is a corresponding increase in the fish landing centers from 19 in 2005 to 22 in 2010 in the coast line of Kutch. The number of active fishermen however has declined from 4890 to 4499 which may be due to occupational diversification in traditional fishermen families. The younger generation is reported to be keen to move away from fishing due to uncertainties, high risk and hardship associated with this profession.

5.6.1 *Demographic Trends in Fishing Communities*

The number of households and population figures from Marine Fisheries Census of 2005 and 2010 for the Mandvi and Mundra Taluks are compiled in table 5.28 below.

Table 5.28 *Demographic trends in the fishing villages of Mundra and Mandvi Coast*

Taluk	Name of the village	Households			Total Population			Average Family Size	
		2005	2010	Change	2005	2010	Change	2005	2010
Mandvi	Bada	46	59	28%	205	258	26%	4.5	4.4
	Bambhadai	35	44	26%	166	186	12%	4.7	4.2
	Kathada	28	45	61%	188	287	53%	6.7	6.4
	Mandvi	28			87			3.1	

Taluk	Name of the village	Households			Total Population			Average Family Size	
		2005	2010	Change	2005	2010	Change	2005	2010
Mandvi	Modhava	139	163	17%	910	2303	153%	6.5	14.1
	Mota Salaya	124	210	69%	1058	1482	40%	8.5	7.1
	Nana Layaja	52	75	44%	272	331	59%	5.2	4.4
	Tragadi	81	87	7%	494	621	26%	6.1	7.1
Mundra	Bhadreswar	216	191	-12%	1262	1067	-15%	5.8	5.6
	Jarpara	56	37	-34%	319	192	-40%	5.7	5.2
	Luni	192	246	28%	1055	1217	15%	5.5	4.9
	Mundra	12	15	25%	64	71	11%	5.3	4.7
	Navinal	20	22	10%	133	121	-9%	6.7	5.5
	Sekhadia	63	122	94%	649	756	16%	10.3	6.2
	Sukhpur		60		120	295	146%		4.9
Drab		45		168	318	89%		7.1	

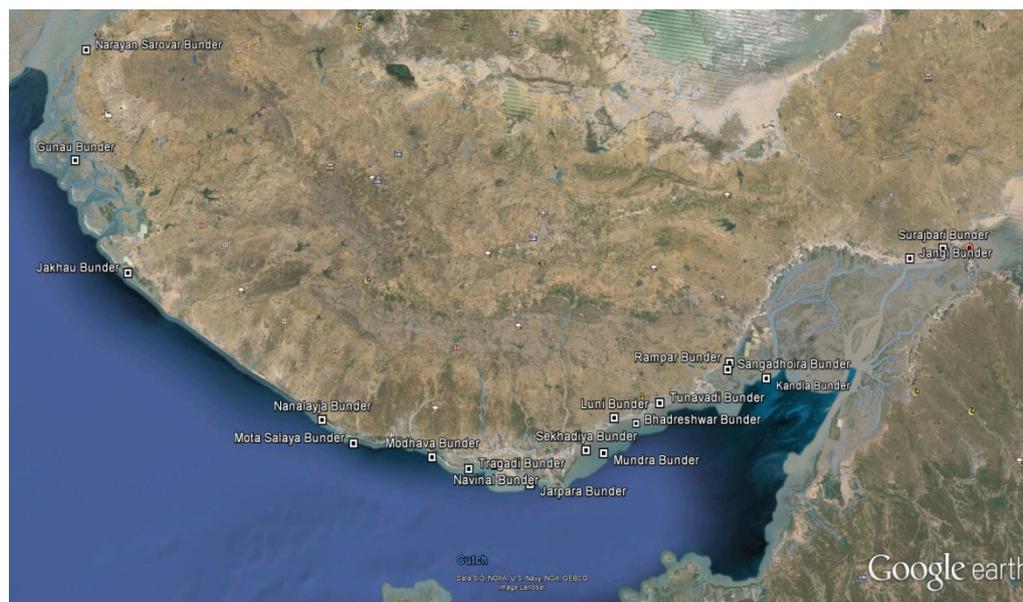
Source: Marine Fisheries Census, 2005 and 2010.

One fishing village in Mandvi which had 28 fishermen households in 2005 is absent in the Census 2010 list of fishing villages. Most of the Mandvi fishing villages show increase in number of families. However, growth of households in Kathada (61%), Nana Layaja (44%) and Mota Salaya (69%) is significant.

Two new fishing settlements (Sukhpur and Drab) in Mundra are reported in 2010 census which was not mentioned in 2005 census. Along with these two new settlements, Shekhadia shows 94% increase in number of households. However, Bhadreshwar (-12%) and Jharpara (-34%) shows decline in number of fishermen households. The semi-nomadic and mobile nature of fishing households may be responsible for some of these changes. However, the overall trend of fishing population suggests there is a reduction of population in Mundra Taluka and corresponding increase in Mandvi Taluka.

The number of fishing families in Tragadi is reported as 81 in 2005 and 87 in 2010 as per the CMFRI census of fishing villages. It is not clear, if CMFRI enumeration includes the families in the seasonal settlement at Tragadi Bunder. Consultations revealed that the number of families at Tragadi Bunder keeps changing; however, some of the families have been visiting Tragadi Bunder since a long time. CGPL and AAKAR enumeration of families in Tragadi Bunder reports 30 families in 2008-09, 58 families in 2012-13, and 88 in 2013-14. This shows a trend of increase of number of families at Tragadi Bunder.

Figure 5.6 *Map showing fishing settlements in Mundra and Mandvi Coast, Kutch, Gujarat.*



Source: Adapted from Google earth

The trends in demography of the coastal fishing villages within the study area are provided in the table. The fishing villages from east to west direction within the study area are Navinal, Tragadi and Modhva. The increase in number of fishing households between 2005 and 2010 in Navinal is 10% and in Tragadi it is 7%. However, a significant change of households (17%) and drastic increase in population is noticed at Modhva. Though number of households in Modhva increased from 139 to 163, the total population has increased from 910 to 2303 persons. Such a surge in population indicates migration and merger of population. The occurrence of migration between 2005 and 2010 can be confirmed from the change in adult population, which cannot be achieved through natural process of population growth.

5.6.2 *Occupational Diversion in Fishing Population*

The proportion of adult population engaged in fulltime or part time fishing was compared to understand if dependence and preference for fishing as a livelihood is changing in these fishing villages. The difference between proportion of the adult population engaged in fulltime and part-time fishing is shown in table below.

Table 5.7 *Full-time and part-time fishing in Mundra and Mandvi*

<i>Taluk</i>	<i>Name of the village</i>	<i>Total Adult</i>		<i>Actual Fulltime fishing</i>			<i>Part-time Fishing</i>		
		<i>2005</i>	<i>2010</i>	<i>2005</i>	<i>2010</i>	<i>Change</i>	<i>2005</i>	<i>2010</i>	<i>Change</i>
<i>Mandvi</i>	Bada	121	146	45	58	3%	0	2	1%
	Bambhadai	79	97	35	43	0%	0	3	3%
	Kathada	93	150	35	51	-4%	0	0	
	Mandvi	52	0	0			14		

	Modhava	514	1290	154	364	-2%	17	33	-1%
	Mota Salaya	633	716	233	317	7%	30	5	-4%
	Nana Layaja	122	208	51	104	8%	0	0	
	Tragadi	277	369	89	111	-2%	2	0	-1%
Mundra	Bhadreswar	605	407	357	203	-9%	5	0	-1%
	Jarpara	129	93	67	47	-1%	1	0	-1%
	Luni	510	438	337	243	-11%	0	0	
	Mundra	37	27	21	15	-1%	4	0	-11%
	Navinal	70	42	20	30	43%	0	0	
	Sekhadia	420	185	126	122	36%	0	0	
	Sukhpur	120	60		60				
	Drab	168	45		45				
	Total	3950	4273	1570	1813	3%	73	43	-1%

Source: Marine Fisheries Census, 2005 and 2010.

It is observed that there is 3% increase in proportion of adult population who are engaged in fulltime fishing, though there is 1% reduction in proportion of adult population engaged in part time fishing. Even though there is an overall positive trend showing adult fishermen continuing their traditional occupation, some of the fishing settlements such as Tragadi and Modhva in Mandvi Taluka show negative trends (-2% each) along with Bhadreswar (-9%) and Luni (-11%) in Mundra Taluka.

5.6.3 Changes in Fish-Catch

There are 4 fishing Bunders in Mandvi and 6 in Mundra Taluka. The fish catch officially recorded by Department of Fisheries, Kutch for these fishing bunders between 2006-07 and 2014-15 is provided in table below.

Table 5.29 Fish Catch recorded in fishing Bunders in Mandvi and Mundra Taluka

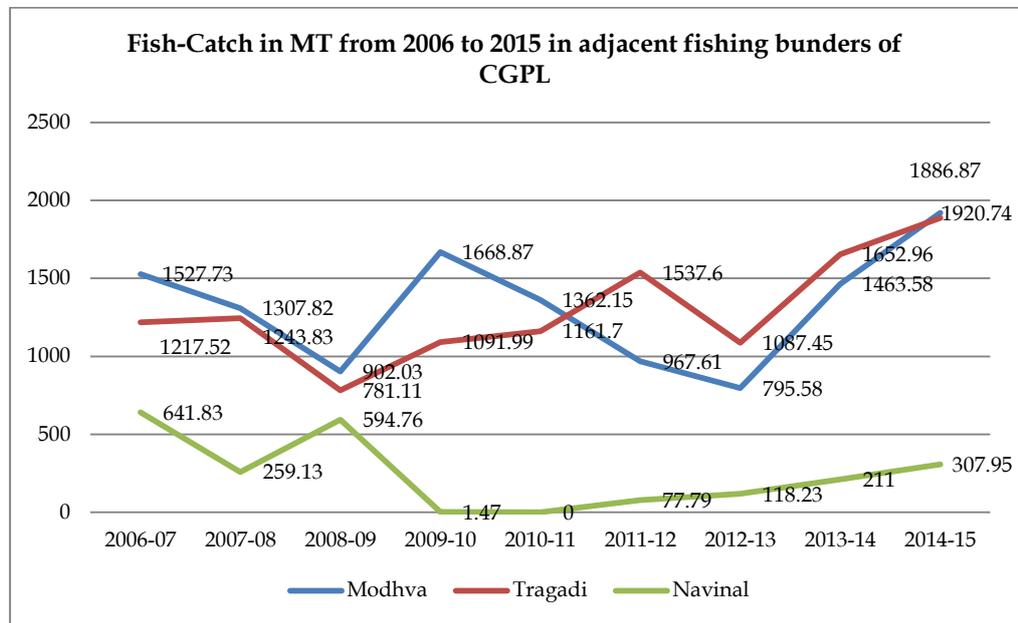
Taluk	Name of Bunder	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
Mandvi	Modhva	1527.73	1307.82	902.03	1668.87	1362.15	967.61	795.58	1463.58	1920.74
	Nana Layja Salaya	825.19	450.99	477.83	115.93	130.97	44.55	38.39	116.42	246.92
	Tragadi	1585.58	3183.38	2348.8	1236.61	1442.94	1173.75	791.27	392.71	997.2
	Bhadreshwar	1217.52	1243.83	781.11	1091.99	1161.7	1537.6	1087.45	1652.96	1886.87
	Luni	2262.7	3259.46	1835.79	2580.72	2054.99	1824.84	1603.37	1883.88	2913.01
Mundra	Mundra	2274.68	1843.54	1520.77	1062.85	1019.96	753.22	1738.82	1384.93	1565.15
	Navinal	NA	603.06	1912.84	1013.94	989.13	1148.01	1885.38	2435.6	1579.66
	Shekhadiya	641.83	259.13	594.76	1.47	NA	77.79	118.23	211	307.95
	Zarpara	315.06	170.6	137.26	27.85	65.51	18	31.02	150.82	192.66
		781.73	448.31	451.23	NA	101.46	86.4	264.56	896.66	381.8

Source: Department of Fisheries, Kutch. (Fish catch is in MT)

The fish catch data for these bunders shows annual fluctuation. Some of the bunders show a more or less consistent trend of reduction in fish catches, for example, Nana Layja and Salaya in Mandvi Taluka and Zarpara and Navinal in Mundra Taluka. The bunders in Mundra taluka such as Zarpara, Shekhadiya and Navinal has shown reduced fish catch from 2009-10 to 2014-15. Similarly, Nana Layaja in Mandvi Taluka also shows considerable fall in fish catch in this period. Most of the bunders recorded fall in fish catch during this period. However, some fish landing centres show a positive trend in last two years.

It is significant to note that the fish catch in the three adjacent fishing bunders the fish catch does not drastically fluctuate and show a trend of revival as well. The fish catch trend of Navinal, Tragadi and Modhva is presented in the figure 5.8 below.

Figure 5.8 Fish-catch from 2006 to 2015 in three adjacent fishing bunders



Source: Department of Fisheries, Kutch 2015.

The trend of fish catch of Tragadi shows a decrease between 2007-08 and 2008-09. From 2008-09 till 2011-12 the fish catch shows an upward trend. There is a slight dip in 2012-13 and thereafter it again shows an increasing trend. The current fish catch is higher than the pre-project years, i.e., 2006-07. The fish catch trend of Navinal has decreased. The fish catch at Navinal showed fluctuation between 2006-07 and 2008-09. There was a sharp drop in fish catch in 2009-10 and 2010-11. Since then, though there is an increasing trend till 2014-15, the fish catch is still far below what it was in 2006-07. The fish catch for Modhva, shows fluctuation over these years. 2008-09 and 2012-13 are seen as bad years similar to Tragadi and Navinal. The current fish catch at Modhva is higher than what recorded in 2006-07. Hence, apart from Navinal, the current fish catch is on higher side in comparison to 2006-07.

A more detailed understanding of the fishing activities at Tragadi Bunder is available from the project (Value Chain Analysis in the Marine Capture-fishery Sub-sector Relevant to the Livelihoods of fisherflok at Tragadi Bunder) report submitted by AAKAR. No comparable data is available for Modhva and Navinal. ERM's household survey covered a sample household from Navinal and Modhva. Hence, a general socio-economic profile of the fishermen households is provided in this report. The trends in fish catch and CGPL's impact on it is based on the findings from the study conducted by AAKAR.

AAKAR selected a sample of 20 households out of 73 households residing in Tragadi Bunder in 2013-14 and 2014-15. Daily fish catch (fresh and dry fish) of these 20 households was recorded. It is important to note that Tragadi Bunder is a seasonal fishing settlement where fishermen families with boat come from nearby fishing villages and live here between mid-August and end of May. Their stay at Tragadi Bunder is divided into three season segments:

- Peak for Fresh fish varieties (from mid-August to mid-October): In this period 75% of the catch comprises of those fish varieties which are sold fresh;
- Peak for Dry fish varieties (mid-October to mid-March): In this period 75% of the catch could be fishes which are sold as dry fish. Tragadi Bunder attracts most of the fishing families who prefer to deal with dry fish varieties;
- Non-peak season (April and May): These two months are not specifically good for any specific varieties of fish. They get both a mix of dry and fresh fish varieties.

AAKAR recorded the weight of the fresh fish varieties of daily catch while the weights of the dry fish varieties were recorded in dried stage. This method of recording the fish catch varies from the standard method of fish catch calculation by Department of Fisheries and CMFRI. The summary of the fish catch data from the sample households of Tragadi Bunder for 2013-14 and 2014-15 recorded by AAKAR is presented below. The

Table 5.30 *Fish Catch recorded by AAKAR for 2013-14 and 2014-15*

<i>Particulars</i>	<i>2013-14</i>	<i>2014-15</i>
Fresh Fish in Kg	5,512	7,379
Dry Fish in Kg	1,11,892	1,17,116
Actual weight before drying in Kg*	4,47,568	4,68,464
Total Fish Catch for 20 HHs	4,53,080	5,85,580
Projected for 80 Families	18,12,320	23,42,320
Fish Catch as per Official data by CMFRI	16,52,960	18,86,870

Source: AAKAR 2013-14 and 2014-15 Fish Catch Data

* The dry weight of the fishes in comparison to their actual weight at the time of catch is reduced in a range of 85% to 60% depending on species. The article "From fresh fish to dried fish-how much weight is lost" by Mostafa A.R. Hossain, Md. Kamrul Hasan Akand, Md. Shariful Islam, Ben Belton and Shakuntala H. Thilsted, pg-33-37 in FAN- (Fisheries and

Acquaculture News) Bangladesh, Volume 3, Jul-Dec 2013-14., reports that Loitya (Bombay Duck) undergoes 87% weight reduction. Keeping this in mind, it is safe to presume the average weight loss for the fish catch in Tragadi to be 75%. Hence, the fish weight recorded by AAKAR at the dry stage is multiplied by 4 to determine their actual weight.

The fish-catch data from the sample survey by AAKAR is extrapolated to compare with the official CMFRI fish catch data in table 5.30. The AAKAR fish catch data records higher fish catch volume for both years. The volume of dry fish varieties in Tragadi Bunder is higher than the fresh fish varieties. Hence, a year on year comparison for the major dry fish varieties recorded from the sampled households is provided in table 5.31 below:

Table 5.31 *Total Catch of Dry fish varieties in 2013-14 and 2014-15*

Variety of Dry Fish	Catch in Kg for 2013-14	Catch in Kg for 2014-15	% Change in Catch
Bumla (Bombay Dock)	26537	21013	-21 %
Mandeli	11063	10681	-3%
Dhoyel Mandeli	8363	5897	-29%
Lal Soniya	1997	794	-60%
Kadhi Nakri (Shrimp)	28237	35827	+27%
Bhusi	20471	36699	+79%
Khatar (Kuto)	15224	15565	+2%

Source: AAKAR 2013-14 and 2014-15 Fish Catch Data

The comparison shows increase in shrimp, and Bhusi and reduction in Bombay Duck, Mandeli and Lal Soniya.

5.6.4 *Income of Active Fishermen*

ERM sample survey covered 75 households in Tragadi Bunder and 37 from Modhva. Apart from these exclusive fishing settlements, the stratified random sample selection in Tragadi and Navinal also covered 6 and 9 households who reported fishing as their primary occupation. The survey questionnaire included the annual income of the surveyed families. The annual income reported by fishermen families covered in our survey is reported in this section. The annual income per household in 2007 was found in CEIA report (ref Table-11, page-28, Annexure) for Gundiyali and Tragadi. Modhva is part of the Gundiyali Gram Panchayat, hence, the income from fishing data is presumed as pertaining to Modhva.

The income levels of the fishing population in the fishing villages shows that minimum yearly income is 11,000 INR and maximum of 3,00,000 INR. The average annual income for fishing population is estimated to be a little above 1 lakh INR. The highest income as well as the highest average income is reported in Tragadi Bunder.

Table 5.32 *Income level of fishing population in fishing villages adjacent to CGPL*

Zone	Village	Min of Yearly Income in INR (2015)	Max of Yearly Income in	Average of Yearly Income in INR (2015)	Average Yearly Income in INR (2007)*
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		INR (2015)			
Project Area	Tragadi	11,000	1,00,000	52,900	20,000
	Tragadi Bunder	40,000	3,00,000	1,30,296	Not Available
Periphery Area	Modhva	12,000	90,000	54,163	40,000
	Navinal	40,000	1,00,000	63,000	Not Available
Study Area		11,000	3,00,000	1,00,917	

Source: ERM Survey 2015.

* As per CEIA report 2007 collected from Gram Panchayat.

Though most of the fishermen families were reported to have annual income above the poverty line (27,000 INR per annum), some of the families in Tragadi and Modhva are below the poverty level. Hence, these families can be identified as economically vulnerable. The household income of fishermen communities in Tragadi has undergone significant improvement in comparison to their income in 2007. Even, in Modhva (Gundiya), the income of fishing families have increased, though marginally.

The average annual income level for the younger fishermen is reported lesser than the fishermen of older age-group. This suggests that fishermen develop their individual fishing skills over years of practice. The income level of fishermen of Tragadi Bunder is higher in comparison to the fishermen of same age-group in other bunders adjacent to CGPL.

Table 5.33 *Average annual income (in INR) of the fishing population in different age-groups*

Zone	Village	< 18 Yrs	18-30 Yrs	31-45 Yrs	46-60 Yrs	>60 Yrs
Project Area	Tragadi	30,000	75,667	29,000	61,667	
	Tragadi Bunder	40,000	1,16,409	1,39,961	1,34,857	1,44,000
Periphery Area	Modhva	32,500	57,308	55,533	52,769	
	Navinal		60,750	50,000	75,000	
Study Area		33,750	89,905	97,480	89,971	1,44,000

Source: ERM Survey 2015, Incomes are in Rupees

The correlation of education level with average annual income levels of the fishermen was examined and provided the table below.

Table 5.34 *Average annual income level of fishermen with different education level in fishing villages adjacent to CGPL*

Zone	Village	Illiterate	Up to 4th Std	4th to 8th Std	9th and 10th Std	Higher Secondary	Technical Edn
Project Area	Tragadi	51,500	35,000	50,000			
	Tragadi Bunder	1,21,823	1,27,889	1,34,038	1,09,000	2,00,000	2,00,000
Periphery Area	Modhva	60,188	41,444	52,733	71,000		
	Navinal		69,167	59,500	40,000		
Study Area		89,820	77,269	99,217	92,889	1,66,667	2,00,000

The active fishermen do not show increase in average annual income with higher level of education. However, the income level of the educated fishermen in general is higher than the illiterate fishermen.

5.6.5 *Pagadiya Fishermen*

The households who own boats venture into the sea and practice deep sea fishing. Those fishermen households who do not own boat resort to fish on shallow water along the coast. These fishermen, known as Pagadiya fisherman, walk into the sea, usually little ahead of the waves and place their nets on sticks planted into the mud. As water comes in during high tide, the water covers their nets. When the water recedes during low tide, the fish that are caught in the net are then collected by Pagadiya fishermen. Only low cost local varieties of fishes such as *gandhia*, crab, *kunga*, *bhufari*, *chhodi*, *khetar*, *khokri*, *khagi* and *sukhundra* are reported to be caught through this fishing method. Hence, a Pagadiya method of fishing are considered uncertain and gives low returns.

Pagadiya fishing nets cost between 1750 and 8000 INR depending on weight and type of net. The cost of the nets for deep sea fishing costs at least 16000 INR and cost of the boat is in the range of 2 to 3 lakhs INR. Hence, the input cost of Pagadiya fishing practice is comparatively less. The fish caught by Pagadiyas are mostly sold in local market; hence they do not have dependence on external traders. Usually, their female members take their daily catch to the nearby village market and sell it. Some part of the daily catch is also consumed in the household. The unsold fish in small quantities are dried and preserved. They are either consumed in the household or are sold in local market on a later date.

The deep sea fishing is dependent on weather conditions. Deep sea fishing is not undertaken regularly between May and July. Hence, this is considered as a slack season for fishermen. In this season, however, Pagadiya fishing practices can be undertaken. In sum, households resort to Pagadiya methods of fishing either when their economic conditions do not allow them to own boat and expensive larger nets required for deep sea fishing or when deep sea fishing is not possible due to weather conditions. The households practicing Pagadiya fishing therefore are generally poor and vulnerable families.

The ERM sample frame during the initial household level survey did not cover any of the households reported to practice Pagadiya fishing. Hence, additional sample of pagadiya households were surveyed on a later date. The socio-economic questionnaire used for household surveys for other categories was used along with a supplement to capture specific livelihood information specific to fishing practices (see the questionnaire attached in Annexure-5). A short socio-economic profile of these Pagadiya households is provided in this section.

Social Composition

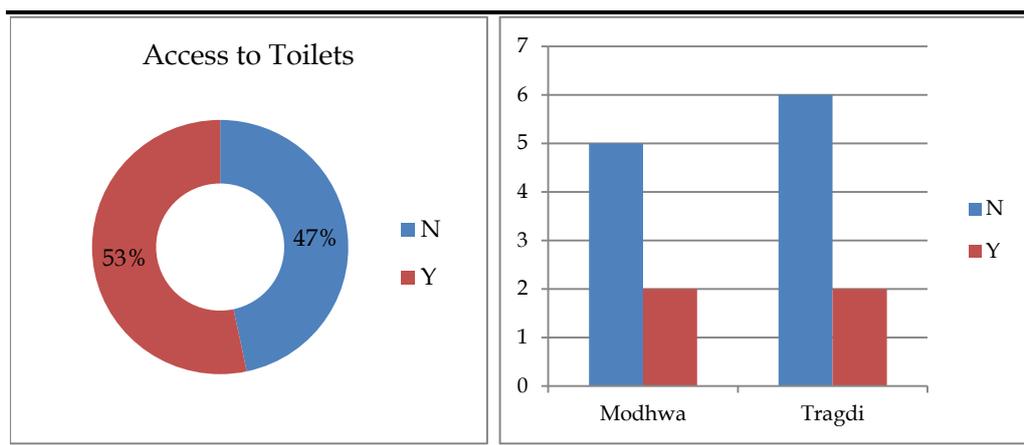
The Pagadiya households of both Tragadi and Modhva belong to Muslim/Wagher community. Wagher community has been traditionally dependent on fishing in coastal Kutch and speaks Kutchi language.

Housing Condition, Amenities and Assets

Among the Pagadiya PAFs, nearly 72% have semi-pukka (partly concrete) houses and only 28% have pukka/concrete house structures. Based on the responses of the household heads, majority of the households have a BPL card.

Typically, the households are dependent on common drinking water supply in their villages. Both Tragadi and Modhva face scarcity of water during summer months. In most of the households, women play a crucial role in collecting water from the common water sources in the village and thereby walking/spending long hours each day on this activity.

Figure 5.9 Access to Toilets village-wise break-up



Source: Pagadiya HH Survey, 2015

Only 53% of Pagadiya households have access to toilets at their houses. Regarding electrification, 72% of households have access to electricity and have own meters set-up, while 28% households don't have electricity connections. In Tragadi village over 60% of Pagadiya households have TV, mobile phone and two-wheeler. In case of Modhva village, only over 20% Pagadiya households have reported to have these assets. Hence, Pagadiya households living condition is poorer in comparison to other communities.

Household Income

These households informed that they mostly use coastal stretch of 'Tragadi bundar' and Modhva coast throughout the year for fishing. About 54% of the pagadiya households have been fishing for nearly 8 to 10 years and the remaining 46% of the pagadiya households have been fishing in this coastal

stretch for over 15 years. The Pagadiya households expressed Tragadi bunder as their preferred location vis-à-vis other bunders such as Modhva, Salaiya, Sadau etc. due to nearness to their village, availability of clean fish and convenience of fishing. The table below provides information on important fish species, the average fish catch and the associated price/income across the specific duration/ months based on their responses.

Table 5.35 Average Catch and Price of Fish Species for Pagadiya Households

SN	Fresh Fish Species	Month/ Period	Avg. catch on a good day (approx.)	Avg. catch on a bad day (approx.)	Price/ Kg (in Rs.)	Income on a good day (in Rs.)	Income on a bad day (in Rs.)
1.	Kekda	Jan - Dec	3 kg - 5 kg	200 gm - 500 gm	60	180 - 300	15 - 30
2.	Dhangli	Nov - Jan	15kg - 20 kg	3 kg - 5 kg	200 - 250	3375 - 4500	675 - 1125
3.	Nani Shodi	Aug - Jan	5 kg - 10kg	500 gm - 2 kg	60 - 100	400 - 800	40 - 160
4.	Gadhio Nani	Aug - Feb	5 kg - 10 kg	1 kg - 3 kg	60 - 100	400 - 800	80 - 240
5.	Charri/Soddhi/ Ghoga	Aug - Jan	5 kg - 10 kg	1 kg - 2 kg	60 - 100	400 - 800	80 - 160
6.	Chaiyo	Sep - Jan (peak in Dec/Jan)	2 kg - 5 kg	500 gm - 1kg	80 - 130	210 - 525	52 - 105
7.	Selai	Dec - Jan	10 kg	3 kg	60 - 80	700	210

Source: ERM Survey-2015

The households surveyed found it difficult to estimate their monthly and annual income as efforts of the household is primarily to meet the food requirement of the household and sale only a part of the produce to get cash income for purchasing food items and fishing equipment. In order to derive a monetary value, the fish catch reported by the Pagadiya households in different times of the year was used to calculate a range of income.

Pagadiya fishing needs very few equipment and these are not very cost intensive. The cost of the fishing equipment/tools as reported by Pagadiya households is in the following table:

SN	Equipment	Average Annual Expenditure
1.	Net	1280
2.	Siyu	387
3.	Joya	303
4.	Rope	137
5.	Bechy	940
6.	Wood	147
7.	Total	3194

Source: ERM Survey-2015

Though the capital expenses for the fishing equipment is low, still it constitutes a substantial amount for Pagadiya households. The variation of the

fish species, number of days, and volume of fish catch in different calendar months is provided in table below. The average monthly income reported by these Pagadiya households varies in the range of 2400 to 5160 INR. The average annual revenue obtained from sale of fish catch (this excludes the fish consumed by the household) is 48631 INR. The average expenditure on different fishing equipment is reported to be 3194 per annum. The net average household income of Pagadiya household in the best case scenario is expected to be approximately 45,000 INR per annum.

Table 5.36 *Average Fish Catch and Income Month-wise*

<i>Months</i>	<i>Predominant Fish Species</i>	<i>Avg. no. of days of fishing</i>	<i>Average Catch in case of a good month (kg)</i>	<i>Fishing Revenue/ in a good month in INR</i>	<i>Annual Fishing Revenue in INR</i>
January	Choda, Cheri, Dhangli, Selai, Soddhi	15-20	100	5107	48631
February	Soddhi, Cheri, Kandha, Gandhio	15	80 - 120	4566	
March	Gandhio, Kekda, Nani Kandha	10 - 15	25 - 40	2800	
April	Gandhio, Kekda, Nani Kandha	12	20 - 35	2733	
May	Kekda, Gandhio, Cheri, nani Kandha	8 - 10	25 - 30	2401	
June	Nani Gandhio, Cheri, Kekda	10 - 12	20 - 30	2433	
July	Nani Gandhio, Chaiyo, Cherri	8 - 10	15 - 30	4200	
August	Gandhio, Cheri, Soddhi	15	80 - 130	5166	
September	Soddhi, Kandha, Cheri, Gandhio	15- 20	80 - 130	4900	
October	Dhangli, Chaiyo, Soddhi	15 - 18	80 - 110	4466	
November	Gandhio, Soddhi, Selai	15	80 - 110	4693	
December	Soddhi, Cherri, Kandha, Selai	15 - 20	100 - 150	5166	

Source: ERM Survey-2015

Role of Women and Adolescents in Pagadiya Households

As reported by the Pagadiya households, women are primarily engaged in the activity of marketing of fish or act as supporting members if required. Only male members undertake fishing. Discussions with pagadiya women also revealed that some of the older women are typically involved in sorting/grading of dry fish species.

Most of the Pagadiya households sell the produce/catch in the village itself or in nearby villages. Pagadiya fishermen start involving and training their children from the age of 10 - 12 years. Although Pagadiya license to undertake

fishing is only acquired after the age of 18, they start supporting the adult members in activities such as processing, transportation, repair of equipment/nets etc. The Pagadiya households expect the younger male members (next generation) of the family also to take up fishing on a full time basis. They have little aspirations for education, any other jobs etc. None of these pagadiya households own ice box or other modern fishing equipment. Therefore, they are not able to stock/hoard fish and sell it later and hence are forced to sell fish on the same day at lower price.

5.7 SOCIO-ECONOMIC STATUS OF PAFs

As a UMPP, CGPL got the access to the required land through Government of Gujarat. Though the land acquisition process was under Land Acquisition Act 1894 and led by Government of Gujarat, CGPL organized a series of village and district level meetings with project affected persons. The compensation for the land was fixed at Rs 6 lakhs per acre (or Rs 15 lakhs per ha). It is reported (as per IL&FS Report 2008) that the agreed compensation price was six times more than the price fixed by Government of Gujarat as per the provision under Land Acquisition Act 1894. In sum, the Government of Gujarat acquired the private land under LA Act 1894 and transferred government land required for the project under Land Revenue Code of Gujarat. The owners of the private land from whom land was acquired by Government of Gujarat for the use of CGPL are identified as project affected families. In this section an assessment of the impact of acquisition of the private land for CGPL is discussed.

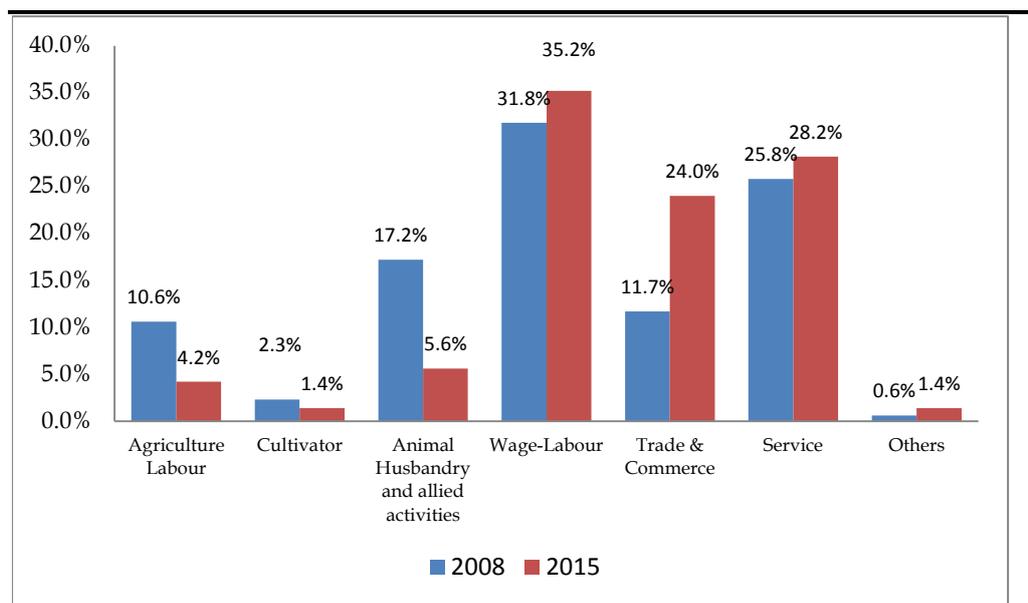
181ha of private land located within Tunda revenue village was acquired in 2008 (though a few compensation awards were made in 2009 and 2010). The land was acquired from 126 titleholders. After screening this list with the help of a local key resource person CGPL some of them were land speculators who had invested in land and do not reside in the project area anymore (see Annexure-C for the detail list of private land owners). The land-owners who resided in the project area were 76, out of which 61 were reported to be residents of Tunda, 12 in Vandh and 3 in Mota Kandagra. Despite several attempts, some of the PAFs were not found in the village and hence could not be included in the survey. A total of 44 PAFs were identified and surveyed by ERM in 2015. Out of 44 PAFs, 39 are from Tunda and 5 from Vandh village.

In 2007, out of the total 317 households in Tunda, 253 (80%) owned land. Out of the 253 land owning households, 241 had reported no income or insignificant income from their land. Hence, IL&FS Report in 2007 concluded (page 32) that income from agriculture was not the primary source of income for the private land owners in Tunda and that the cultivation was main occupation for only 2.3% population in Tunda

In 2015, the agriculture is reported to be main occupation for only 1.4% of the surveyed land owners in Tunda (Vandh included). Thus, there seems to have

been a further reduction in reliance on agriculture. The broad occupational categories in 2008 and 2015 are compared in figure 5.10 below.

Figure 5.10 Occupation composition of PAFs in 2008 and 2015



Source: IL&FS Study 2008 and ERM Survey 2015

There is a reduction in agriculture labour and increase in non-agriculture wage labour which again affirms the industrialisation of the study area. There is a marked increase in trade and commerce related occupations from 11.7% in 2008 to 24% in 2015. The service sector (which includes both government and private sector jobs) has shown marginal increase.

The age-profile of the working population in the surveyed households shows that a sizable portion (51.5%) of the young population (19-35years) is in jobs. Approximately one fifth of the young population is reported to be daily wage labours and 6.5% are into agriculture labour and 22.6% of them are into trade and commerce (shops, small business or contractor/supplier). Hence, the diversification of the occupation among the young population and reliance on more industrial and modern job is visible.

Table 5.37 Occupational Profile of different age-groups among surveyed PAFs

Occupation	% of Working Population in 19-35 Yrs Age Group	% of Working Population in 36-60 Yrs Age Group	% of Working Population in > 60 Yrs Age Group	% of Total Working Population
Agriculture Labour	6.5%	3.2%	0.0%	4.5%
Agriculture and Animal Husbandry	0.0%	3.2%	0.0%	1.5%
Wage-Labour	19.4%	45.2%	40.0%	32.8%
Trade & Commerce	22.6%	29.0%	20.0%	25.4%
Service	51.5%	12.9%	0.0%	29.8%
Others	0.0%	6.5%	40.0%	6.0%

Source: ERM Survey-2015

In the middle-age group (36-60 years), 45% are engaged in daily wage labour and 29% reported to be involved in trade and commerce. It is the only age-group which has people engaged in agriculture. Almost 13% of them are in private and government jobs, and 6.5% are engaged in a diverse range of occupational pursuits.

In the older age-group (>60 years) people have either reported to depend on daily wage labour or some of them have started small-scale business. Almost 40% of them reported to be involved in a diverse range of income generating activities, though these are not dependable income sources.

Average Household Income of PAFs

IL&FS 2008 report did not provide socio-economic parameters for the PAFs separated from other households in the three project affected villages it covered. The list of households surveyed by IL&FS included both private land losers affected by land acquisition along with other households in these three villages. Hence, to compare, ERM tried to match the names of the 44 households it had surveyed in 2015 and was able to match only 14 PAF names. Therefore, the average household income of the PAFs could only be compared based on these 14 households (see Annexure-1 for the list).

In 2007, the annual income of these 14 PAFs varied in the range Rs 12,000 and Rs 300,000 with average income of Rs 56,571. In 2015, the annual income of these PAFs varied in the range Rs 10,000 to Rs 9,60,000 with average income at Rs 1,27,619. It implies that the economic conditions of the PAFs in most cases have improved in comparison to their household income in 2007.

In the current survey by ERM in 2015, many of the households were reluctant to give the income data. Therefore, the analysis of household income is based on those households who responded to it. The income level of individuals engaged in different primary occupations who responded is provided in the table below for comparison in future.

Table 5.38 *Average Individual Annual income of PAFs engaged in different occupation categories in 2015*

Occupation Categories	Minimum Annual Income in INR	Maximum Annual Income in INR	Average Annual Income in INR
Agriculture	50,000	50,000	50,000
Agriculture-labour	96,000	96,000	96,000
Contractor-Supplier	1,00,000	3,00,000	2,00,000
Daily-Wage-labour	10,000	1,20,000	57,800
Driver	96,000	1,00,000	98,000
Hotel	80,000	80,000	80,000
Private-Job	45,000	9,60,000	2,23,889
Shopkeeper	60,000	1,20,000	84,444
Small-Scale-Business	8,00,000	8,00,000	8,00,000

Occupation Categories	Minimum Annual Income in INR	Maximum Annual Income in INR	Average Annual Income in INR
All Categories	10,000	9,60,000	1,27,619

Source: ERM survey 2015

The minimum annual income is reported by a person who is engaged in daily wage labour and the maximum is reported by a person with a private job. The average individual annual income is reported as Rs 1,27,619 which is higher than their pre-project average income.

Quality of Life

The ILFS study report reports that compensation received by land-owners depending on their holding size varied in the range Rs 4 lakhs to 1.2 crores. The interview with many of these households indicated that most of this money was spent in improving their house conditions and purchase of modern lifestyle items. Such lifestyle improvement is visible in the village. The table below provides a snap shot of housing condition, access to drinking water and toilet to the households surveyed.

Table 5.39 Quality of life parameters for land loser households

Village	Housing Condition				Access to Drinking Water				Access to Toilet		
	Kaccha	Pukka	Semi-Pukka	Grand Total	Others	Tap	Well	Grand Total	No	Yes	Grand Total
Tunda	1	36	6	43	2	40	2	44	6	38	44
	2%	84%	14%	100%	5%	91%	5%	100%	14%	86%	100%

Source: ERM survey 2015

Only 2% of the households surveyed are reported to live in Kaccha house. Most of the households (84%) live in Pucca houses and 14% live in semi-pukka households. In terms of sanitation or toilet facilities, 84% of the households have toilets in their household.

Along with improved housing condition, the households surveyed also possess modern electrical and electronic items which indicate modernization of lifestyle. The table below provides a snap shot of the modern articles or capital items reported from these surveyed households.

Table 5.40 Possession of consumer durable items among land losers households

Values	Total Households	% of Total Households
Refrigerator	17	39%
Television	38	86%
Computer	0	0%
Mobile Phone	39	89%
Two Wheeler	24	55%
Three Wheeler	3	7%
Four Wheeler	3	7%

Tractor	3	7%
Truck Tanker	1	2%

Source: ERM survey 2015

39% of the households reported to own refrigerator and 86% have television. None of the households though have computer, but 89% possess mobile phones. More than half of the households own two wheelers and 7% of them reported to have four-wheeler as well.

5.8 KEY FINDINGS

The key findings from the assessments made in different sections of this chapter are summarised in here for an easy recapitulation.

5.8.1 *Influx and Demographic Change:*

The influx of construction workers made temporary demographic changes in study area, and most of them have left the project area. The workforce employed in operation stage is relatively smaller. Approximately half of the workforce originates from other parts of India and Gujarat. These are mainly skilled workforce and live in CGPL township in Mota Kandagara. There is an improvement in literacy rate in the study area and there is a consequent rise in aspiration for getting industrial employment among the local population. Improvement of literacy among women is significant. As a consequence, there is a growing aspiration among women to obtain jobs or industrial employment;

5.8.2 *Basic Civic Amenities, Infrastructure and Services:*

There is a marked improvement in housing structures in project area. More families now live in pucca households with access to water and sanitation facilities. The fishermen population in Tragadi Bunder lives in temporary huts as it is a seasonal camp site. The provision of safe drinking water was noticed for 80% households and provision of toilets for 77% households in project area. CGPL has installed 12 RO plants for treating the hardness of the ground water in partnership with WASMO. It plans to cover the remaining villages and handover the RO plant maintenance responsibility to Gram Panchayats which will sustain them by levying a suitable tariff or user fee.

The provision of toilets is reported from 77% households in project area villages. Modhava has reported the lowest percentage for access to toilet at household level. CGPL has planned to work along with local Government efforts for making three blocks (Mandvi, Mundra, and Bhuj) free from open defecation. It also has planned to support campaign for behavior change to promote personal, domestic and environmental hygiene.

The drainage of waste water and solid waste management is still a gap area in rural civic infrastructure. Only Bidada and Navinal are reported to have house

to house collection of solid waste. Pilot initiatives for using the solid waste to generate bio-gas or productive use are tried. However, as the volume of solid waste increases over the years, proper management of solid waste is an emerging challenge. CGPL has planned to develop the four model villages. The cleanliness of the villages as per Swachh Bharat initiative is an integral part of the village development goals. As part of this, recycling the waste generated at the community level and reuse of grey water is planned.

Less than 1% households in the project area and <3% households in study area are without electricity connection. The distribution of solar lights to fishermen families has helped in meeting domestic requirement of lighting and also has helped in fishing in night. The electrification of homes has facilitated use of electronics in households. The ownership of consumer durables in project area is noticed to be higher than the periphery area. Fishing communities own relatively less number of electronic and consumer durable items.

Though education and health infrastructures at the village level have not expanded, the improvement in road network and transportation has made them easily accessible to villagers in study area. CGPL has been organizing health camps and has planned to continue it. The CGPL has planned to organize it better by using unique user identification (UID) for every patient reporting with illness and record treatment history through software. CGPL's plan for health service interventions include mother and childcare, supporting the immunization (BCG, OPV, DPT, MMR) drives, promoting treatment of critical diseases through collaboration with referral hospitals, and convergence with NRHM for health and nutritional services.

5.8.3 *Challenges in Traditional Livelihood*

Agriculture, horticulture, livestock rearing and fishing along with a range of serving artisans constituted the livelihood basket of the study area before the industrialization process in the area started. Diversification of livelihood and occupation is noticed in the last decade due to availability of employment opportunities in industries established in this area. The total population in project area engaged in agriculture (including cultivators and agriculture labour) in 2011 reduced to 14.8% from 23.6% in 2001. And there is a corresponding increase in non-farm occupations from 70% in 2001 to 85% in 2011. A similar trend is also noticed in periphery area villages.

If we consider the land-use data as in village abstracts compiled by Census of India, the area of cultivated land reduced 17% during 1991-2001 and further 7% between 2001 and 2011. Though, there is an overall reduction of total irrigated land, some of the study area villages (Tunda and Mota Kandagra) show significant increase of the irrigation area by wells/tube well. Thus, such increase in extraction of ground water may be responsible for depletion of ground water. It is important to note that Central Ground Water Board (CGWB) had classified the Mandvi as semi-critical and Mundra as a critical area. The total area under irrigation from wells/tube wells in project area has

decreased from 667.28ha in 1991 to 258.28ha in 2001 and then has increased to 324.66ha in 2011. Similarly, in periphery area the total area under ground-water irrigation was 3902.75ha in 1991 which increased to 4497ha in 2001. However, the area under irrigation from ground-water decreased to 1464ha in 2011.

In order to meet the requirement of ground water for agriculture and horticulture by local farmers, CGPL has conducted a study of the local hydrology. The study has identified existing water harvesting structures, assessed their conditions and has planned to repair them. In addition to repairing of the existing structures, it has also identified new locations for additional water harvesting structures. Well recharging and monitoring is planned as a participatory activity with SHGs for monitoring the ground water level and salinity levels. Along with construction of water harvesting structures, CGPL also plans to promote better management of water resources through promotion of drip irrigation, appropriate farm practices and choice of crops. CGPL has also planned to support agriculture extension services for the local farmers in Mandvi and Mundra.

Livestock rearing/animal husbandry is a critical livelihood option along with agriculture in this semi-arid zone. The Rabaris, a traditional semi-nomadic pastoralist community residing in Vandh (as part of Tunda Gram Panchayat) had no or very little agricultural land, but raised a large herd of cattle. Apart from these traditional livestock rearing communities, the marginal and small farmers also reared livestock to meet their household requirement or supplement their income from agriculture. Hence, many households in study area rely on livestock rearing.

The land for CGPL came from three revenue villages, i.e. Tunda (including Vandh), Nana Bhadiya and Mota Kandagara. The livestock keeping in Tunda and Mota Kandagara is mostly supported through fodder support program through TVGCT and MKGCT. The average per-household cattle head in Tunda was recorded to be 5.3 in 2008 which has reached 9.1 per household in 2014. Similarly, the increase in cattle heads for Mota Kandagara is noticed from 4.1 in 2008 to 9.7 in 2014. However, it seems the practice of camel keeping which was reported in 2008 from Tunda appears to have been discontinued now. The average number of sheep/goat in 2015 in Tunda has increased in comparison to 2008 as well. However, the average number of sheep/goat per household in Mota Kandagara and Nana Bhadiya has reduced.

The available pasture and grazing land in project area constitutes 6% of the total geographical area. In periphery area, the available pasture and grazing land comprises of 12% of the total geographic area. Villages which have higher percentage of grazing are Tunda (16%), Bidada (15%), Gundiyali (19%), Nani Khakhar (18%), Pipari (12%) and Shiracha (13%).

Considering the importance of livestock rearing for supplementing the household income of marginal, small farmers and landless households, CGPL has planned additional interventions. It has planned to form and support producer companies for procurement of fodder, development of pasture (Gauchar) lands, promoting fodder crops, accessing dry fodder from CGPL plant premise. It has also planned to experiment in planting different varieties in order to select fodder crops that would suit the specific local conditions. It is also planned to organise veterinary camps for vaccination and control Brucellosis which is identified as a threat to local livestock.

The project area being on the sea coast includes fishing population who live in homogenous fishing villages. Tragadi, Navinal and Gundiyali (Modhva) Gram Panchayats have fishermen population. Tragadi Bunder is a dry fish port where fishermen from other parts of the Kutch come and stay for 8 months in a year. The fishing communities in coastal area lead a semi-nomadic lifestyle and depend on fishing resources spread across in a wider area. Therefore, the changes in fishing practices of the local fishing communities needs to be understood in the wider regional (ecosystem) context (Kutch coastline). The information available in previous Marine Census of 2005 and 2010 is found useful to understand this wider context.

The first Marine Fishing survey of 1980 records 51 villages and 1118 households engaged in marine fishing along the coastline of Kutch District. In 2005, there were 62 fishing villages in the coast of Kutch with 3358 families living in them. According to the latest survey in 2010, there were 68 fishing villages and 3505 fishermen families. Fishing families numbers, therefore, are on the rise as also establishment of new fishing villages along the coastline of Kutch. The number of fishing villages in Abdasa and Lakhpat has increased significantly, while fishing villages in Anjar and Gandhidham taluks have reduced. Anjar shows a reduction of 4 settlements and neighbouring Mundra shows increase of 2 settlements. This suggests coastal fishing settlements in Kutch coast are moving westward, though Mundra-Mandvi region is still the closest and preferred locations. As per consultation with local fishermen, establishment of a series of ports and associated industrial development in Anjar and Gandhidam region has contributed to such a shift.

The fishing villages from east to west direction within the study area are Navinal, Tragadi (and Tragadi Bunder) and Modhva. The increase in number of fishing households between 2005 and 2010 in Navinal is 10% and in Tragadi it is 7%. Though number of households in Modhva increased (+17%) from 139 to 163, the total population has increased from 910 to 2303 persons. Such a surge in population indicates migration and merger of population. The occurrence of migration between 2005 and 2010 can be confirmed from the change in adult population, which cannot be achieved through natural process of population growth. The overall trend of fishing population suggests there is a reduction of population in Mundra Taluka and corresponding increase in Mandvi Taluka.

The impact on fishing practices in study area was found to be linked to the cumulative impact of the industrial and infrastructural growth along the coast of Kutch. The coastline impacted by CGPL is limited to 2.2kms only. It is significant however to note that a popular fishing Bunder (Tragadi) is located on the beach front of CGPL and other fishermen are located within a distance of 1 kms. Tragadi Bunder is a seasonal settlement where approximately 80 households stay in temporary hutments from mid-Aug to early Jun every year and return back to their native fishing villages during monsoon months.

Apart from these boat owning artisan fishermen families, Pagadiya fishermen (those who fish without boat in shallow waters along the coastline) are reported to prefer fishing in Tragadi Bunder-Modhva stretch. This is a preferred location for Pagadiya fishermen living in Tragadi and Modhva due to its proximity, fish availability and ease of fishing.

There are 4 fishing Bunders in Mandvi and 6 in Mundra Taluka. The fish catch officially recorded by Department of Fisheries, Kutch for these fishing bunders between 2006-07 and 2014-15 was examined. The fish catch data for these bunders shows annual fluctuation. Some of the bunders show a more or less consistent trend of reduction in fish catches, for example, Nana Layja and Salaya in Mandvi Taluka and Zarpara and Navinal in Mundra Taluka. The bunders in Mundra taluka such as Zarpara, Shekhadiya and Navinal has shown reduced fish catch from 2009-10 to 2014-15. Similarly, Nana Layaja in Mandvi Taluka also shows considerable fall in fish catch in this period. Most of the bunders recorded fall in fish catch during this period. However, some fish landing centres show a positive trend in last two years. It is significant to note that the fish catch in the three adjacent fishing bunders (Modhva, Navinal and Tragadi) the fish catch does not drastically fluctuate and show a trend of revival as well.

CGPL is also monitoring the fish catch at Tragadi Bunder and has engaged AAKAR for collecting the daily fish catch volumes from a sample of 20 households. AAKAR recorded the weight of the fresh fish varieties of daily catch while the weights of the dry fish varieties were recorded in dried stage. This method of recording the fish catch varies from the standard method of fish catch calculation by Department of Fisheries and CMFRI. The fish-catch data from the sample survey by AAKAR was extrapolated to compare with the official CMFRI fish catch data. The fish catch at Tragadi Bunder as per AAKAR is 18.12 MT in 2013-14 and 23.42 MT for 2014-15 which is higher than the CMFRI estimates. The AAKAR fish catch data records higher fish catch volume for both years. The volume of dry fish varieties in Tragadi Bunder is higher than the fresh fish varieties. Year on year (2013-14 and 2014-15) comparison of fish catch by fish variety shows that there is an increase in Shrimp and Bhusi catch while reduction in catch volume of Bombay Duck, Mandeli and Lal Soniya.

ERM covered 75 households from Tragadi Bunder, 37 from Modhva, 6 from Tragadi and 9 from Navinal whose primary occupation was fishing. The data

on the income of the fishermen households in 2007 was collected from Gram Panchayat and was available in CEIA report. The average yearly income of fishermen of Tragadi in 2007 was 20,000 INR which was found to reach 52,900 INR in 2015. Similarly, the average annual income of fishermen in Modhva was 40,000 INR in 2007 and it has increased to 54,163 INR in 2015.

The households who own boats venture into the sea and practice deep sea fishing. Those fishermen households who do not own boat resort to fish on shallow water along the coast. These fishermen, known as Pagadiya fisherman, walk into the sea, usually little ahead of the waves and place their nets on sticks planted into the mud. As water comes in during high tide, the water covers their nets. When the water recedes during low tide, the fish that are caught in the net are then collected by Pagadiya fishermen.

The Pagadiya fishermen are more reliant on the coastal ecology and are considered more vulnerable than fishermen with boat. ERM covered a sample of 14 pagadiya fishermen households from Tragadi and Modhava to understand specific nature of their fishing practices and their economic condition. The average monthly income reported by these Pagadiya households varies in the range of 2400 to 5160 INR. The average annual revenue obtained from sale of fish catch (this excludes the fish consumed by the household) is 48631 INR. The average expenditure on different fishing equipment is reported to be 3194 per annum. The net average household income of Pagadiya household in the best case scenario is expected to be approximately 45,000 INR per annum. Many of them reported to have been classified as below poverty line.

CGPL has commissioned specific studies to cover the fishermen population and their villages (Tragadi Bunder and Modhva) and has been actively pursuing their welfare and development since 2012. CGPL has distributed fishing nets, fibre boats, solar lights, weighing equipments to enhance their household income and to protect them from getting into debt trap of the traders. It has provided provisions of community toilet and bulk supply of drinking water at Tragadi Bunder. As per CGPL estimate, it has so far spent 10.88 Crore INR on different development activities targeting fishermen population since 2012.

CGPL has planned to continue the Fishermen Information Centre (FIC) and Sagar Shala (special school for primary education to children of fishermen in Tragadi Bunder, and organizing health camps in these villages. It is planning to initiate micro-finance program covering fishermen to emancipate them from the debt trap of the traders. It is also planning to support prawn farming in the coastal land by fishermen from Modhva and Tragadi.

5.8.4

Household Income

The IL&FS report presented household income of households in PAVs in a defined range (less than 0.8 Lakh, 0.8-1.6 Lakh, 1.6-2.4 Lakh, 2.4-3.20 Lakh, and

>3.2 lakh) and did not provide any explanation in determining those income ranges. ERM has followed the same income ranges for comparison of household income data. 91.8% of the households in the PAV were in <0.80 Lakh in 2008; in 2015 only 57.6% of the households in the PAV are in this income range. On the other end of the spectrum, there were only 0.78% households who earned above 3.2 lakhs in 2008; and such households in 2015 comprise 9.62%.

The changes in average annual income from agriculture, service and trade for different villages between 2008 and 2015 were examined. Though there is an increase in average agriculture income and from trade and business as well, the increase of income from employment/service is of several folds higher. Thus, employment or job emerges as the most sought livelihood options in study area.

5.8.5

Status of PAFs

ERM covered 44 project affected families (titleholder families whose private land was acquired for CGPL) out of which 39 were from Tunda and 5 from Vandh. The changes in the socio-economic conditions of PAFs are based on this sample of PAF households. IL&FS report in 2007 mentioned that the agriculture as a main occupation was limited to 2.3% population in Tunda. In 2015, the agriculture as main occupation was found to be limited to 1.4%. There is a reduction in agriculture labour and increase in non-agriculture wage labour which again affirms the industrialisation of the study area. There is a marked increase in trade and commerce related occupations from 11.7% in 2008 to 24% in 2015. The service sector (which includes both government and private sector jobs) has shown marginal increase.

In 2007, the annual income of the PAFs varied in the range Rs 12,000 and Rs 300,000 with average income of Rs 56,571. In 2015, the annual income of these PAFs varied in the range Rs 10,000 to Rs 9,60,000 with average income at Rs1,27,619. This implies that the economic conditions of the PAFs have improved in comparison to their household income in 2007. Further, the quality of life parameters for the PAFs also indicate marked improvement in their life. Many of the PAFs have diversified to trade/commerce, service and other miscellaneous vocations. The younger people have accepted industrial jobs; middle aged population (36-60 yrs) have moved to either petty trades or are engaged in wage-labour. This middle age-group is found to have been going through occupational transition.

This section provides the strategic options for CGPL with regard to continuing some of its on-going CSR interventions and considers additional areas for maximizing the social benefits. Three strategic areas of intervention are identified:

- Livelihood linked ecosystem;
- Basic needs of the community; and
- Building social capital and civic infrastructure.

The reason for selecting these areas for future intervention and their intended outcomes are described below.

6.1

LIVELIHOOD LINKED ECOSYSTEM

The objective of these interventions is to encourage self-reliance of the communities who possess or have access to productive resources. This would include small and marginal farmers who own land and livestock, and fishermen communities who have traditional skills to exploit the marine resources. Encouraging these resource based livelihoods will nurture a self-reliant local community and reduce their dependency and expectations from the local industries. This would help creating a symbiotic relationship between the local community and CGPL.

Marine Capture Fishery and Aquaculture

Fisherfolk households emerge as a relatively vulnerable community in comparison to other communities in the study area. The income level of the active fishing population was found to be lower than people engaged in other occupations. The lack of educational opportunity for the younger generation of the fishermen communities is a hindrance for occupational diversification. Lack of education is also noticed to contribute to their economic exploitation by traders.

As discussed in AAKAR report, the dependence of fisherfolks on traders to meet their financial requirement forces them into a debt trap. Thus, financial inclusion and market linkages are two important areas to improve net income of fishing households.

Intervention in these areas however is not easy. As these areas of intervention impinge on the business models of the existing traders, one would expect resistance from this section. Hence, fish traders should be considered as an important stakeholder in any intervention planned for fishing population. The existing social and economic relationship between the fishing population and the traders is based on centuries old practices. Altering these age-old socio-economic relationships would be neither easy nor can be achieved

through piece meal local interventions. However, interventions such as distribution of fishing equipment and providing modern amenities do not antagonize the traders. Though, these activities reduce the dependence of the fishermen on local traders for debt, the increase in fish-catch using these equipment benefits the trader as well. Hence, these interventions are considered appropriate in the present context.

In order to bring lasting changes in fishing communities, one needs to adopt a long term strategy. The overall regional changes in community leadership, comprehensive economic development plans for marine fishery sector are likely to have a strong bearing on the local dynamics. The department of fisheries in Kutch which leads the government effort for economic modernization of the marine fisheries sector therefore can be a strong collaborator. The study of the value chain by SWADEEP and AAKAR has thrown some light on the local fishing operation. It would be beneficial to broaden this localised understanding to the regional understanding of the fishing and fish trading. Hence, we recommend further steps should be taken to study the regional phenomenon of economy of marine fishing and its leadership dynamics to prepare a long term strategy.

In addition to improvement in the capture fishery and promotion of responsible fishing practices among fishermen, opportunities for aquaculture such as growing shrimps, crabs, or growing fish and marine products with high commercial values may be explored. The Brackish water land lease policy of Government of Gujarat, allows leases of 5ha to individuals and 50ha to cooperatives for a period of 20 years for undertaking aquaculture activities. CGPL should play a role of catalyst for promoting such other schemes of the Government targeting for fishing population. This will help reducing the existing population pressure on the marine capture fishing practices and enhance the corporate reputation by demonstrating a proactive stance in promoting sustainable marine fishing practices in this region.

Following programs are to be considered for implementation:

- Fishermen Information Centre for linking them to government programs and responsible fishing;
- Micro Finance with fishermen;
- Encouraging Prawn Farming among fisherman in Modhva, & Tragadi;
- Primary education of children of migrated fisherfolk at Tragadi Bunder;
- Health camps at Tragadi, Modhva and Tragadi Bunder
- Provision of drinking water in Tragadi and Modhva village in partnership with WASMO and bulk supply of drinking water in Tragadi Bunder; and
- Comprehensive sanitation facilities in Tragadi Bunder.

Livestock rearing and Fodder Production

The traditional livestock keeping practices are changing. The livestock rearing by taking them to the grazing land is under pressure due to reduction in availability of pastureland and even reluctance of people to work as graziers

in these villages. In addition, the changes in the cattle breeds more suited for stall feeding is creating demand for fodder. Moreover, the fodder and water requirement for the improved breeds which has replaced the traditional breeds is reportedly higher. In such a circumstance, the fodder supply to support livestock rearing practices of the local community is a concern.

CGPL has been supporting the Gaushala Trusts for supply of fodder and water for the livestock. The beneficiaries have expressed satisfaction over this intervention. It has been found out that the cost of procurement of fodder is increasing day by day. This not only increases the financial burden on CGPL, even inflates the cost of raising livestock and reduces the margins from sale of milk. Hence, it is recommended that opportunities for increasing local production of fodder should be pursued. CGPL may consider leasing out land under its possession within the plant area to grow fodder and meet the growing demands for fodder.

Following programs are to be considered for implementation:

- Financial support for fodder supply to gaushalas;
- Cost optimization and effective use of finance through Formation of Producer Companies for procurement of fodder;
- Gauchar land development: to make villages self reliant in fodder supply even in drought condition;
- Demonstration of harvesting different varieties of Grass/Fodder within plant premises; accessing dry fodder & forming seed bank;
- Selection of fodder crops that withstand high salinity; organise land for growing fodder;
- Brucellosis control Project which is a significant livestock health endemic in Kutch; and
- Veterinary care and vaccination camp.

Promoting Water Harvesting and Agriculture/Horticulture

The objective of supporting the agriculture and horticulture practices is to make the small and marginal farmers self-reliant. The increase in agricultural productivity is integrally linked to water availability. CGPL has conducted a GIS mapping exercise which has identified the rain water harvesting possibilities in the project area. The rain water harvesting and ground water recharge through this plan would contribute to the agriculture and horticulture practices in the study area. In addition to this, we recommend to take up IEC campaigns for water conservation and adoption of a cropping pattern that encourage sustainable agricultural practices in the study area.

Mandvi block has been categorized as over exploited as per the national report on “Dynamic Ground Water Resources of India” published by CGWB. The Mundra block in the same report is classified as semi-critical. Hence, harvesting the surface run off and its conservation will support agriculture, horticulture and livestock rearing activities. The hydrogeological investigations conducted by CGPL in 20 villages around it has identifies 24

watersheds. Sites for new check-dams, sub-surface dykes with ground water abstraction wells and recharge shafts in existing ponds for facilitating ground water recharge has been identified. Implementation of these initiatives is expected to improve the water availability and support traditional livelihoods in study area.

Following programs are to be considered for implementation:

- Water harvesting and conservation and improving geo hydrological condition of the region;
- Repair, construction and networking of reservoir/ weirs for strengthening the geo-hydrological system in the area;
- Well recharging and monitoring of ground water level and water quality (TDS and Salinity) in participation with SHGs;
- Community mobilization for water budgeting through appropriate farm practices (field preparation, controlled irrigation, or drip irrigation) and choice of crops; and
- Supporting agriculture extension services in Mandvi and Mundra to increase productivity and income from agriculture/horticulture.

6.2

BASIC AMENITIES AND SERVICES

The improvement of civic amenities and services is primarily responsibility of the local government. However, the governance deficits or failure of effective implementation of civic and social services particularly in the areas where community perceives that CGPL has an impact, invites public criticism. Consequently, these areas have greater reputational risks for CGPL. In reality, the project area has undergone a significant transformation with respect to civic amenities and growing industrialisation of the area will have far reaching changes in people's quality of life.

Drinking Water and Sanitation:

CGPL has made intervention to improve the quality of the drinking water through providing RO plants in collaboration with WASMO. It should complete the program for providing RO water in villages and schools in all villages in the study area. In addition, following programs are to be considered for implementation:

- To saturate Mandhvi, Mundra and Bhuj with sanitation facilities and make them free from open defecation (ODF);
- Post ODF status run BCC (behavior change communication) campaigns to ensure sustainability of behavior; and
- Special campaign in schools for promotion of personal, domestic and environmental hygiene.

Health Services:

The objective of the health services initiative will be to provide reliable health consultations for the adjacent community. The health care infrastructure in the nearby cities which are easily accessible because of the improved road connectivity can be used for major health concerns. However, availability of qualified health professionals at village level for regular consultation for minor sickness was reported by the community as a concern. The health camps organized at intervals do supplement the health service provisions and benefit the local population. Thus, expanding dispensaries at the community level is an important area for intervention.

Following programs are to be considered for implementation:

- Providing preventive health and treatment services through health camps and outreach services;
- Developing UID for every patient reporting with illness and recording treatment history through software;
- Promoting and supporting institutional delivery for safe motherhood and nutritional services for pregnant and young mothers;
- Supporting regular immunization (BCG,OPV,DPT and Measles/MMR through outreach services;
- Promoting treatment facilities for critical disease through collaboration with referral hospitals;
- Convergence with NRHM for health and nutritional services and leveraging fund for door to door services; and
- Continue health camps for cataract operation in catchment area.

Education

Aspirations of the younger generation to get into the industrial workforce are quite imminent. The growing literacy among women also has created aspirations for industrial employment. The community has realised that better paying jobs could be accessed through higher education and obtaining employable skills. However, the employment opportunities at CGPL will be limited in operation stage to meet this growing community expectation. The primary education, though provides the foundation, but is not considered to have a direct influence on providing employment. Hence, it is recommended that CGPL should be supporting and helping local youths to obtain higher education and learn skills which will enhance their employability.

Following programs are to be considered for implementation:

- Enhance the learning achievements in 83 school of Mandvi Block ; involving around 10,000 students;
- Design and use innovative TLM for classroom transaction in languages and mathematics;
- Saturating all primary schools of Mandvi block with specialized teachers training programme;

- Providing gap filling support to 165 primary schools of Mandvi, Mundra Abdasa and Lakhapat blocks (222 teachers);
- Enhance the quality education through smart class model in 42 primary schools of Mandvi Block;
- Support to girls education and reduce school drop out through school based activities in collaboration with Sarv Shiksha Abhiyan; and
- Address educational needs in neighborhood through support in infrastructure, teaching learning materials, teachers support and exposure visits.

6.3

BUILDING SOCIAL CAPITAL AND INFRASTRUCTURE

CGPL should build and promote integrated development models for rural communities' thorough adoption of villages and develop them as model villages. The model village program may include the following:

- Identification and closing of basic infrastructure gaps such as approach road , Gauchar land development and community hall as part of entry point activities;
- Ensure 100% coverage by water and sanitation
- Ensure village cleanliness by recycling of waste generated at the community level and reuse of grey water and meet other cleanliness standards as laid out in Swachh Bharat guideline;
- 100% immunization of all children in the age group of 0 to 59 months;
- 100% children in the age group of 0 to 59 months reporting grade 1 nutrition level as per age / height and age / weight criteria (strengthening Anganvadi's in collaboration with ICDS);
- 3 ANC checkups for all pregnant women and 100% post partum care;
- addressing adolescent health particularly for young girls with sanitary hygiene;
- 100% institutional births and birth certification;
- 100% net enrolment and retention for elementary education; and
- All children up to class 4 have class specific learning achievement.

Annex 1

List of Private Land Owners for CGPL Project

LIST OF PROJECT AFFECTED PERSON AS PER LAND ACQUISITION AWARD:

	S NO as per original list	UID No	Family No.	HH/ILFS/2007-08/UID NO.	Survey. NO.	Area Hec. Are. Sqm.	Name of PAP as per LAQ Awards	Name of Family member
1	3	CGPL/Vandh-Tunda/mundra/kutch/0003	1		91	2-24-60	Karmiben Veddrva W/o. Rabari Lakhu Lakhamir.	Lakhubhai
			2					Rajuben
			3					Lakha
			4					Lachhuben
			5					Heera
			6					Hameer
2	14	CGPL/Tunda/mundra/kutch/0014	1	3036	96	3-45-00	Pravinaba Mangubha Jadeja (Found)	Self
			2	3036				Kalpna
			3	3036				kiranba
			4	3036				Rasikba
			5	3036				Dharmendrasinh
			6	3036				Nandaniba
			7	3036				Chhayaba
			8	3036				Indrajitsinh
3	15	CGPL/Vandh-Tunda/mundra/kutch/0015	1		97	2-30-67	Rabari Samat Pachan (Found)	Self
			2					Paliben
			3					Malabhai
			4					Raniben
			5					Manoj
			6					Rajubai

	S NO as per original list	UID No	Family No.	HH/ILFS/2007-08/UID NO.	Survey. NO.	Area Hec. Are. Sqm.	Name of PAP as per LAQ Awards	Name of Family member	
			7					Deviben	
			8					Soniben	
			9					Namaben	
			10					Maghi	
	16	CGPL/Vandh-Tunda/mundra/kutch/0016	1		98	2-27-64	Rabari Pachan Lakha not found	Self	
			2					Nathubhai	
			3					Hasubai	
			4					Palabhai	
			5					Deviben	
			6					Jagabhai	
			7					Bhachibai	
			8					Pariben	
	4	17	CGPL/Tunda/mundra/kutch/0017	1		100	6-46-48	Zaverchand Meghji Shah	Self
				2				14,Hanumanta Road,	Dhanvantiben
3					Sauth Wind Appartment,Flat No.G A/1A,			Dipak	
4					Balaji Nagar,			Kavita	
5					Royapetha, Chennai - 1428133077			Yash	
6					Co. - 09444901242 Re.Co. 044-42618008			Rajesh	
7								Meena	
8								Pratik	
9								Darsita	

	S NO as per original list	UID No	Family No.	HH/ILFS/2007-08/UID NO.	Survey. NO.	Area Hec. Are. Sqm.	Name of PAP as per LAQ Awards	Name of Family member
5	18	CGPL/Tunda/mundra/kutch/0018	1	3137	101	3-51-07	Prabhaben Khimgar Gusai	Self
			2		101		Minaben Khimgar Gusai	Douter of Prabhaben
			3		101		Nitaben Khimgar Gusai	Douter of Prabhaben
			4	3137	101		Gaurigar Khimgar Gusai	Gaurigar
			5	3137				Anitaben
			6	3237				Shivani
			7	3137				Vishal
			8	3137				Payal
	19	CGPL/Tunda/mundra/kutch/0019	1		101	3-51-07	Chandangar Khimgar Gusai	Chandangiri
			2					Jayaben
			3					Chetangiri
			4					Nayangiri
			5					Kisangiri
6	23	CGPL/Vandh-Tunda/mundra/kutch/0023	1		112	1-87-17	Rabari Khima Randhir	(Late)
			2					Raniben(Late)
			3					Heera
			4					Raniben
			5					Kaya
			6					Deval
			7					Visho
			8					Meena
			9					Karmashi
			10					Kauben

	S NO as per original list	UID No	Family No.	HH/ILFS/2007-08/UID NO.	Survey. NO.	Area Hec. Are. Sqm.	Name of PAP as per LAQ Awards	Name of Family member
			11					Raja
			12					Bhavna
			13					Randheer
			14					Sajan
			15					Bhachibai
			16					Vanka
			17					Jasiben
			18					Devo
			19					Kheto
			20					Meena
			21					Kano
			22					Meghiben
			23					Heera
			24					Puri
			25					Shilpa
			26					Nathu
			27					Sitaben
			28					Palo
			29					Ramo
			30					Lakhi
			31					Samant
			32					Jasiben
			33					Valu
			34					Jago (Late)
			35					Lakha
			36					Lakhmaben

	S NO as per original list	UID No	Family No.	HH/ILFS/2007-08/UID NO.	Survey. NO.	Area Hec. Are. Sqm.	Name of PAP as per LAQ Awards	Name of Family member
			37					Meghiben
			38					Ramiben
			39					Moghiben
			40					Soniben
			41					Bhikho
			42					Devara
			43					Manda
			44					Lakhiben
			45					Ramo
			46					Sangha
			47					Nathu
			48					Ramiben
			49					Jaso
			50					Megho
			51					Lachhu
			52					Lakhi (Late)
			53					Valu
7	24	CGPL/Vandh-Tunda/mundra/kutch/0024	1		116	2-05-38	Rabari Bhojaraj Jaga (not found)	Self
			2					Vinju
			3					Hadhu
			4					Rani
			5					Priyal
			6					Miral

S NO as per original list	UID No	Family No.	HH/ILFS/2007-08/UID NO.	Survey. NO.	Area Hec. Are. Sqm.	Name of PAP as per LAQ Awards	Name of Family member							
							Pooja							
							Kajal							
							Sajan							
							Kauben							
							Bhavy							
							Ramo							
							Lakhiben							
							Rani							
							Valu							
							16	116	2-05-38	Rabari Jashiben Jaga	Self			
							17	116	2-05-38	Rabari Khetuben Jaga	Self			
							25	CGPL/Vandh-Tunda/mundra/kutch/0025			116	2-05-38	Rabari Raja Jaga found	Self
														Puriben
														Lakha
														Paliben
														Soma
														Hiruben
26	CGPL/Vandh-Tunda/mandvi/kutch/0026			116	2-05-38	Rabari Vanka Jaga (found)								Self
							Heemaben							
							Varjang							
							Paliben							

	S NO as per original list	UID No	Family No.	HH/ILFS/2007-08/UID NO.	Survey. NO.	Area Hec. Are. Sqm.	Name of PAP as per LAQ Awards	Name of Family member
			5					Khetabhai
			6					Bhamu
			7					Lakhi
			8					Jivi
			9					Palabhai
			10					Hansuben
			11					Jasuben
			12					Ranabhai
			13					Habhubhai
			14					Kamu
			15					Sarang
			16					Raniben
			17					Megha
			18					Palabhai
			19					Lakha
			20					Samat
			21					Meghi
			22					Bheema
			23					Seeta
			24					Sangha
8	27	CGPL/Tunda/mundra/ku tch/0027	1		121	2-07-40	Baiyabai Fakirmamad	Dou of Late Fakirmamad
			2		121	2-07-40	Havabai Saleman	Salemamad (Late)
			3				Osmangani Saleman	Havabai
			4		121	2-07-40	Anvarhusen Saleman (found)	Memunaben
			5					Anwar

	S NO as per original list	UID No	Family No.	HH/ILFS/2007-08/UID NO.	Survey. NO.	Area Hec. Are. Sqm.	Name of PAP as per LAQ Awards	Name of Family member
			6					Hameeda
			7					Md Lal
			8					Rizvan
			9					Osaman Gani
			10					Mariyambai
			11					Sabana
			12					Asiyana
			13					Amna
	28	CGPL/Tunda/mundra/ku tch/0028	1		121	2-07-40	Harun Fakirmamad (found)	Harun Fakirmamad
			2					Kajbanu
			3					Husen
			4					Asma
			5					Shahil
			6					Kasam
			7					Fatimabai
			8					Ali Asgar
			9					Ali Akabar
			10					Rafik
	9	29	CGPL/Tunda/mundra/ku tch/0029	1		124	1-76-04	Chhotalal Maganlal Dedhiya
		2			Vijayaben			
		3			Sumit			
30		CGPL/Tunda/mundra/ku tch/0030	1		124	1-76-04	Laherikant Maganlal Dedhiya	Self

	S NO as per original list	UID No	Family No.	HH/ILFS/2007-08/UID NO.	Survey. NO.	Area Hec. Are. Sqm.	Name of PAP as per LAQ Awards	Name of Family member
			2				7,Sagar,Jay Jatin Society,	Hemlata
			3				Bhagavan Mahavir Len,	Niketu
			4				Valabhbhag Len,	Rachit
							Ghatkopar (Iast) Mumbai - 77	
							Co. - 09833939994	
	31	CGPL/Tunda/mundra/ku tch/0031	1		124	1-76-04	Minaben Mulji Bhimji Gadhavi	Self
			2					Tejash
10	32	CGPL/Tunda/mundra/ku tch/0032	1		127	1-85-14	Anopsinh Mansangji Jadeja	Self
			2					Anandba
			3					Pradipsinh
			4					Madhuba
			5					Jayvirsinh
			7					Bhagyshriba
			8					Yuvrajsinh
			9					Ilaba
			10					Sapnaba
11	40	CGPL/Tunda/mundra/ku tch/0040	1	3005	138	3-22-74	Jadeja Indraba Balvantsinh	Self (Douter in law of Viramji)
			2	3005				Dheerajba
			3	3005	138	3-22-74	Jadeja Ranjanben Balvantsinh	Ranjanba Balvantsinh
			4	3005				Dashrathaba
			5		138	3-22-74	Mahipatsinh Balvantsinh Jadeja	Mahipatsinh
			6	3005				Dharamba

S NO as per original list	UID No	Family No.	HH/ILFS/2007-08/UID NO.	Survey. NO.	Area Hec. Are. Sqm.	Name of PAP as per LAQ Awards	Name of Family member	
			7	3005			Jaydeepsinh	
			8	3005			Ankitaba	
			9	3005			Artiba	
			10	3005	138	3-22-74	Jadeja Indraba Virmaji	Douter of Viramji
			11	3005	138	3-22-74	Jadeja Prashanba Virmaji	Douter of Viramji
12	46	CGPL/Tunda/mundra/ku tch/0046	1	3057	159	2-33-71	Jadeja Bhojrajaji Mansangji	Self
			2	3057				Indraba
			3	3057				Ashoksinh
			4					Krishnaba
			5					Kailasba
			6					Kanchanba
			7					Dashrathba
			8					Nirmalsinh
13		CGPL/Tunda/mundra/ku tch/0047	1		164	4-51-23	Smt. Geetaba Pravinsinh	Self
			2					Pravinsinh
			3					Kanchanba
			4					Manishaba
14	48	CGPL/Tunda/mundra/ku tch/0048		3008	102/1	1-27-47	Jadeja Sultanji Virmaji (not found)	

	S NO as per original list	UID No	Family No.	HH/ILFS/2007-08/UID NO.	Survey. NO.	Area Hec. Are. Sqm.	Name of PAP as per LAQ Awards	Name of Family member
15	49	CGPL/Tunda/mundra/kutch/0049	1	3008	102/2	1-61-88	Ranjanba Sultanji Jadeja	Self
			2	3008				Sultanji (Late)
			3	3008				Dharmistaba
			4	3008				Balbhadrasinh
			5	3008				Khamaba
			6	3008				Shrutiba
			7	3008				Rudrasinh
			8	3008				Rajdeepsinh
			9	3008				Meenaba
			10	3008				Yagnadeepsinh
			11	3008				Krishnaba
16	50	CGPL/Tunda/mundra/kutch/0050	1	3082	105/1	1-85-14	Nomini of Late Shri Rajgor Mithabai Shivji	Self
			2	3082				Veljibhai
			3	3082				Bhanuben
			4	3082				Nitin
			5	3082				Tanvi
			6	3082				Anil
			7	3082				Jignaben
			8	3082				Navin
			9	3082				Laxmidash
17	51	CGPL/Vandh-Tunda/mundra/kutch/0051	1		107/1	1-14-32	Rabari Megha Karmashi	Self
			2					Khetuben

	S NO as per original list	UID No	Family No.	HH/ILFS/2007-08/UID NO.	Survey. NO.	Area Hec. Are. Sqm.	Name of PAP as per LAQ Awards	Name of Family member
								Deviben
			3					Lakhabhai
			4					Valubai
			5					Heeruben
			6					Kamuben
			7					Vishal
			8					Rana
			9					Rani
			10					Vaji
			11					Pali
			12					Thavar
18	53	CGPL/Tunda/mundra/ku tch/0053	1	3042	117/1	1-03-19	Rajgor Laxmidas Valji	Self
			2	3042				Jasuben
			3					Prabhulal
			4					Arunaben
			5					Anita
			6					Khushboo
			7					Shivam
			8					Nidhi
			9					Dilip
			10					Jigna
			11					Om
			12					Ushaben (Dou Of Laxmidashbhai)
	54	CGPL/Tunda/mundra/ku tch/0054	1		117/1	1-03-19	Rajgor Virji Valji (not found)	Self
			2					Manjulaben

	S NO as per original list	UID No	Family No.	HH/ILFS/2007-08/UID NO.	Survey. NO.	Area Hec. Are. Sqm.	Name of PAP as per LAQ Awards	Name of Family member
			3					Mehul
			4					Kiran
			5					Isha
			6					Girish
			7					Puja
			8					Prem
			9					Prakash
			10					Aasha
19	55	CGPL/Vandh-Tunda/mundra/kutch/0055	1		117/2	0-80-94	Rabari Rama Nathu	Self (Late)
			2					Jasiben
			3					Budha
			4					Soniben
			5					Maghi
			6					Bhakh
			7					Kayabhai
20	56	CGPL/Vandh-Tunda/mundra/kutch/0056	1		118/1	0-84-98	Rabari Jiva Bhojraj	Self
			2					Namaben
			3					Thavar
			4					Lachhu (late)
			5					Paliben
			6					Rami
			7					Paliben

	S NO as per original list	UID No	Family No.	HH/ILFS/2007-08/UID NO.	Survey. NO.	Area Hec. Are. Sqm.	Name of PAP as per LAQ Awards	Name of Family member
			8					Puri
			9					Palo
			10					Kamu
			11					Valu
			12					Pabiben
			13					Lakhmir
			14					Kauben
			15					Lakho
			16					Budhha
			17					Rama
21	57	CGPL/Tunda/mundra/ku tch/0057	1		118/3	0-98-14	Kumbhar Junas Jusab	Self
			2					Halimabai
			3					Ibrahim
			4					Mariyabai
			5					Akbar
			6					Irfan
			7					Irfana
			8					Alfana
			9					Adam
			10					Halimabai
			11					Nazma
			12					Rukiya
			13					Abdul
			14					Arif
			15					Suleman

	S NO as per original list	UID No	Family No.	HH/ILFS/2007-08/UID NO.	Survey. NO.	Area Hec. Are. Sqm.	Name of PAP as per LAQ Awards	Name of Family member
			16					Serbanubai
			17					Samim
			18					Suhana
			19					Sahid
22	58	CGPL/Vandh-Tunda/mundra/kutch/0058	1		118/2	0-89-03	Rabari Sultaniben Hira	No
			2		118/2	0-89-03	Rabari Hira Raja	
			3			1-11-29	Rabari Hira Raja	Self
			4					Surtaniben
			5					Vanka
			6					Deviben
			7					Manoj
			8					Sangha
			9					Seetaben
			10					Bheema
			11					Pabiben
			12					Jesha
			13					Lakhi
			14					Sangha
			15					Ranmal
			16					Nathiben
			17					Valu
			18					Vaji
			19					Puri
			20					Kano

	S NO as per original list	UID No	Family No.	HH/ILFS/2007-08/UID NO.	Survey. NO.	Area Hec. Are. Sqm.	Name of PAP as per LAQ Awards	Name of Family member
			22					Devalben
			23					Bhikhabhai
23	59	CGPL/Tunda/mundra/ku tch/0059	1		119/2	2-16-51	Kumbhar Junas Jusab (already found)	Self
			2					Halimabai
			3					Ibrahim
			4					Mariyabai
			5					Akbar
			6					Irfan
			7					Irfana
			8					Alfana
			9					Adam
			10					Halimabai
			11					Nazma
			12					Rukiya
			13					Abdul
			14					arif
			15					Suleman
			16					Serbanubai
			17					Samim
			18					Suhana
			19					Sahid
	60	CGPL/Tunda/mundra/ku tch/0060	1		119/2	2-16-51	Hanifabai Daud Kumbhar	Wife of Late Daud Jusa
	61	CGPL/Tunda/mundra/ku	2		119/2	2-16-51	Abdul Daud Kumbhar	Self (Son of Late Daudbhai Jusab)

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	tch/0061	3				(found)	Jamilabai
62	CGPL/Tunda/mundra/ku tch/0062	4		119/2	2-16-51	Amad Daud Kumbhar	Self (Son of Late Daudbhai Jusab)
		5					Jenabai
		6					Memunabai
		7					Asif
		8					Self (Son of Late Daudbhai Jusa)
63	CGPL/Tunda/mundra/ku tch/0063	9		119/2	2-16-51	Haji Daud Kumbhar	Aminabai
		10					Afsana
		11					Rukshana
		12					Hushen
		13					Duter of Late Daud Jusa
64	CGPL/Tunda/mundra/ku tch/0064	13		119/2	2-16-51	Sarubai Daud Kumbhar	Duter of Late Daud Jusa
65	CGPL/Tunda/mundra/ku tch/0065	14		119/2	2-16-51	Sumar Daud Kumbhar	Self (Son of Late Daudbhai Jusa)
		15					Sarubai
		16					Sayanaj
		17					Rahenaj
		18					Intihaj
66	CGPL/Tunda/mundra/ku tch/0066	1		119/2	2-16-51	Ayub Jusa Kumbhar	Self
		2					Niyamatbai
67	CGPL/Tunda/mundra/ku tch/0067			119/2	2-16-51	Baiyabai Jusa Kumbhar	
68	CGPL/Mandvi/kutch/0068	1		119/2	2-16-51	Mariyabai Ismail Kumbhar(Mandvi)	Self
69	CGPL/Mandvi/kutch/0068	2		119/2	2-16-51	Isha Ismail Kumbhar	Isha

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	9	3				(Mandvi)	Khatubai
		4					Ikabal
		5					Irfana
		6					Alfana
		7					Inayat
70	CGPL/Mandvi/kutch/0070	8		119/2	2-16-51	Jakhar Ismail Kumbhar (Mandvi)	Jakhar
		9					Aminabai
		10					Nurjaha
		11					Najama
		12					Najir
		13					Nasir
71	CGPL/Mandvi/kutch/0071	14		119/2	2-16-51	Jusha Ismail Kumbhar (Mandvi)	Jusha
		15					Shakinabai
		16					Shafin
		17					Saniya
72	CGPL/Mandvi/kutch/0072	18		119/2	2-16-51	Ramjan Ismail Kumbhar (Mandvi)	Ramjan
		19					Shakinabai
		20					Afsana
		21					Farjana
		22					Faijal
73	CGPL/Mandvi/kutch/0073	23		119/2	2-16-51	Bhakhar Ismail Kumbhar (Mandvi)	Bhakhar
		24					Salma

	S NO as per original list	UID No	Family No.	HH/ILFS/2007-08/UID NO.	Survey. NO.	Area Hec. Are. Sqm.	Name of PAP as per LAQ Awards	Name of Family member
			25					Afsa
			26					Yasmin
	74	CGPL/Tunda/mundra/kutch/0074	1		119/2	2-16-51	Mamad Jusa Kumbhar (not found)	Self
			2					Jenabai
			3					Ramjan
			4					Halima
			5					Mohsina
			6					Megha
			7					Havabai
			8					Mohina
			9					Sarifa
			10					Hasina
	75	CGPL/Tunda/mundra/kutch/0075	1		119/2	2-16-51	Osman Jusa Kumbhar (not found)	Self
			2					Jenabai
			3					Adhreman
			4					Hasina
			5					Ikabal
			6					Ramjam
			7					Kulsumbai
			8					Riyaj
			9					Jamila
			10					Kulsumbai
24	76	CGPL/Mota Kandagra/mundra/kutch	1	2258	122/1	1-86-16	Ahir Ramji Lakhu	Self

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		/0076	2	2258				Dhanuben
			3	2258				Meet
			4	2258				Mihir
25	86	CGPL/Tunda/mundra/ku tch/0086	1		126/1 & 2		Bhudhabhai Khamu Harijan	Self
			2					Lakshaben
			3					Kishan
			4					Ratanben
			5					Dhanlakshamiben
			6					Damyantiben
			7					Rajvantiben
			8					Chandravantiben
			9					Tulsiben
			10					Hemaben
	87	CGPL/Tunda/mundra/ku tch/0087			126/1 & 2		Kesharbai D/o. Khamu Harijan W/o. Naran Vela Harijan	
					126/1 & 2		Meghbai Devji Haraiji	
					126/1 & 2		Meghji Khamu Harijan	
26	88	CGPL/Tunda/mundra/ku tch/0088	1		126/5	1-46-70	Rambhiyabai Hasam Kumbhar (not found)	Self
	89	CGPL/Tunda/mundra/ku tch/0089	2		126/5	1-46-70	Aishabai Hasam Kumbhar (found)	
	90	CGPL/Tunda/mundra/ku tch/0090	3		126/5	1-46-70	Fatmabai Hasam Kumbhar (not found)	

S NO as per original list	UID No	Family No.	HH/ILFS/2007-08/UID NO.	Survey. NO.	Area Hec. Are. Sqm.	Name of PAP as per LAQ Awards	Name of Family member
91	CGPL/Tunda/mundra/ku tch/0091	4		126/5	1-46-70	Bayabai Hasam Kumbhar (found)	
92	CGPL/Tunda/mundra/ku tch/0092	1		126/5	1-46-70	Hushen Hasam Kumbhar (found)	Self
		2					Fatmabai
		3					Salemamad
		4					Imran
		5					Salim
93	CGPL/Tunda/mundra/ku tch/0093	1		126/5	1-46-70	Alimamad Hasam Kumbhar (not found)	Self
		2					Mariyabai
		3					Anvar
		4					Mariyabai
		5					Ismail
		6					Jamilabai
		7					Khatubai
		8					Sharifabai
		9					Yakub
94	CGPL/Tunda/mundra/ku tch/0094	1		114/1	1-64-91	Sidhik Hasam Kumbhar (found)	Son of late Hasambhai
		2					Aisabai
		3					Sufina
		4					Rajak
95	CGPL/Tunda/mundra/ku tch/0095	1		114/1	1-64-91	Haji Hasam Kumbhar	Self
		2					Fatamabai

S NO as per original list	UID No	Family No.	HH/ILFS/2007-08/UID NO.	Survey. NO.	Area Hec. Are. Sqm.	Name of PAP as per LAQ Awards	Name of Family member	
			3				Faruk	
			4				Tahir	
	96	CGPL/Tunda/mundra/ku tch/0096	1		114/1	1-64-91	Kasam Hasam Kumbhar (found)	Son of late Hasambhai
			2					Sharifabai
			3					Sirin
			4					Sofiya
			5					Jasmin
	97	CGPL/Tunda/mundra/ku tch/0097	1		114/1	1-64-91	Ibhala Hasam Kumbhar	Son of late Hasambhai
			2					Jamila
			3					Amina
			4					Shahin
	98	CGPL/Tunda/mundra/ku tch/0098	1		114/1	1-64-91	Abbas Hasam Kumbhar (found)	Self (son of late Hasambhai)
			2					Amina
			3					Asma
			4					Afrin
5				Alfisa				
6				Abid				
27	99	CGPL/Tunda/mundra/ku tch/0099	1		134/1	1-17-76	Harijan Nathu Mala	Self
			2					Laxmiben
			3					Khamu
			4					Hadhu
			5					Divya

	S NO as per original list	UID No	Family No.	HH/ILFS/2007-08/UID NO.	Survey. NO.	Area Hec. Are. Sqm.	Name of PAP as per LAQ Awards	Name of Family member
			6					Mulji
			7					Hansha
			8					Valji
			9					Heerbai
			10					Yashoda
			11					Geeta
			12					Poonam
			13					Sonal
			14					Mahesh
			15					Tulsi
			16					Kunjan
28	100	CGPL/Tunda/mundra/kutch/00100	1		134/2	0-80-94	Harijan Damji Kaya	Self
			2					Laxmiben
			3					Viran
			4					Devaji
			5					Sonbai
			6					Tejbai
			7					Urmila
			8					Meghbai
			9					Kantabai
			10					Bhachibai
29	101	CGPL/Mota Kandagra/mundra/kutch/00101	1		135/1	2-77-21	Dinesh Kanji Maheshwari	Self
			2					Rameelaben

S NO as per original list	UID No	Family No.	HH/ILFS/2007-08/UID NO.	Survey. NO.	Area Hec. Are. Sqm.	Name of PAP as per LAQ Awards	Name of Family member
		3					Arun
		4					Jignesh
		5					Vaishali
30	102	CGPL/Tunda/mundra/kutch/00102	1 2 3 4 5 6 7 8 9 10 11	135/2	0-74-87	Kumbhar Husen Budha (Late) (not found)	Self Aishabanu Salemamad Sakinabai Sahil Sa Iqbal Gani Rukiyabai Sayrabanu Mamad
31	103	CGPL/Tunda/mundra/kutch/00103	1 2 3 4 5	136/1	1-61-87	Damji Kaya Maheshwari (not found)	Self Heerbai Aswin Narendra Meghnaben
32	104	CGPL/mundra/kutch/00104	1 2 3 4	136/3	1-21-41	Rabari Paba Hira (not found)	Self Valuben Vanka Meghubai

	S NO as per original list	UID No	Family No.	HH/ILFS/2007-08/UID NO.	Survey. NO.	Area Hec. Are. Sqm.	Name of PAP as per LAQ Awards	Name of Family member
			5					Sonuben
			6					seetaben
			7					Vershi
			8					Jesiben
			9					Jiluben
			10					Vijay
			11					Meenaben
			12					Kanabhai
			13					Meghuben
			14					Raja
			15					Bhimo
33	119	CGPL/Mota Kandagra/mundra/kutch /00119	1		152/2/ Paiki1	1-23-43	Lakhubha Sahebji Jadeja	Self
			2					Jeevaba
			3					Mahipatsinh
			4					Meetaba
			5					Alpesh
			6					Poonam
			7					Puja
			8					Balvantsinh
			9					Jasuba
			10					Jinal
			11					Jyotsana
			12					Krupali

	S NO as per original list	UID No	Family No.	HH/ILFS/2007-08/UID NO.	Survey. NO.	Area Hec. Are. Sqm.	Name of PAP as per LAQ Awards	Name of Family member
34	124	CGPL/Tunda/mundra/ku tch/00124	1		162/1	1-63-90	Osaman Ishak Mokha	Self
			2					Karimabai
			3					Alimamad
			4					Raziyanu
			5					Amin
			6					Serbanu
			7					Hameedabanu
			8					Raziya
35	125	CGPL/Tunda/mundra/ku tch/00125	1		162/2	2-64-06	Mokha Adam Ishak	Self
			2					Shakinabai
			3					Haji Ismail
			4					Jenabai
			5					Haji osman
			6					Amad
			7					Jameelabanu
			8					Adhreman
			9					Mumtazbanu
			10					Md rafiq
			11					Nazmabanu
			12					Raseedabanu (Dou of Adambhai
			13					Akshabanu
			14					Sabana
			15					Razaq
			16					Iqbal
			17					Arif

	S NO as per original list	UID No	Family No.	HH/ILFS/2007-08/UID NO.	Survey. NO.	Area Hec. Are. Sqm.	Name of PAP as per LAQ Awards	Name of Family member
			18					Asif

* Details has been prepared on the basis of the available details of LAQ Awards, 7/12, award details and **verified by CGPL**.

LIST OF PAP EXCLUDED FROM THE LIST

Sl no	UID No	SURVEY NO	NAME	JUSTIFICATION/REMARKS
1	CGPL/NANIKHAKHAR/MANDVI/KUTCH/0001	89	MAHIPATSINH KALUBHA JADEJA	He is the resident of Nani-khakhar and was an investor
2	CGPL/MOTAKANDAGRA/MUNDRA/KUTCH/0002	90	CHEDA GIRISH JAGSHI	INVESTOR
5	CGPL/TUNDA/MUNDRA/KUTCH/0005	94	HEMABEN LAXMICHAND SHAH	NOT STAYING IN TUNDA-MIGRATED
6	CGPL/TUNDA/MUNDRA/KUTCH/0006	94	MANIBEN RAVJI DEDHIYA	MIGRATED
7 TO 13	CGPL/TUNDA/MUNDRA/KUTCH/0007 TO 0013	95	BABIBAI BUDHA HARIJAN	MIGRATED
17	CGPL/TUNDA/MUNDRA/KUCTH/0017	100	ZAVERCHAND MEGHJI SHAH	MIGRATED
20	CGPL/TUNDA/MUNDRA/KUTCH/0020	103	ZAVERBEN DEVCHAND SHAH	MIGRATED
21	CGPL/TUNDA/MUNDRA/KUTCH/0021	99	ROHIT DEVCHAND SHAH	MIGRATED
33	CGPL/TUNDA/MUNDRA/KUTCH/0033	130	RAVJI VARSHI GHOGHARI	STAYING AT BHUJ, SOLD HIS LAND TO OTHER PARTY, HOWEVER THE LAND RECORDS WAS NOT CHANGED. AS PER KIRTIBHAI THE SAME SHOUDL NOT BE CONSIDERED, AS HE WAS AN INVESTOR
34 TO 36	CGPL/TUNDA/MUNDRA/KUTCH/0034 TO 36	132	SHAH NANJI VELJI	MIGRATED
37	CGPL/DHRAB/MUNDRA/KUTCH/0037	131	TURK ABHA OSMAN	INVESTOR
38 TO 39	CGPL/TUNDA/MUNDRA/KUTCH/0038 TO 39	133	DAMYANTIBEN MAGAN JEVAT SHAH	MIGRATED
41 TO 45	CGPL/TUNDA/MUNDRA/KUTCH/0041 TO 45	156	ASHOK GANJI GHOGHARI	MIGRATED TO MUMBAI BUT ONE OF THE TITLEHOLDER MR. VINOD GANGJI GHOGHARI IS NOT ECONOMICALLY SOUND HENCE MR. KIRTIBHAI SUGGESTED THAT IF TEH COMPANY CAN CONSIDER THE CASE THEN HE MAY RETURN BACK TO TUNDA.
77 TO 78	CGPL/JARPARA/MUNDRA/KUTCH/0077 TO 78	122/2	KHENGAR KARSAN MOMAYA GELVA	INVESTOR
79 TO 82	CGPL/JARPARA/MUNDRA/KUTCH/0079 TO 82	125/1	HITESH JETHALAL GHOGHARI	MIGRATED
83	CGPL/TUNDA/MUNDRA/KUTCH/0083	125/2	LAXMIBAI MALSHI	MIGRATED

Sl no	UID No	SURVEY NO	NAME	JUSTIFICATION/REMARKS
84 TO 85	CGPL/TUNDA/MUNDRA/KUTCH/0084 TO 85	125/3	MANIBEN (NOMINEE OF LATE SHRI LAKHAMSHI)	MIGRATED
105 TO 106	CGPL/TUNDA/MUNDRA/KUTCH/00105 TO 106	137/1	KETAN KAMLESH GHOGHARI	MIGRATED
107 TO 111	CGPL/TUNDA/MUNDRA/KUTCH/00107TO 111	137/2	BHANBHAI KHETSHI	INVESTOR, RESGISTRAION IS IN THE NAME OF OSMAN KUMBHAR
112 TO 113	CGPL/TUNDA/MUNDRA/KUTCH/00112TO 113	144/1	LAXMI DEVRAJ HARIJAN	INVESTOR
114 TO 115	CGPL/MOTA KANDAGRA/MUNDRA/KUTCH/00114 TO 115	146/2	KAUSHIK MORARJI CHEDA	INVESTOR
116 TO 118	CGPL/MOTA KANDAGRA/MUNDRA/KUTCH/00116 TO 118	152/1	DHARMESH RAMNIK LAL MEHTA	INVESTOR
120	CGPL/MOTA KANDAGRA/MUNDRA/KUTCH/00120	152/2	PARMAR HITENDRA SHIVUBHA	INVESTOR. HOWEVER THE BENEFICIARY HAS SUBMITTED AN AFFIDAVIT IN THE NAME OF HIS BROTHER RESIDING IN KANDAGRA
121	CGPL/TUNDA/MUNDRA/KUTCH/00121	153/1	LALJI PUNCHI GHOGHARI	INVESTOR
122	CGPL/MOTA KANDAGRA/MUNDRA/KUTCH/00122	154/1	BIPIN GANGJI GALA	INVESTOR. HOWEVER MR. KIRTIBHAI HAS SUGGESTED THAT HE IS THE CO-BROTHER IN LAW OF GIRISH BHAI CHEDA
123	CGPL/JABALPUR/MUNDRA/KUTCH/00123	161/1	AHIR DHANJI BIJAL	INVESTOR
126	CGPL/DHRAB/MUNDRA/KUTCH/00126	160	TURK ANVARBEG FAKIRMAMAD	INVESTOR

Note: list verified by CGPL

List of PAFs identified from IL&FS Report

S.NO	Name of the HH in PAF's List TUNDA- ERM List	Name of the HH in PAF's ILFS list	Remarks
1	HANIFABA DAUDBHAI KUMBHAR	Respondent-HANIFA BEN HH-DHAUDH	Names (both in CGPL and ERM list) are matching-
2	BHOJRAJSING MANSING JADEJA	Respondent - BHOJ RAJ JI HH- MANSANJ JADEJA	Names (both in CGPL and ERM list) are matching-
3	JUSABHAI ISMAIL KUMBHAR	Respondent - JURAS BHAI KUMBHAR HH- JURAS JURAB KHUMBAR	Names (both in CGPL and ERM list) are matching-
4	ISABHAI ISMAIL KUMBHAR	Respondent -JANBAI MOKHA HH-ISMAIL ISHAB	ISAMAIL ISABHAI Common, but JANBAI MOKHA not matching, even with ERM's family member detail list.
5	MOHMMAD JUSA KUMBHAR	3095: RAMJAN- Respondent MAMAD KUMBHAR- HH 3116: RAMJAN-Respondent MAMAD KUMBHAR-HH	Both 3095 and 3116 both matching.
6	FAFIMA IBRAHIM KUMBHAR	Fatima bai-respondent HH- Ibrahim	Names (both in CGPL and ERM list) are matching
7	ALIMA HASAN KUMBHAR	Respondent- ALI MAMDH HH- HASAM	Names (both in CGPL and ERM list) are matching. But,the name (HH) is different in ERM's HH details list and ERM's Family details list.
8	LAXMIDAS VALJIBHAI RAJGOR	Respondent: RAJUR LAXMI DAS HH: VALJI BHAI	Names (both in CGPL and ERM list) are matching
9	AYUD JUSA KUMBHAR	Respondent: AYUB HH: JUSABB	Names (both in CGPL and ERM list) are matching
10	OSMAN JUSA KUMBHAR	Respondent: KHUMBAR: ROMAT HH: OSAMAN	Names (both in CGPL and ERM list) are matching.
11	SARUBAI DAUD KUMBHAR	Respondent: SARUBAI KUMBHAR HH: SALEMAD	Names (both in CGPL and ERM list) are matching.
12	SUMAR DAUD KUMBHAR	Respondent- SUMAR HH- DHAUDH	Names (both in CGPL and ERM list) are matching
13	MANDABHAI RABARI	Respondent name: Khetubai HH: Manda Rabari	Respondent's name in ILFS_CGPL list and family member name in ERM's list matching, along with HH list.
14	MEGA KARMSI RABARI	Respondent name: Rabari Sultani HH: Magabhai	Respondent's name in ILFS_CGPL list and family member name in ERM's list matching, along with HH name.

Annex 2

Summary Record of Consultations, Interviews and Group Discussions

1.1 MODHWA VILLAGE

Meeting – I

<u>Basic details</u>	
Location: Modhwa Village	District: Mandvi
Project: CGPL	Date: 17 th February, 2015
Purpose of the visit: Stakeholder Consultations	

***Important Notice:** This document, intended for internal use of ERM, provides a working summary of the main facts captured during the meetings held, not formal minutes. It is therefore deliberately not exhaustive or chronological and, being provided for information, is not intended for official review or approval.*

Key points Discussed

Stakeholder: Pagadiya Group (7-8 men)

Pagadiya fishing - Profile

- The Wagher community has been reported to have a very long history of engagement of with fishing. Modhwa comprises of 80% pagadiya (traditional fishermen) and 20% boat owners. The pagadiya mostly fish in shallow waters and the boat based fisherfolk engage in deep sea fishing. However, in the lean season – April to July – the boat based fishermen also practice pagadiya fishing. The typical fishing equipment – involved in traditional fishing is fishing nets, anchor and wood. Typically spread the nets at night and collect them in the day time. Take rest during day and work at night. During monsoon season, the pagadiya fisher folk avoid fishing typically – but some nights they venture out as well but take shelters nearby in temporary structures.

Preference for traditional form of fishing

- Pagadiya fishermen primarily continue to follow this form of fishing – mainly to avoid major loans etc. Pagadiyas do not typically face any burden of loans. They believe that the boat based fishing involved greater incomes but also very high expenditures and continuous maintenance costs. At any point, there are loans on boat owners and that can also lead to crises sometimes.
- The pagadiyas do not prefer to live under any higher authority and prefer to live on their own terms. Pagadiyas prefer this mode of fishing – even in situations when there is low or no catch at all – prefer this lifestyle over others. They are satisfied with the occupation – even if there are times when there is no fish catch or if they have to go hungry for some meals. The pagadiyas don't prefer daily wage work. In case of pagadiya fishermen, the produce is mostly for self-consumption purpose and in very few instances only they sell the produce – either in the same village itself or in Mandvi.
- The pagadiyas generally do not have any conflicts etc. with the boat owners or fight with them – they are generally helpful and cooperative each other. The feeling of competition of pagadiya vs boat fishers does not exist.

Industries on the Coast & Trends in Fish Catch

- Previously the coast stretch accessible was upto 7 km, however with the outflow channel, the stretch has reduced to 4 kms only. Previously, the quantity of fish catch used to be better and also the quality. Both the quantity and quality have witnessed a reduction. Main reasons attributed for this are: 1) reduction of the coast stretch from 7 km to 4 km and several fishes get trapped in the inflow and outflow channels itself; 2) hot water left from the outflow channel and 3) diversion of fish routes into a farther channel and hence taking them away from the shores.
- The port development, thermal power plants etc. has not entirely worked in their favour – especially that of pagadiya. Among the main issues is also of steamer ships breaking or damaging the nets sometimes. Further,

several times the broken section of the nets remains in the water and several fishes also get trapped among them. The constant navigation of steamer ships are a menace according to the pagadiyas. This is the only channel to access the port for which ships from all over come – ships for kandla port, mundra port, for adani/tata raw material supply etc.

Division of Labour in Fishing

- For majority part of the year (except for fishing off season), men are out in the seas or on the shore engaged in the act of catching the fish, ensuring maintenance of fishing tools, procuring the requisite licenses and engaged in the trade/sale of fish. Men do not engage actively with household chores and typically prefer to engage with minor repair activities etc. during the off-season;
- Women are engaged in all the household chores including cleaning the house, cooking, taking care of children, gathering water in containers for drinking water purpose, collecting firewood; drying/sorting through fish, processing of fish and also engage in local sale of fish in Mandvi market, engage in Bandhani work or similar embroidery work. The money earned from bandhani work etc. is usually retained by women to buy clothes/food items and other stuff for themselves, children or for family as a whole;
- These communities have relatively fewer livestock holdings and don't have almost nil or negligible proportion of land holdings;
- The decisions pertaining to various aspects of household and family life are taken by both men and women based on the spheres/spaces of engagement;

Stakeholder: Boat owners – 3 boat owners and 1 young crew member**General Discussion on Boat-based fishing**

- There were previously only 15-20 boat owners in Wagher community and majority continued to practice pagadiya fishing. There have been additional boat owners over the past decade or so. The number of boat owners is currently 52. The increase is only gradual and drastic. There have also been a few families who ventured into boat based fishing, but went back to pagadiya fishing having found that the boat based fishing is a failure and involves heavy burden.
- The equipment involved in case of boat based fishing – boat, diesel engine/diesel, nets. Among these, the 2 main expenses are boat and net. Three different sizes of boats are owned – 15 ft, 20 ft, 25-30 ft. The net sizes also differ and typically an average family of 8 to 10 members own at least 4 nets. The cost per boat maybe around 2.5 lakhs on an average and nets may cost in the range of 50000 to 80000 based on the sizes. The most expensive nets are those used for lobsters and pomfrets. These are expensive nets and also more delicate and hence prone to damage. They might be a good investment when the catch for large fishes is good, but it might add further to the loans – if there are continuous net damage etc.
- The larger fish species such as lobsters and pomfrets are available usually only from a small period of time – typically less than a month – during peak winter season – month of December.
- The typical stretch covered by boat owners is about 25-30 km. On an average, in a month they are able to fish about 15 – 17 days. With a gap of a week or fortnight, fisher folk also undertake a stretch of fishing over a period of 3-4 days. This is only undertaken by those who own an ice box or take support of cold storage facilities. Fishing Zone for Modhwa Boat based fisher folk ranges from Navinal to Salaiya

License for Boat owners

- Every male member above the age of 18 is eligible to get a license. Typical documents required by the Fisheries Department, Bhuj includes ration card, voter id card, and photograph. Typically a representative from the department comes to the village to check the individual cards etc. (when there are many people applying at once). For individual applications, they have to go to the fisheries department in bhuj and submit the documents and the process may take upto a month or two. Applying individually sometimes may lead to delays and also requires follow-up and involves additional cost in travelling to and fro Bhuj.
- The cost involved for the license is usually Rs. 100 for a period of one year and Rs. 200 for two years. Renewal requires relatively shorter time – perhaps upto a week or two weeks max. In some cases, they issue a receipt for the new member also with the Card no. till the time the actual license card is printed. The receipt also has a photograph attached. The members can go fishing with the receipt as well.
- Each boat owner has to maintain a boat movement book and has to mention the routes he is taking every day and the names of the crewmembers accompanying him, the entry and exit timings etc. The Coast Guard keeps check/stamps the books – once in every 2 days or sometimes once weekly. He is also called sometimes by the villagers and on request; he comes in case there is any change in the movement etc. However, the coast guard is not necessarily stationed at the bunder at all times. Navy patrolling vehicles also check the licenses on and off. Any crew member without license will be strictly fined and such penalty imposed. No such previous instances faced by anyone.

Stakeholder: Traders (1 local and 1 from Una)**General Profile**

- Reportedly, there are 5-6 traders in Modhwa bunder for which a few permanent and semi-permanent structures have been established. Traders belong to different parts of Gujarat – Una, Kathiawar, Mundra and also 1 trader is from Modhwa itself. The traders typically stay at the bunders over a period of 9-10 months and go back to their native village for the remaining 2 months. Each trader has 8-10 boatmen working under them or for them. There is a clear demarcation of the associations of boatmen with the traders and there is no conflict of interests among the traders etc.

Processing

- The traders usually employ women and children from the local village to undertake the tasks of cleaning, drying, sorting, processing etc. Drying is involved in case of small fishes for a stretch of 4-5 days. The small fishes post drying are packed in sack bags of 25 kgs each and in a day the labour work might result in packing 10 boris if there are 5 or so labourers.
- For jhinga, they need to sort, boil them, dry them for a day, sort them and differentiate the edible matter from

the waste matter. The wages paid per day is Rs. 150 – 200. The requirement of labourers may vary based on the catch of the fish. The women usually from the families of the boat owners contribute in undertaking these processes.

Trader and Boat-owner relationship

- The traders offer loans to the boat owners and in return certain proportions of the fish catch is taken by the trader as a form of repayment. The entire repayment of the loan is done through fish catch and not through cash. The strict concept of interest rate may not apply in this case. The relation between a trader and boatowner is not like that of a landowner and a landless villager. In cases of low fish catch, the vulnerability and loss is shared by both the parties – traders and boat owners. The traders also support in extending credit to the boat owners in cases of certain occasions – marriage, death etc.

Trends in Fish Catch

- The traders have also witnessed a reduction in the catch over the years. They attribute the main reasons to: 1) diversion of route due to the inflow and outfall channels; 2) hot water left from the outfall channel.

Stakeholder: General women group – 4-6 women, 3-4 men, 1 teenager, 4-5 smaller kids

Role of women from Wagher community

- The activities and roles which women are engaged with in a typical day including all household chores such as cleaning the house, cooking, taking care of children etc. In addition, women are also engaged in collecting/gathering water in containers – walking for a distance of 0.5 kms per trip – 4 trips in the morning and 4 trips in the evening. Additionally, they also engage in drying/sorting through fish during afternoons – mostly carried out by the older women (fish for self-consumption) and engaging peripherally sometimes in basic bandhani work; sale of fishes in the morning by teenage girls; leisure time during late nights – 9pm to 11pm. These communities hardly have livestock holdings and don't have any land holdings. Leisure is typically understood as watching television at night after all the tasks are complete. The wagher community women have been raised without the habit of wearing a burqa or there weren't any impositions in engaging in activities outside the household chores. They do not prefer wearing a burqa.

Decision-making roles

- The decisions pertaining to various aspects of household and family life are taken by both men and women based on the spheres/spaces of engagement. The money earned from bandhani work etc. is usually retained by women to buy clothes/food items and other stuff for themselves, children or for family as a whole. The educated girls provide support to the mothers in making them understand the changes in the market prices etc. and how to do accounts/costing for the expenses and incomes.

Attitude for Education

- Some of the families have a preference for providing higher education to girls. However, the major constraint in modhwa is of schools and the quality of teaching. The teachers are reportedly not very thorough with the teaching material. There are students in the age of class 3-4 who do not understand basic maths. The maximum a girl can study upto is std. 7th. After that she engages more actively in household chores, supporting fishing etc. Girls or even most of the boys are not usually sent to other villages for education beyond class 7th. There is a generally low willingness to explore other employment opportunities.

Stakeholder: Traders and women group (engaged in processing of fish species)

- There is a 1 room house like semi-permanent structure constructed by 1-2 traders at the bunder and an open area (but demarcated/fenced with wood – minor fencing) around the house/room to undertake drying, sorting, processing etc. Each trader employs women periodically (based on the timing of the catch) from the modhwa village (one of the family members of the boat owner) to undertake the processes of sorting, processing, cleaning, drying etc. Typically 2-3 women in a family together spend majority part of the day in these activities in exchange for wage payments of Rs. 150/200.
- The different varieties of fishes undergo varied stages of processing. For ex: for small prawns, they are first boiled in water for 2-3 hours, then they are spread out on a large poly sheet for 4-5 days. When dried, they undergo processing (pour the prawns in a net and clear them of the waste material) and then the final product is ready to be packed in sack bags. Smaller fishes on the other hand require different drying requirements. During monsoons, there is usually a low catch; the processing etc. is not undertaken. But

temporary storage is ensured in the permanent structure.

- Typically, women complete the household chores early in the morning – including cooking, cleaning etc. and come to the bund by 9am or so. They take a break for lunch in between and then continue working till night about 7pm or so – depending on the amount of catch etc. The same schedule however is not followed at all times, in particular when there is a low catch etc. Girl children accompany the mothers more frequently than boys. Most of these skills to the new generation are not taught but passed on based on the observations made over the years;
- There is an overall distrust in the Sarpanch and Gundiya Panchayat overall. The villagers in Modhwa prefer resolving their issues by themselves. Typically, in case of disputes – the village elders support in resolving /addressing them. They do not have trust in the Sarpanch, who is reportedly corrupt. Most the funds that come to Gundiya get spent in the panchayat village itself and hardly any is channelized to Modhwa.

Stakeholder: Youth and children

- Most of the boys and girls in the village are not educated beyond class 7th. The quality of education is also reportedly poor. There is a lack of good teachers and teaching material. Provision of computers etc. does not provide a solution. Most of the children from the age of 10 get into the habit of chewing gutka etc. The young boys start accompanying pagadiya fisherfolk and boys above 18 join boat owners. There is only 1 person from the village who is employed by Adani. The older generation fishermen prefer that the children should be educated and they should engage in other kinds of employment opportunities. However, the same attitude was not witnessed among the youth – who mostly loiter around, play cricket, and engage in fishing. In addition to fishing, there is no other alternative mode of livelihood. The children also prefer not to go to schools and support in fishing/allied activities etc.

Meeting – II

<u>Basic details</u>	
Location: Modhwa Village	District: Mandvi
Project: CGPL	Date: 22 nd February, 2015
Purpose of the visit: Stakeholder Consultations	

Important Notice: This document, intended for internal use of ERM, provides a working summary of the main facts captured during the meetings held, not formal minutes. It is therefore deliberately not exhaustive or chronological and, being provided for information, is not intended for official review or approval.

Key points Discussed :

Stakeholder: Village Development Advisory Committee (VDAC) Members

General Discussion

- In 2011, the VDAC committee had formed. It was reported that presently there are 11 members. This committee was formed mainly to have a platform to discuss the various issues and demands that the community may raise. The CGPL representatives had visited the village – they wanted to form a collective so that they can coordinate better regarding village issues covering different areas. Previously, 1 lakh has been paid and net worth 35/40 K was provided, approach/access road has been constructed, tanka and 4 wells have also been constructed. Solar lights have been provided for all boat owners in the village. Kits – for smaller nets to catch fish mainly for pagadiya were also provided. VDAC members also undertake survey across the village periodically to assess community needs and requirements, if any. 40 tanka has been constructed by CGPL. Some work from Adani has begun this year – 2 CC road construction and tanka has been planned. The villagers have placed a demand for individual toilets to all the households from CGPL. There is no specific timing when the VDAC meetings are conducted – it may be once a month or twice a month – based on the availability of fisherfolk and also based on the nature of requirement and demand that comes up from various cluster/fariya.

Women SHGs in Modhwa

- SHG formation – 6 groups have been formed and 50,000 initial amount support has also been provided by

CGPL to 3 groups and the amount is pending for the remaining groups. It was reported that the amount has not been utilized in any productive way per se. However, it has been accumulated for loaning purpose, in case of need. Apart from this, Aga Khan has been providing support to the women groups through training on embroidery and tie/dye. In addition, they also provide training and awareness to fishermen on various aspects of life/livelihood etc.

Regarding boats and boat owners

- There are 65/70 boatowners in Modhwa village. 100-150 people are pagadiya and in off season all the HHs are pagadiya fisherfolk. Boatmen from modhwa also go to catch fish near tragdi bunder and places below jakhau. Boatowners from Modhwa don't particularly go to Jakhau coast directly. The length of boats various from 20mt. to 40mt. But in this village most of the boats are in the range of 24 to 28 mt. There are 3-4 boats in the range of 30-35 mt. Most of the boats used in the village have diesel engine of power 15 HP worth Rs. 35000 to 40000. Different nets - pomfret, lobster, surmai and smaller nets for prawns/small fish. The boat owners' 15-20 kms further into the river. With the medium sized boats, can't take the risk of going deeper into the sea. Boats are usually purchased from Alang.

1.2 TRAGDI VILLAGE – CONSULTATION GROUP II

Meeting – I

<u>Basic details</u>	
Location: Tragdi	District: Mandvi
Project: CGPL	Date: 19 th February, 2015
Purpose of the visit: Stakeholder consultations	

Important Notice: This document, intended for internal use of ERM, provides a working summary of the main facts captured during the meetings held, not formal minutes. It is therefore deliberately not exhaustive or chronological and, being provided for information, is not intended for official review or approval.

<i>Key points Discussed :</i>
Stakeholder: General group (4-5 male members)
General Profile
<ul style="list-style-type: none"> • There are approximately 60-70 fisherman in Tragdi out of which 10 of them don't have boats/pagadiya fishing. Approx. 50 HHs in Tragdi are dependent on agriculture but as a secondary occupation. There is also a local dairy in the village and they have received the contract from amul dairy. The dairy has helped in getting good market price for milk and made milk collection centre easily accessible. Previously, villagers from Tragdi used to visit Bidadi for sale of milk. It was reported that nearly 10-12 HHs in the village are landless and more dependent on cows and buffaloes and also dependent on wage labour/agri labour. Labourers have been employed on contract basis in industries and not directly; employed. Only 1-2 HHs in wagher community have kept goats (in large numbers - 30/40), otherwise mostly cows and buffaloes. The minimum landholdings is reported to 8-9 acres;
Agriculture and water
<ul style="list-style-type: none"> • There has been an increased dependence over groundwater with an increase in agriculture cultivation in the past decade, among others. This has contributed to the reduction in the water levels and also an increase in the salinity in the water. The continuous dependence over groundwater has also allowed it little scope to replenish the resources. At present, with increased salinity levels, there has been a reduction in the agriculture. It was reported that the saline water has led to reduction in agricultural productivity and yield. In some cases, it was reported that it has also resulted in reduction in the size of the output crop. In the recent years, there has been an increase in the number of minor irrigation schemes in the area - khet talab/check dams etc. Additional water storage structures in the area have also been established in the past 10 years. Previously, there were no such storage structures and during monsoons water could not be retained on the fields;
Regarding Industries
<ul style="list-style-type: none"> • The industries have created additional employment opportunities. It was reported that dependence on only

agriculture could not have sustained, particularly with the low market price for agriculture and also reduced agricultural productivity overall. With industries, there has been an increased impetus for higher education with the expectation of receiving employment. There is 1 primary school in the village catering to students' up to Std. 7th. For classes beyond 8th, students go to Mandvi and nearby villages. The villages in Tragdi have been beneficiaries to fodder/chara for 2 years previously 2013 and 2014 provided by CGPL. In addition, CGPL has also provided support in the form of setting up a community RO plant 3 years back for which maintenance responsibility is being handled by the local community members. Some of the Tragdi village members (nearly 15) are also employed as salt pan workers on contract basis with Balaji Salt contractor. The contractor has been operating in the project area for over 10 years.

- From Adani power, there has been a provision of Doctor who visits 2 hours per day. This has been recently initiated, a week back. There is a government sub-health centre in the village; however it was reported by the villagers that the same is not relied upon generally due to lack of any doctors etc. The general health problems among the villagers are mainly pertaining to seasonal changes and also caused due to bad water quality and unhygienic living conditions.

Stakeholder: Dairy owner

- It was reported that local dairy has helped in marketing of milk in a more systematized manner and there has been an increase in the price of milk. This dairy has started 3 years back and previously, milk used to be sold in the milk centre in bidada. In the village, there are a higher number of buffaloes than cows owned. There are in total 350 cows and 650 buffaloes. The milk yield/output of buffaloes and the associated cost is reported to be relatively higher for buffaloes than for cows. Villagers in Tragdi are mainly livestock dependent and this is also because of the diminishing agriculture productivity with increased salinity of groundwater. It was reported that the water table has also reduced. With increased drain on water resources and increased salinity, this has also resulted in reduced dependence over livestock as the water demands of livestock were also being difficult to meet. Previously, even government representatives had visited villages in the project area and meetings had taken place to plan for formation of dairy particularly in the context of reduced agricultural income.
- Previously, fodder was being purchased from 2-3 villages in nearby villages such as Mota Kandagra, Mota Bhadiya, or even from traders from bhuj etc. particularly during summer period. The fodder purchased is expensive and increases the expenditure aspect therefore reducing the overall profitability. Therefore, provision of cattle feed was requested by the villagers to CGPL. This has provided an impetus and boost to livestock holdings among the villagers. It was reported that ownership of 10/15 buffaloes fetches an income of 2000 per day approximately. The milk yield/output is nearly 100 lts. per buffalo per day and the cost is Rs. 35 per litre and half of the money is invested as an expense. Rs. 15/18 per litre for milk of jersey cows. It was reported that Amul is also planning of supporting further in cattle feed etc.

Stakeholder: Women SHG group (Rajput community)

- The group was formed with the help of anganwadi women and previously there were 20 women members. At present, there are only 15 members and the remaining 5 members did not believe in this concept anymore - they would rather invest the same money in the bank and receive a good interest rate on the deposit. In the beginning, Rs. 50 each was contributed by all women, over the years the contribution amount has increased to Rs. 100 each. It was reported that about 2-3 times money was withdrawn - taken as loan by women. The reason why such a pool of money was required was for occasions such as marriage, house repair etc. Typically, the money withdrawn (of amount Rs. 30000/40000) has to be repaid within a timeframe of a year. An interest rate of 1% is being paid over and above the principal amount. The contribution may not be entirely consistent across all months and there may be fluctuations which are generally acceptable by all members. The problem of non-repayment by any of the members has not been witnessed. Only 3 times some money was required and loaned out to different women - and all the times they were repaid within a year - the amounts borrowed ranged around 28000/35000 etc. At present an amount of Rs. 10000 is accumulated with the group. The money at home is usually with the women - for household chores and other expenses. Such a pool will be important in times of emergency when a considerable amount may be required in a short time frame. Drainage and sewage networks are not laid down properly - due to which health and hygiene issues are being witnessed.

<i>Basic details</i>	
Location: Tragdi	District: Mandvi
Project: CGPL	Date: 22 nd February, 2015
Purpose of the visit: Stakeholder consultations	

Important Notice: This document, intended for internal use of ERM, provides a working summary of the main facts captured during the meetings held, not formal minutes. It is therefore deliberately not exhaustive or chronological and, being provided for information, is not intended for official review or approval.

Key points Discussed :

Stakeholder/KII: Sarpanch of Tragdi village

- It was reported that generally there is a general positive perception towards the industry. Communities such as Node, langha (mainly agri), sameja, bukhera (agri/livestock) have always engaged in diverse activities and occupations – as wage labour, agri labour etc. Waghers have traditionally been dependent on fishing. Among Waghers, there are approximately 70 HHs engaged in pagadiya fishing. It was reported that previously CGPL has paid 1 lakh to all fishermen and recently distributed nets worth 35000-40000. However some of the fishermen have also sold the same amount for other purpose. Gaushala committee has been formed for cattle feed – mostly provide fodder supply during summer season for a period of 1-2 months - worth 25/30 lakhs approx. - for both cows and buffaloes. If rainfall is good, then for the 5-6 months there is adequate fodder available. Dependence on agriculture overall has reduced over the years. Among the total no. of HHs, there are 15-20 HHs with irrigation facilities and about 70 HHs without irrigation facilities. With increased dependence, the water table has also diminished and has turned saline. Previously water used to be available at a depth of 30-40 ft., at present water is pumped at a depth of 200 ft. or so. VRTI and Tata power has supported with minor irrigation works – farm bunds, recharge wells, check dams etc. WASMO has constructed 50000 lts. capacity overhead tank. VRTI has constructed farm bunds, ponds etc.
- Dairy has started 1 year back. Previously milk used to be sold in bidida or sold to local tradesmen etc. Can save transportation costs to bidida and also sometimes there is less standardization. Previously it used to be also sold to smaller retailers – sometimes to the local hotels or people from nearby villages. Income from dairy has increased significantly in the past few years – better fodder, better market price etc.

Relationship between fishermen of Tragdi and Tragdi Bunder

- Earlier there used to be very few huts – perhaps 10/15 HHs. Presently, there are about 100 HHs – there is an increase by at least 15-20 HHs. There are additional no. of fishermen as there is an increase in the fish catch and the benefits from industries has also been one of the attractions why fishermen have a greater preference for Tragdi Bunder. There are points of contention among the people and also among them and locals as the bunder area is same, however the pressure of additional population is also growing. The boat owners still have the option to move to another coast or venture into the deeper seas – however for pagadiya the situation becomes very constraining as they are only dependent on shallow waters. Fishing in outfall channel does take place by pagadiya from Tragdi Bunder for major part of the year. The conflicts among the fisherfolk in tragdi bunder are to do with the competing access to the same areas. The sarpanch usually resolves any such fights/conflicts and develops a common understanding among them. However, pagadiya fishermen are most affected due to the increased population in bunder. The catch for pagadiya has reduced. It was reported that community representatives have been thinking on this issue and are planning for a joint meeting among the villagers and the migrant families. This may include perhaps putting some restrictions on the total number of families or impose certain charge on each of the families on a yearly basis. If the population among them increases – maybe 150 HHs or so in the next few years, it will create problem for the livelihoods of local pagadiyas. Increase in boat owners, increase in migrant families – both adversely affects the pagadiya fisherfolk. There has been an increase in the migrant families mainly due to additional benefits from industries etc.

Meeting – I

<i>Basic details</i>	
Location: Tragdi Bunder village	District: Mandvi
Project: CGPL	Date: 2 nd March, 2015
Purpose of the visit: Stakeholder Consultations	

Important Notice: This document, intended for internal use of ERM, provides a working summary of the main facts captured during the meetings held, not formal minutes. It is therefore deliberately not exhaustive or chronological and, being provided for information, is not intended for official review or approval.

<i>Key points Discussed :</i>
<p>Stakeholder: VDAC Members (Boatmen)</p> <p>General Profile</p> <ul style="list-style-type: none"> It was reported that presently there are 2 VDACs operating in Tragdi Bunder due to fallout between two groups. Hence, instead of one village development committee, two of them are operational. The coastal shore and the area of shallow waters have been diverted for intake channel where we used to undertake fishing previously. This has led to a reduction in the catch overall. The President of VDAC remarks that he has been fishing in Tragdi Bunder for over 25 years. He reports that there have been conflicts with the Tragdi villagers who have opposed to outsiders fishing in Tragdi Bunder. Even till date there are contentions ongoing and the villagers of Tragdi do not want us to undertake fishing here. The Tragdi villagers are trying to claim this shore that the area is under ownership and therefore only the residents of Tragdi village can undertake fishing. However, there are no such restrictions on any coast. Even the residents of Tragdi village undertake fishing in Jakhau coast. During off-season, even the boatmen engage in pagadiya fishing. We have both boat and pagadiya fishing license. Prior to Tragdi Bunder, a few members used to do fishing in Tuni and then in Bhadreshwar for over a year. We have also done fishing in Kotdi Bunder. There are many more fishermen in Bhadreshwar and Kotdi. There are about 70 boatmen in Tragdi Bunder and over 100 boatmen in Kotdi Bunder. Kotdi is 2 km from Tragdi Bunder and they also happen to be our relatives and belonging to Wagher community. There are fishermen from Navinal who also fish in Kotdi Bunder. It was reported that fishing can be done by any fishermen (belonging to any village) across the entire coast stretch from Bhadreshwar to Jakhau which includes Tragdi Bunder, Modhwa Bunder, Salai Bunder etc. Even fishermen from Jamnagar come to fish in Tragdi Bunder occasionally. They also belong to Wagher community and have been traditionally dependent on fishing for livelihood. There is a high demand for these fish species in Gujarat. People of all castes and religion – across all communities eat fish. Even community groups such as Gaghvi etc. depend on fish. There has been an increase in the demand, particularly also because fish is recommended to be consumed for health reasons. Fishing requires a lot of physical strength, particularly handling all the anchors etc. <p>Changes in fish catch</p> <ul style="list-style-type: none"> The members/fishermen report that there has been a gradual reduction in the fish catch over the past 10 years. They maintain receipts for fish sold to traders periodically and it was reported that the fish catch reduction will be reflected. The receipt was not produced for review. The fish species does not get affected by dredging which is done by the industries near the shore as they fish in deeper waters. The water which is released from the outfall channel is hot but more importantly it is filled with chemicals and gaseous compounds etc. And that has resulted in the reduction in the fish yield. Previously, we used to catch big size shrimps and their size has reduced significantly. They key fish species on which our livelihood is dependent include: shrimp (jhinga), Bombay duck (bumbla) and gold spotted anchovy capsali (Mandeli). The fish catch has reduced because of the following reasons: 1) increase in the population/fishermen; 2) reduction of the coast size due to a number of industries; and 3) chemical water being released from the outfall channel of CGPL. The catch of shrimps is higher in Tragdi Bunder. Overall the size has reduced across the entire shore. Even in Bhadreshwar, the fish catch has reduced without there being any intake/outfall channel and is based on air cooling system. The fishermen have increased here mainly because of shrimps. Our livelihood is very dependent on shrimps and Tragdi Bunder is good. In Bhadreshwar, we have to stay at

the shore throughout the day/night time. The waters have receded there and therefore the shore is further away from the huts/habitation. Whereas in Tragdi Bunder, the waters are near to habitation and for transportation of fish and access boats and general movement for fishing etc. becomes convenient here. It is a very easy location to catch fish. More importantly, access to drinking water is very convenient in Bunder due to support provided by CGPL. In all the other Bunders, getting access to drinking water is very difficult particularly for families with kids etc. Even for washing fish species, clean fresh water is required.

- The total numbers of big boats have also increased over the years giving tough competition to the smaller size boats.

Children of Fishing community

- Children in Wagher community typically are not engaged with education and even parents don't encourage children to obtain proper education. However, one of the members remarks that he will not encourage his son to take part in fishing and instead attain higher education and get employed in private service or government jobs. He says that there is no future in fishing and this as a main source of income will not be sustainable to support an entire family all through the year. If we are at the shore for most part of the year, this is not even proper environment for children to study. Even though fishing is ongoing however there is no guarantee to this income and moreover several of the fishermen also have to still repay loans.
- Even though there is a school which has been temporarily set-up with support from CGPL however there is no quality being maintained. Even the teachers don't follow any routine or schedule or time table etc. The children don't really end up learning much at the end of it all. The sheet all over the temporary set-up is torn from all sides.

Regarding Industries

- Previously members from World Bank had also enquired about any losses/impacts that industries had caused. But we did not raise any concerns/issues back then. We are not suffering only because of the industry. Industry will not go away even if we protest or fight or file a case etc. Near Liza shore, there is a coal-based thermal power plant is yet to be established. Tragdi villagers have also benefitted from industries, whereas the Bunder residents haven't.
- Fisheries Dept. of Bhuj does not keep any data of fish catch/output. They only keep a track of boat movement by taking attendance etc.
- We have denied Aakaar organization to also keep a count and record of the fish catch/output for each of the families on the Bunder on a monthly basis. Aakaar is with Tata power and they are providing the fish catch information to CGPL.
- Adani Foundation has also provided a lot of support for schools and hospitals. They have provided health cards for elderly members of the society who can get free treatment in Adani Hospital in Mundra.

1.4

GUNDIYALI

Meeting - I

<u>Basic details</u>	
Location: Gundiyali village	District: Mandvi
Project: CGPL	Date: 21 st February, 2015
Purpose of the visit: Stakeholder Consultations	

Important Notice: This document, intended for internal use of ERM, provides a working summary of the main facts captured during the meetings held, not formal minutes. It is therefore deliberately not exhaustive or chronological and, being provided for information, is not intended for official review or approval.

Key points Discussed :

Stakeholder: Group of Kumbhar community**Changes/Trend patterns in pottery**

- At present, out of 70/80 HHs of Kumbhar, only 10-15 families continue to practice the art of pottery – however only 2-3 families are engaged in pottery in a true sense – engaging with designs, preparing decorative items etc. There have been several notable changes in the demand pattern – lesser sale for bigger items/utensils (used for cooking previously) and increase in sales for decorative items – better connectivity with international markets. There have also been changes in the technology in making pottery – started using electric base for preparing/solidifying the clay. Several of the families have reduced pottery work and have simultaneously started pursuing wage labour and other employment opportunities. The shift to steel, aluminium pots for cooking purpose and plastic for storing purpose has also contributed to the lower demand;

Role of women

- Women engage in various stages of the pottery work – grinding mix for dry mud etc., mixing the same with water and then mixing them together properly till water is mixed well with mud and then stored covered with a plastic sheet. Painting work for all the pots are carried out solely by women;

Traders

- There are 7-8 traders who visit the village – place an order and provide a deadline before which the output has to be delivered. These traders are from gandhidham, Mumbai, bhuj, mundra/mandvi and local trader. If the order is for smaller decorative items etc., then advance is also taken from the trader or if they are bigger handis/utensils etc. – then advance money is not entirely taken as the same will be sold out in the village even if the order is cancelled later on.

New generation/Youth

- The newer generation is relatively less interested in pottery work and is more into wage labour etc. as the money earned is certain and relatively more. TV, phones, friend circle plays an important role in shaping such preferences. The overall skill levels have reduced over the year, the children need to have a strong passion to sustain and depend on this over a long period of time. Previously, kumbhar was the main community who were also engaged in the marketing and sale of pottery – however now this task has been taken up by other caste groups as well, however all of them belong to muslim.

1.5**MORA VADI***Meeting – I*

<u>Basic details</u>	
Location: Mora Vadi village	District: Mundra
Project: CGPL	Date: 21 st February, 2015
Purpose of the visit: Stakeholder consultations	

Important Notice: This document, intended for internal use of ERM, provides a working summary of the main facts captured during the meetings held, not formal minutes. It is therefore deliberately not exhaustive or chronological and, being provided for information, is not intended for official review or approval.

<i>Key points Discussed :</i>
Stakeholder Group - Rabari Group (mostly men)
<p>Regarding Animal Husbandry</p> <ul style="list-style-type: none"> • There are a total 80-100 HHs Approximately 30-35 years back, during our grandfather’s generation, the families used to own 500-600 sheep/goats. At present, only about 35-40 HHs are undertaking agriculture cultivation and the livestock holdings have also reduced drastically. At present, there are about 200-300 sheep/goats owned mainly by one large family. Most of the HHs own livestock mainly for consumption purpose. Our grandfathers used to own 400-500 goats/sheep and we are all Hindus. • The requirements of fodder and techniques of grazing are different for cows/buffaloes than for goats/sheep. Cows and buffaloes can be let open for grazing for certain hours, whereas grazing for goats/sheep requires constant vigil and attention and therefore that member will not be able to contribute in any other way. The main income from owning goats/sheep is mainly from their meat. We nurture them;

feed them eventually to kill them. And because of this reason and understanding, the number of sheep/goat owners in our village has drastically come down. However, this environment and area here is better for owning/nurturing sheep and goats. In the recent times, it has also become difficult to find a person to take all livestock from the village for grazing. Nobody is willing to take up such work. It requires walking long distances (3-4 kms at least) all day alone and without much social contact. That person becomes very aloof from the society as well.

- It is difficult to grow pastures in this area due to water scarcity and for cattle to survive, pastures are critical. At present, we purchase fodder for cattle from nearby villages/ areas wherever fodder is available in plenty. We typically do bulk purchase. This year there has been a shortfall in rains and we were bound to purchase fodder as we couldn't grow any. The price was Rs.7 per kg. At the minimum, each cow requires about 20-30kgs per day and buffaloes require nearly 50-60 kgs per day. Fodder is grown only once a year during monsoons which is typically not sufficient for cattle. Last year, even the fodder which was cultivated and harvested got destroyed due to untimely rains. Degradation of pastures and reduced rainfall has also rendered lower pasturelands due to which the livestock holdings have reduced. At present, there are mostly buffaloes and some cows and fewer goats and sheep.

Regarding Groundwater Resources

- Previously (30 years or so back), the water levels were very high and agriculture was very limited. However, over a period of time the dependence over agriculture has increased and this has also led to a lot of strain over the water resources in the area. And about 20 years or so back, when the water resources in this area were much exploited, the state government had declared this as a 'Dark Zone'. And this categorization was imposed for a stretch of almost 10-15 years. This was prior to 2001 (before Bhuj Earthquake). Only in the recent years, perhaps around 2010 onwards, such a categorization has removed and some regeneration of water resources has taken place.
- The key problem is that the ground is hard and impenetrable in this region and therefore rain water does not penetrate or get absorbed and stored underground. About 10 years back, in Mora Vadi village, the villagers contributed money voluntarily and we have got tanks constructed and Panchayat representatives didn't support us. But water was critical for cattle/livestock as well and therefore we had to find ways to store water. We are looking forward more support for conservation of groundwater resources and the community members are willing to take up management/support role if required.

Regarding Industrialization

- Development has definitely happened in this area if over this decade. However, this may or may not be entirely attributed to industries solely. Government's interventions/ policies may also have been important in allowing such a transition towards development to take place. Industries have also contributed in this development process directly or indirectly. Previously, there was a lot of noise around the fact that industries will take over and SEZ will be coming up. People were made to feel that land will be acquired by any means - whether the land sellers are willing or not. The SEZ mainly involves land from villages - Tunda, Nanabhadiya and Siracha and a few in Kandagra. Also, Navinal, Dhrab - but over here they also lost Gauchar land. Villagers in Gundyali have large land holdings but that is not the case in Tunda, Vandh etc. The value of land here is very high in the present times. Previously, this was not the case. It is very difficult to invest or purchase land any more. It costs over Rs. 15-20 lakhs per acre.
- Previously, surveys were undertaken by Ashapura Aluminium Company. They were setting up a plant and public hearing was also conducted. They had an Ashapura NGO mainly working for supporting women for almost a year and they left subsequently when they couldn't find their feet. Even NALCO was planning to set up a factory - perhaps they had also conducted some survey. Some of them did provide financial support to the village (in schools etc.) for a brief period. Many organizations (including NGOs, Companies etc.) have come earlier and have undertaken surveys but have not done anything substantial or done things only briefly but they raised our expectations.

Regarding Youth, Unemployment and Industries

- There are 2 big industries (Tata and Adani) in the vicinity area and when they were initially setting up, they had asked for technically qualified from the villages to get employment in these industries. With industrialization, several youth members went for higher education and attaining technical qualifications as well. Despite attaining technical skills, the industries have refrained from employing the local youth. Some of the youth have pursued Diploma, Engineering (Mechanical) and yet have not been able to find employment. Apart from these 2 industries, some of the youth members have also tried in other industries as well such as Welspun etc. For the most part, recruitment in these areas happens on reference basis. Therefore, even higher education has not helped in getting jobs etc.

- During the construction phase, there was a boom in the employment and several avenues were generated. However, in the operation phase of the project, there is little scope for additional employment opportunities. There was a lot of expectation generated back then and not everybody realized that this will not last too long. Many youth members across different villages in the study area were encouraged to attain higher education with the expectation of getting employment in one of these industries nearby itself. There are many people employed in these industries, but the local youth are unemployed.
- After industries have been established, the local communities have not benefitted much from the project. Construction of roads or other infrastructure does not directly provide benefits to the communities. Tata power provides fodder for 4 months every year – during the summer period. Even providing fodder support for some days is not sustainable. The industries should have targeted at ensure self-sufficiency for individuals/youth either by providing direct employment in industries or providing other avenues through which they earn sustainable income. Although infrastructural projects do have backward and forward linkages and they do create employment/opportunities of other kinds however that is only for a limited time period.
- **Youth Aspirations** - The newer generation/youth are not interested in engaging in pastoralist life or even in agriculture – prefer doing wage labour instead. Some of the young men also provide vehicles for use in the company. More youth want to be educated and want to be engaged in private jobs or government jobs.

Caste-specific different occupation –

- Members of Patni caste (about 30-40 HHs) engage in charcoal business. They have been traditionally engaged in agricultural cultivation; however they keep switching jobs/occupations based on opportunities. The difference between rich and poor has reduced over the years. Even among the poor households, members do manage to earn certain income on a monthly basis – either through additional labour work or any other means.

Role of women

- Milking the cows/buffaloes, doing embroidery work, collecting/filling water, engaging in wage labour (agriculture and employed by company), all household chores. At least 15 women from Rabari group are employed by tata power on a daily labour basis to maintain the nursery/green belt etc. Fewer women engage in embroidery work, lower demand and more competing employment opportunities – agriculture labour, wage labour in construction work and in the company;

1.6 NANI KHAKKAR

Meeting – I

<i>Basic details</i>	
Location: Nani Khakkar village	District: Mundra
Project: CGPL	Date: 23 rd February, 2015
Purpose of the visit: Stakeholder consultations	

Important Notice: This document, intended for internal use of ERM, provides a working summary of the main facts captured during the meetings held, not formal minutes. It is therefore deliberately not exhaustive or chronological and, being provided for information, is not intended for official review or approval.

Key points Discussed :

Dataniya Group (4-5 male members)

- In total, there are 30-40 HHs of Dataniya community in Nani Khakkar village. They are primarily dependent on agriculture labour and none of the families own land. They typically work in Rajput and Gadhvi's agricultural fields. About 6 months in a year they have some work – during some seasons they grow vegetables and sell in the market – they are allowed some land for cultivation. None of the families are engaged in datun sale anymore which was traditionally their occupation but it does not fetch adequate income to sustain the families. Women are also engaged in agriculture work. It was reported

that none of the members of their community are employed as wage labour by the company. Based on the type of opportunities available, sometimes the members work as agri labour and sometimes as construction labour, among others. There are more goats owned, than cows and buffaloes among the families, a minimum of 2-3 goats per family. Both women and men gather wood – bigger logs are collected by men and smaller branches and twigs are gathered by women – within an area of 1-2 kms. The wage for agriculture labour is Rs. 200 for women and Rs. 250 for men. Vegetable cultivation is undertaken in the fields of Patel, Gadhvi and Darbar.

- Reportedly, there are no government health centre in Nani Khakkar, have to visit bidada and Mandvi govt. hospital. Adani Foundation has distributed old age health cards for aged people above 60 years of age who can get hospitalized etc. They have 24/7 electricity available and water supply connection is available in every house. There are no toilets in any of the houses. The community members are dependent on wood for cooking purpose. For delivery cases, they usually call the ambulance to mandvi govt. hospital. Regarding the scheme - Indira awas yojna – forms were submitted; some of them were approved however buildings have not been constructed.

1.7 MOTI KHAKKAR

Meeting – I

<u>Basic details</u>	
Location: Moti Khakkar village	District: Mundra
Project: CGPL	Date: 21 st February, 2015
Purpose of the visit: Stakeholder consultations	

Important Notice: This document, intended for internal use of ERM, provides a working summary of the main facts captured during the meetings held, not formal minutes. It is therefore deliberately not exhaustive or chronological and, being provided for information, is not intended for official review or approval.

Key points Discussed :

Stakeholder/KII – Sarpanch

- The major community groups in the village include harijan/dalit, gadhvi, darbar, bhati, lohar, maheswari, chaki, baniya. The major source of income is from activities such as livestock rearing/milk production. It was reported that nearly 70% of the households are landless or are marginal landowners and 30% of the households are landholders. The average landholdings are in the range of 15 to 25 acres and about 5-6 households own 80-100 acres. Reportedly, muslims have migrated to this village nearly 5-8 years ago due to riots in Depa village where they used to reside earlier – 5 kms away from this – 80/100 such HHs. Muslims and Harijan have very few landholdings and own relatively less livestock. They are mostly engaged in agriculture labour, construction labour, wage labour etc. Some of the Muslim HHs are also engaged as drivers or operate their vehicles – pick-up/auto rickshaws. There are very few youth employed by the industries – employment commitments were made during the construction stage etc. The main source of income is agriculture and animal husbandry. Among youth – 15/20 are in army service, 10/15 in police service, 3 teachers, and several employed by industries all over mundra. Most of the youth prefer engaging with agriculture and livestock.
- Dairy in the village started 3 years ago when they received contract from mother dairy. The Gadhvi community has a majority holding of livestock – cows and buffaloes. There are in total 400 cows and about 600 buffaloes. 1 cow will require apprx 20 kgs per day – total 8000 kgs for all cows and approx. 50 kgs per day per buffalo. The village has a gaurakshak samiti in which there are 8 members from different caste groups (including gadhvi, muslims, harijans etc.) and they collect some proportion of money – not fixed – whatever people pay voluntarily – using the same and other community fund – the fodder is arranged for all 400 cows in the village during the summer period. However, fodder for buffaloes is managed individually at household level – usually left to graze in pastures etc. The village has nearly 300 ha of pasture land of which about 10-15 ha has been encroached. CSR activities by CGPL – support has been provided for teachers/training etc., health camp for elderly above 60 years old and doctor visits once a week.

- There is a primary health centre in the village where facilities are available or else they refer to mandvi for serious injuries etc. Water sources – there are government bore wells, 2 ponds, 3 big check dams and a few smaller check dams – several irrigation projects have been commissioned across several years.
- The land rates have overall reduced in the recent past – there are hardly any buyers – although overall rates have improved from what it was prior to industrialization in the area. Around that time, about 300 acres of agri land was sold off to industries etc. There are transmission towers passing through both private land and gouchar land. The compensation received is 1.5 lakhs for smaller tower – 30 m and 2.5 lakhs approx. for bigger tower – 2.5 lakhs.

Meeting – II

<u>Basic details</u>	
Location: Moti Khakkar village	District: Mundra
Project: CGPL	Date: 23 rd February, 2015
Purpose of the visit: Stakeholder consultations	

Important Notice: This document, intended for internal use of ERM, provides a working summary of the main facts captured during the meetings held, not formal minutes. It is therefore deliberately not exhaustive or chronological and, being provided for information, is not intended for official review or approval.

<u>Key points Discussed :</u>	
Local Contractor and Wage labourers – Beneficiary group	
<ul style="list-style-type: none"> • CGPL 	
Anganwadi Women workers	
<ul style="list-style-type: none"> • Anganwadi and Asha workers reported that the general awareness towards health and hygiene has improved over the years with overall development in the region. It was reported that the level of malnutrition is low in the project area. The health facilities are provided by Adani Foundation, through their private clinics and hospital in Mundra. There is a preference for government hospitals, however among the families who can afford there is a greater preference for private hospitals. The awareness towards maintaining hygiene and proper care by pregnant women has also improved. Typically, majority of the diseases that anganwadi workers have come across in the project area are related to seasonal changes and fluctuations and the prevalence of serious illnesses are limited. It was reported that every Wednesday, mobile health clinic visits the villages and other nearby villages by Adani Foundation for about 2-3 hours and undertake basic health check-up for the local community. Villagers have reported that the services provided by Adani Foundation have been very helpful and appropriate guidance/medication is also provided. During ERM’s site visit, swine flu survey was being conducted in each of the villages and several cases were referred to hospitals in Mandvi and Mundra or further advised to get treated in Bhuj. 	

1.8 SHEKHAI BAG

Meeting – I

<u>Basic details</u>	
Location: Shekhai Bag village	District: Mandvi
Project: CGPL	Date: 23 rd February, 2015
Purpose of the visit: Stakeholder Consultations	

Important Notice: This document, intended for internal use of ERM, provides a working summary of the main facts captured during the meetings held, not formal minutes. It is therefore deliberately not exhaustive or chronological and, being provided for information, is not intended for official review or approval.

<u>Key points Discussed :</u>

Stakeholder: General Group

Industries and employment

- It was reported that locals are employed only on contract basis only. At present, nearly 15 people are employed by CGPL on contract basis. The youth members report that during the initial phases of industrialization, there was a lot of expectation, anticipation and aspiration of greater employment among industries. This was also an impetus for higher education and for acquiring technical skills and training to be employed. It is the same situation in Adani power and Jindal etc. Presently, there are over 35 youth who have completed their graduation. Previously, there were hardly any youth members who had attained college education. Several youth members completed graduation/diploma – undertook training in commerce, engineering fields and ITI etc. primarily with the establishment of industries in the project area. However, over the years it has been realized that the company does not want to hire local people for any skilled tasks on a permanent basis. Even majority of the contractors are not from the local area. While some have attained their higher education from government colleges in Bhuj etc. and some in ITI Mandvi etc. One of the members has worked in community RO plant for several years but has not received any monetary support from the company. He finally had to find employment in Adani port which is nearly 60 km from this village. It was reported that resumes were shared with the HR Dept. and the Dept. representatives keep saying that candidates will be called for interviews etc. but the candidates never get the call. In this project area, none of the locals are preferred for work.

Expectations from CGPL

- CGPL has supported in the form of community RO plant which is maintained and managed by the community members. There is no support provided for schools and health/centres and hospitals. There was an eye camp set up once but such camps are usually not very helpful. There are 3 main needs/requirements of the community: 1) employment for youth in industries on a permanent basis; 2) provision of cattle feed/fodder for livestock; and 3) provision of clean drinking water. The community RO plant has been helpful; however it does not suffice for everybody's needs. The village is spread out in an area of over 4 km and it is not feasible always to visit the RO plant for drinking water.

Working Conditions

- It was also reported that on some occasions the monthly salary/wage payment is not made on time and the employees/labourers are not provided with any social security benefits such as medical insurance coverage etc. There is no support provided in the form of canteen facilities etc. Even there is no weekly off day. Even Sunday is a working day on majority of the weeks. Sometimes overtime is provided, however the same is not consistent.

Youth aspirations

- The youth members report to prefer working in the industries in the nearby areas itself and not in far off areas like Jamnagar, Bhuj, and Ahmedabad etc. A few of the youth members have previously worked in Mumbai, however the income was not adequate to support family and therefore they have returned back in the village. Even if educated youth from village migrate to cities, they will only find employment as labourers and not for their technical skills. The villagers report that they have not witnessed the advantages of encouraging youth to attain higher education if they don't find good employment avenues and if they have to stay unemployed. Even the educated youth therefore eventually will have to engage with agriculture and animal husbandry. Some of the youth members do engage in self-employment such as setting up clothes store, groceries store, wholesale stores, or work as drivers, or establish a dairy farm etc.

Agriculture and Livestock

- More than 50% of the households in Shekhai Bag village have land ownership and agricultural cultivation. But the salt content in the water is very high – making it very saline water. Even with borewells being dug as deep as 400-450 ft. the villagers are not able to find fresh water. The agricultural output has also been rendered low due to high salinity. Several families have to nearly abandon agriculture or treat it only as a secondary occupation or cultivate sufficient to support family/subsistence sake and not for commercial purpose.
- The villagers also face the problem of lack of adequate fodder for livestock. Rains are usually not sufficient to cultivate fodder/grass etc. Even though there are community pasture lands, however the same have not been well maintained collectively and therefore the same area has been converted into wasteland with massive spread of weeds etc. It was reported that even the panchayat has not been cooperative in these matters and in other village development matters. The panchayat has stayed invested in Gundiayali panchayat village and have not extended support to Shekhai Bag village. Panchayat members have not even extended support in developing basic infrastructural facilities like better village roads etc. Additionally, with increased salinity of water, livestock also cannot be sustained. In total, there would be

nearly 2000 cows and buffaloes in the village. Sometimes CGPL has extended support in fodder provision during the summer period, however the support is only limited to that period and is not provided throughout the year.

1.9 MOTA BHADIYA

Meeting - I

<u>Basic details</u>	
Location: Mota Bhadiya village	District: Mundra
Project: CGPL	Date: 25 th February, 2015
Purpose of the visit: Stakeholder Consultations	

Important Notice: This document, intended for internal use of ERM, provides a working summary of the main facts captured during the meetings held, not formal minutes. It is therefore deliberately not exhaustive or chronological and, being provided for information, is not intended for official review or approval.

<u>Key points Discussed :</u>
<p>Stakeholder: School teachers (2)</p> <p>Support from Industries</p> <ul style="list-style-type: none"> CGPL has installed software (1.5 years back) for self-learning for students from Std. 1st to Std. 8th. In the absence of teachers or for those who require additional lessons, they take help from these lessons. Water filter has been provided in 1 primary school. Adani Foundation has provided stationary material – notebooks, pens etc. Adani Foundation has also provided track suits worth Rs. 18000 for a few students who have played at the state level for kabaddi and kho-kho. One of the teachers has been provided by Adani about 8-9 months back and his main focus is to support students who are not able to grasp equally and those who are unable to pass the course etc. 4 women teachers also teach at the school and their payments are managed by the village itself through donations etc. through Aarti group and also through some of the village members. One of the new schools mainly for girls (kanya shaala) for Std. 9th to 12th is presently under construction - their funding is provided by Aarti Group of Industries. Nearly 10-12 computers have been provided by the government which are being operated by all the school kids – however their use is restricted as linux – open source software is provided and not windows - hence programs such as Microsoft word/powerpoint etc. is not being taught. The linux based computers are mainly just being used for typing purpose. More girls being educated than previously. More importantly, more girls are also being encouraged for higher education. <p>Key Issues</p> <ul style="list-style-type: none"> Main Issue – Critical shortage of teachers. Require 12 teachers in total however; there are only 5 govt. teachers at present. The local female teachers were employed only due to the existing shortage. These 4 females from the village used to previously teach in Bidada. Reasons cited – There is not a lack of teachers or lack of willingness to teach etc. There have not been previous instances of teachers leaving the area due to remoteness etc. There has been a lag/neglect on the part of the administration in employing government teachers etc. The female teachers were employed privately by villagers and with some funding support by the Aarti Group and one teacher provided by Adani.

Upsarpanch

- There were previously fewer people in Kutch from other states. Ever since industries have penetrated in the region, many outsiders have populated this area.
- Regarding Education - Most of the education is limited to primary school and upto 8th There is little guidance that parents are able to provide to the children in terms of the career. Better quality of education, better guidance, and additional number of teachers are of key issue.
- **Regarding the issue of youth unemployment** - Locals are not being employed in the industries. Very few permanent – 2/3 in tata and 2/3 in adani. Contract basis – 10-15 in tata. Majority of the people employed are of other states/migrants. It is understandable that the labourers from other states also require employment, however as the industries are located in this region – the preference should have been higher for the locals in terms of employment.
- **Regarding agriculture and water** - The dependence was previously greater on agriculture. From 100 ft. the water table has reduced to 300 ft. Additional support is required for water for agriculture/irrigation purpose – in terms of creating farm bunds, recharge wells. RO plant has been provided by Tata for drinking purpose.
- Irrigation Department has constructed only 1 talab and no other micro irrigation works have been undertaken. There is a high level of corruption at the administration level. Wherever there is a contractor involved or if the work is undertaken on a commission basis – the quality is comprised inevitably as there is an inherent interest to siphon off money
- **Regarding previous surveys** - There have been many surveys conducted previously, in particular K-link and Marc etc. who had conveyed that tata has been planning their CSR strategy for a 5 year period and some of the activities priority wise should be listed out. Several discussion groups were also conducted, however there is a feeling in the village now that funds have been provided by tata but the panchayat has used it up and not spent for village development purpose.
- Issues highlighted due to industries operating in this region. Pollution levels have led to uneasiness and irritation in the eyes, particularly among small kids etc. There has been a reduction in the water table and additional water has been used up for the power plant purpose. The water from the coast has been brought closer for creating their intake channels etc. Additional water has been brought in closer to the village area, due to which the saline
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1.10

BIDADI VILLAGE

Meeting – I

<u>Basic details</u>	
Location: CGPL	District: Mandvi
Project: CGPL	Date: 18 th February, 2015
Purpose of the visit: Stakeholder consultations	

Important Notice: This document, intended for internal use of ERM, provides a working summary of the main facts captured during the meetings held, not formal minutes. It is therefore deliberately not exhaustive or chronological and, being provided for information, is not intended for official review or approval.

<u>Key points Discussed :</u>
Stakeholder: Darbar Group (Jadega Caste)
General Profile
<ul style="list-style-type: none">• There are nearly about 3000 households in Bidadi village out of which about 200 HHs belong to Scheduled Caste community (Harijans), 40-50 HHs of Darbars, 400-500 HHs of Patel caste and some households of Sanghar caste (engaged in agriculture and wage labour).• Members of Patel caste were traditionally agriculture dependent, however after Bhuj earthquake they have been engaged in all kinds of small business particularly agri business such as sale of agricultural

equipment, agri inputs, fertilizers/urea, irrigation equipment (drip etc.), tractors etc. and few are also engaged in electronics shops. They don't own large parcels of land, perhaps only 30% of the HHs own land. Some of the members also work as agricultural labourers (during harvesting season). Some of the members are working in CGPL engaged in housekeeping staff as supervisors, workers etc.

Caste and Landownership Pattern

- Typically, the crops cultivated here are: arandi, til, kapas, bajri, makki. Typically, Darbars and Patels own large parcels of land. At the minimum, each household owns at least 8-10 acres of land and maximum upto 100-150 acres of land. Majority of the HHs own land in the range of 30-50 acres. Among Harijan community, the total landholdings are relatively much lower. But majority of them have landholdings of a maximum of 8-10 acres and perhaps additional number of families are in the range of 2-7 acres and there are also a few landless families.
- The members of the Baniya caste are engaged entirely in business (large scale and small scale). Most of them have businesses in Bombay and the families also reside in Bombay only. However they have built huge houses in the village and some of them also have land under agriculture cultivation. However, all the agricultural tasks are outsourced and labourers are employed for this. The family members may visit the village periodically.
- The landless families in any caste are therefore more dependent on agriculture labour and other forms of labour or even self-employment or small businesses etc. The wages in case of agri labour is Rs. 200-250 per day, based on the nature of work. In case of handling heavy equipment or tasks requiring a lot of effort will fetch around Rs. 300 per day, whereas for sowing and other minor manual tasks will fetch around Rs. 200/day. There is some or the other work involved for agriculture almost throughout the year and therefore there is a demand always for labourers. As reported, for a majority families' agriculture cultivation is irrigation based and not dependent only on monsoons. Most of the households have access to private borewells.
- **Agriculture** - Typically, if the monsoon/rainfall is good, then the water is sufficient both Kharif and Rabi crop as well. However, if there is inadequate and erratic rainfall, then maybe one crop may not be sustained on that. Nearly 20-25% of agricultural dependent households have drip irrigation facility. All agricultural produce gets marketed in Mandvi itself as there is scope for better prices. For all agricultural equipment, people also purchase from the village shops itself as it is convenient instead of Mandvi. However, the market prices are not high in Mandvi as well and the fluctuations are also quite high. There are times when only the cost gets recovered and little profits can be made out of such investment in agriculture. Castor plant (*arandi*) is among the more profitable of all the crops, however the same will not do well in the absence of monsoons.
- **Social/Physical Infrastructure** - There are 7 schools in Bidadi and maximum upto Std. 12th (Commerce stream). There is no college in the village. Maheshwari community members have opened a school under charitable trust and are supporting children with their education and also teaching to use computers etc. Some annual events are also organized. There is a Hospital in the village maintained by a trust by Baniyas. There is a government health centre, however there is no Doctor. There is also a veterinary hospital but without a doctor. The hospital run on trust has about 100-150 beds. There are mostly specialist doctors for all kinds of illnesses. There are doctors visiting the hospital from Mandvi. Perhaps once a visit an eye specialist, dentist etc. will visit. Nearly 20% of the households do not have the provision of toilets. People are forced to defecate in open etc. There is no scarcity of water in this village. There are 5-6 government borewells and water supply of Narmada canal is also provided through pipelines/taps. Electrification is also not an issue. A few households may not be connected with the grid. But majority of the village is electrified. Not all families have LPG gas connections for cooking fuel purpose, majority of the households depend on kerosene and wood for fuel.

New Services/Jobs

- There has been development in the region - new roads, several hotels and shops have been established and new forms of employment avenues have been generated. There has been a positive development in the business/service sector however, agriculture has reduced. The youth also does not want to be engaged in agriculture anymore and wants to be a part of the private jobs in industries (tata power, adani, Jindal) etc. This has also made agricultural cultivation difficult as it requires a huge number of agricultural labourers. During peak periods, employment of upto 400-500 labourers may be required for large crop of land and during low periods, maybe around 200 or so labourers are required. Nearly 30-40% of youth members are employed in industries (including technical staff and labourers). There are other small

industries such as chemical plants etc.

- During Bhuj earthquake, there was a high requirement/demand for all kinds of work. Across several parts, houses had to be rebuilt, repair works had to be undertaken so on and so forth. Several new shops came up during that point as the demand for various goods items increased during the period. Several rehabilitation works again also pumped the potential to create new forms of jobs and employment avenues etc. Most of the families have bank accounts.
- There is also a big dairy business in Bidadi. In the recent 2-3 years, dairies have been established in a few other villages. However, prior to that Bidadi was the main centre for milk collection/sale etc. The proportion of cows and buffaloes are higher. Very few households have goats. For grazing and pastures, the shrub land is usually sufficient to meet the fodder needs of livestock. The households purchasing fodder is fewer.

Stature of Darbar Caste

- Darbar community has traditionally been powerful members of the society - both economically and politically. Although as a stature, Darbar still holds the power position politically. However, from an economic standpoint, they do not entirely rely on their traditional occupation (landowners/agricultural cultivators), but have diversified to various new jobs in the service sector or operating businesses etc. There has been fluidity in the occupation segment among various caste groups and the distinction of caste-specific occupations cannot be neatly drawn anymore.
- Darbar women are not allowed to work outside the home. Typically, they play the role of a housewife. Although there has been a slight change between even two generations of women. For e.g. our mothers were always inside the house and were not even aware of where our land is located. But now our wives are aware where our land is located and in case of absence of male members, they sometimes keep a watch on the crop. They go to the nearby market sometimes. However, they follow all the traditions as were used to be followed previously as well.

Meeting - II

<u>Basic details</u>	
Location: Bidadi village	District: Mandvi
Project: CGPL	Date: 18 th February, 2015
Purpose of the visit: Stakeholder Consultations	

Important Notice: This document, intended for internal use of ERM, provides a working summary of the main facts captured during the meetings held, not formal minutes. It is therefore deliberately not exhaustive or chronological and, being provided for information, is not intended for official review or approval.

<u>Key points Discussed :</u>
Stakeholder Group - General Group of Harijan Caste (both men and women)
<p>General Profile</p> <ul style="list-style-type: none"> • Previously in 1960, 8-10 acres of land was distributed to the members of Scheduled Caste (Harijan), but some of the members have also sold certain plots particularly around 2006 when industries had started setting up and the land values had appreciated. They have created assets such as bigger houses, two-wheelers; four-wheelers etc. and a few may have invested in land. Many of them have not made any productive investments in education etc. • Most of the families don't have any gas connections, dependent mainly on kerosene and wood for fuel. All the families have TVs and most of the women/children watch TV during their leisure. Even though women don't speak Hindi but they do understand Hindi by watching TV. Typically, during late evenings, women watch TV. Whenever they have some spare time during morning or afternoon, they gather wood from the nearby shrubland.etc. Women don't go to gather wood everyday but they stock wood from time to time. Watching TV has also given a lot of exposure to women. <p>Role of women</p> <ul style="list-style-type: none"> • Women in Harijan community engage in work outside home. They work as agricultural labourers, construction workers or any other kinds of work - supporting in shop etc. in addition to managing all household chores. The earnings by women are usually given to the most elderly member of the family.

Both men and women typically have to deposit a major share of the money earned to the oldest member of the family (irrespective of being male or female). Women keep a share of income from themselves which will be used for some occasions such as marriage, for children etc. For decision-making, both male and female members of the household take decisions together.

- Women want to engage in productive activities, perhaps even home-based business etc. but they have not been able to receive adequate support in this. Some of them have participated in small business such as papad making etc. but that has not contributed much. There are some girls who have completed their graduation in this village. A few (10-12 girls) have received employment on contract basis in industries such as tata power and adani. But there are not many opportunities or avenues for girls in vicinity areas.

Changing relationship between various caste groups over the years

- There is no enmity per se among different castes groups in the village and typically the scheduled caste community members also periodically interact with the general caste group members. But there are little occasions of direct interface and interaction on a regular basis. There is no scarcity of water in the village – both due to government borewells and water from Narmada canal that has been diverted. There isn't a hard distinction among communities pertaining to occupations. All the families have tried to diversify their income base and are engaged into agriculture, wage labour, small business etc. About 70-80 years back, our caste group members were sometimes not allowed inside certain portions of the village where the higher caste members used to reside, among others. Now if there is any big function or occasion all members from different castes take part in the same and nobody has any apprehensions or concerns regarding that.

Perception on Industries

- Industries have contributed in positive ways for development of this region. More importantly, they have ensured employment for the local community members and it has also given a boost to the education levels in the region and in other ways. Many land sellers have benefitted from the sale of land and certain villages from general infrastructural development.

1.11 SIRACHA

Meeting – I

<i>Basic details</i>	
Location: Siracha village	District: Mundra
Project: CGPL	Date: 28 th February, 2015
Purpose of the visit: Stakeholder Consultations	

Important Notice: This document, intended for internal use of ERM, provides a working summary of the main facts captured during the meetings held, not formal minutes. It is therefore deliberately not exhaustive or chronological and, being provided for information, is not intended for official review or approval.

<i>Key points Discussed :</i>
<p>Stakeholder Group – General Discussion Group of 3-4 members and a few school kids - girls</p> <ul style="list-style-type: none"> • The average land ownership is about 10-12 acres. At the minimum, the land ownership is of about 2-5 acres. Almost every household has a pair of cows and buffaloes. Some of the harijan families have sold their land to Adani power. Nearly 20-25% of households have sold their agricultural land for Adani power. Some of them have allowed power lines/towers to be constructed under their agricultural land. Women also engage in agricultural labour, but not in Darbar community. They also engage in handicrafts Bandhani work. Sometimes retailers from Mandvi/Mundra place order in advance for certain set of pieces. And on other occasions, women also themselves go to markets in Mandvi/Mundra to sell their output to the retailers directly. • There is a health centre of Adani Foundation. Community members do refer here for small

ailments/illnesses etc. but for hospitalization they usually go to private/government hospitals in Mandvi and also Adani Foundation Hospital in Mundra. Community members prefer going to private hospitals for better quality services. Approximately around 150 people are employed in industries (mainly adani power because of proximity) mainly engaged in housekeeping staff on contract basis.

- None of the girls in the village have continued into college or completed their graduation. Majority of the girls are educated till Std. 7th and some are educated upto Std. 10th and fewer still up to Std.12th. There are 5 schools in Siracha and maximum is up to Std. 10th. After Std. 7th, students have to travel to Navinal or Mota Kandagra for higher education. On a comparative basis, there has been a greater awareness towards girl child education and all household encourage girls to go to school. However, very few girls pursue education after Std. 8th.
- Adani Foundation has contributed in construction of cement concrete roads, repair for school building and construction of new rooms, Adani health centre in the village and doctor.

2.1 WASMO- UNIT MANAGER & STAFF

Meeting – I

<u>Basic details</u>	
Location: Bhuj	District: Kutch District
Project: CGPL	Date: 4 th March, 2015
Purpose of the visit: Stakeholder Consultations	

Important Notice: This document, intended for internal use of ERM, provides a working summary of the main facts captured during the meetings held, not formal minutes. It is therefore deliberately not exhaustive or chronological and, being provided for information, is not intended for official review or approval.

<u>Key points Discussed</u>
<p>Water Supply and Distribution</p> <ul style="list-style-type: none"> • Gujarat Water Supply Department has two branches: 1) Gujarat Water Infrastructure Limited (bulk supply to industry and any corporations etc.); 2) Gujarat Water Supply Board supplies at the village level and WASMO is the facilitator and is engaged to coordinate with the local bodies to track the water supply and to maintain the internal distribution networks. WASMO is also engaged in undertaking trainings with the water supply committees in mechanisms to operate the valves linked with the tanks etc. Production and distribution are the two key components for designing water supply schemes and for maintaining the distribution networks. Wasmo identifies whether water supply of any specific village is connected with the Narmada Water Canal or whether the village is connected with the regional supply scheme (maintained by the Gujarat water supply board) or whether it is connected with the individual supply scheme (maintained by the local bodies). • As far as internal distribution network of water is concerned, Mundra and Mandvi are doing very well and nearly 75%-80% of the houses are connected with tap facilities and sanitation coverage for the households is nearly 65% (as per the figures provided/cited by District Rural Development Agency). • WASMO is also supporting in squatter area development program with the help of Tata and Adani Foundation, among other big groups have attempted to ensure water distribution to about 45 villages in Mundra, Mandvi and Abrasar Talukas. • If the village has its own source of portable water, then WASMO is in the process of investigating of possibility of linking them with villages having scarce water resources. WASMO is also in the process of identifying local sources of water in and around the village itself. • All villages have drinking water sources and access to the same. Most of the villages use taps and wells for drinking and other purposes. In addition, RO plant facility has been provided by CGPL. Availability of potable water is reported to be among the main problems in this region. There are competing demands for water resources with the expansion of industrialization. <p>Agriculture and Industries: Competing demands for water resources</p> <ul style="list-style-type: none"> • Due to industries, there has been an increase in the demand for water. Population grows at a proportion of about 1.74% every year; however such a figure is more relevant in towns etc. In villages the population sometimes even doubles in a few years. However, from water supply standpoint, we typically assume the additional population figure of 1.74% addition per annum and 50% increase in demand after 30 years. And based on this, we design our water supply and distribution systems. Salinity control is under the Irrigation and in the recent years they are involved in constructing bunds etc. • The pressure on water is more after industrial development. However, before 2001, there was a period when there was major problem for water resource for agriculture development in the area. Agricultural cultivation had put massive pressure on water resource. Bore well depths went up to 400-500 ft. and there was duration allowed for water recharge. This had led to relatively high salinity content. It is just a perception that the industries use more water and agriculture/irrigation does not. There are 36000 agricultural connections in Kutch District, compared to 700 water supply connections. Although there has been a control exerted automatically on the usage of groundwater for agriculture over the past decade. There has been also additional awareness of water conservation in the past years.

- Water consumption for buffaloes is much higher than for cows. And the area is heavily dependent on animal husbandry with large holdings of buffaloes. If we compare agriculture with animal husbandry, the proportion of pressure exerted by agriculture may be higher than that utilized for cattle. With 24 hours water supply, the business of milk collection/conservation/sale has improved and increased. And the milk prices have also escalated over a period. Agriculture has not been very profitable and the market prices have also not increased much however exerts a lot of pressure on the natural resources.
- Gujarat state government has initiated Kutch Jalmani project to recharge the over exploited talukas for their groundwater resources – Bhuj, Mandvi, Nakhtarana, Bhachau and Anjar. WASMO will also be engaged in constructing recharging structures etc.

Increasing Trend of Community-based RO plants

- Many of the villages have community RO plants and in some cases cooperative basis with certain charge on water usage. The sustainability of the same will depend on village cooperation. In WASMO's experience, it has been found that 33% of the treated water is consumed and 66% is disposed/released and can't be put to use for any other purpose. RO plant in all contexts should be the last option as there is a lot of wastage involved. This should only be treated as the last resort when all the sources are completely exhausted. If there is a portable source available, then up to 500 ppm TDS is generally allowed for drinking purpose. If there is no portable water source, up to 2000 ppm TDS is allowed for drinking water purpose. However, there is a perception among the community that they require water with TDS only up to 500 ppm and therefore the industries/govt. etc. are sometimes bound to provide the alternative of RO plant. The water which is disposed or not released for consumption purpose gets entirely wasted. That might have TDS up to 4000ppm and therefore it cannot even be used for agriculture purpose etc.
- In coastal area, at present the TDS level is around 2500 ppm and the permissible limit for drinking water is 2000 ppm. 5000 ppm is preferable and in absence of any other potable source and this is as per WHO norms. Hardness of water does not matter a lot in terms of affecting health etc. WASMO usually conducts pre-monsoon and post-monsoon water quality survey and we have found traces of alkalinity which makes it mineral-based non potable water. This is mainly in Lakhpat taluka which is a mineral rich area, however otherwise it is rare to find alkalinity in the water. Both Mundra and Mandvi Talukas are not mineral rich areas and do not have any traces of alkalinity. In both Mandvi and Mundra Talukas, even horticulture is practiced heavily but in smaller pockets and the dependence on agriculture is also there. The horticulture produce is even exported outside the country. Unlike previously, now community is also heavily dependent on cattle feed.

RO Plants and Linkage with CSR

- This has become a part of the CSR program initiatives of the industry. CGPL has initiated such community based RO plants in about 15 villages. Due to this, other nearby communities have also started demanding this without recognizing that this is not a very viable or sustainable alternative. However, WASMO does not prefer recommending or promoting this as part of their CSR program. This could still be an option in schools (which is not community based) and perhaps at a rate of Rs. 50 per litre and the same is not at a very large scale and also helps in supporting children and also increases their immunity and resistance in fighting diseases.
- WASMO has a Germany funded project which we have implemented in govt. primary schools in rural areas where water is non-potable then WASMO is providing RO plants and if water is potable, then WASMO is providing UV plants. This entirely depends on the quality of water. This was jointly implemented in Mandvi and Mundra Talukas. In Mundra Taluka, Adani has collaborated with WASMO. While WASMO has provided the capital cost, for a duration of 5 years the operation and maintenance is being handled by Adani Foundation. In a similar way, Tata is associated with WASMO in Mundra Taluka. The quantity/availability of water is not a problem, but the quality is. WASMO has the data for most of the villages in terms of whether potable water is available or not. Tata and Adani, among other big industries have also approached us regarding community RO plant catering to the village as a whole, if WASMO has any plans around the same.
- And WASMO has provided community based RO plants in 5 villages with a ratio of 90:10. 90% contribution is from the government and 10% contribution with people's participation. The areas in which we have given has no industries in the surrounding 50-60 km radius and therefore the people have to rely on their own contribution and not relying on any external agency. This also increases accountability and makes them more responsible towards use of water etc. They are taking care of transportation/distribution and are maintaining very well and this model has been very successful in these area. They are also operating more as a self-sufficient unit. Whereas in Mundra and Mandvi Taluka, there is no contribution from the local people and

their share is instead being managed by the industries as part of the CSR initiative, which does not make the community accountable. This is the fundamental difference between the two areas/models. In the latter, there is a certain dependency of the communities on the industries. The community does not actively engage in maintaining the RO plants.

2.2

K-LINK – STAFF REPRESENTATIVE

Meeting – I

<u>Basic details</u>	
Location: Bhuj	District: Kutch District
Project: CGPL	Date: 4 th March, 2015
Purpose of the visit: Stakeholder Consultations	

Important Notice: This document, intended for internal use of ERM, provides a working summary of the main facts captured during the meetings held, not formal minutes. It is therefore deliberately not exhaustive or chronological and, being provided for information, is not intended for official review or approval.

Key points Discussed :

About K-Link and their form of engagement

- K-Link is promoted by Kutch Nav Nirman Abhiyan and in a way they have to be the parent company. Earlier it was a program as part of the Abhiyan. K-Link is functional in several states in India. And we work with partner organizations towards a common good.
- K-Link is registered as a non-profit organization and also working as a resource institute for the civil society organizations. K-Link is working with Information, Communication and Technology. Broadly, we develop partnerships with various civil society organizations and provide technology support and also provide help with GIS etc. K-Link primarily works in the development sector.
- K-Link has worked in Mundra and Mandvi region along with CGPL and Adani Foundation. Apart from these, there are local organization – Setu, Bhadreshwar (part of Kutch Nav Nirman Abhiyaan), Kutch Mahila Vikas Sangathan and VRTI who have been working actively in this region. On health sector, Bidada Sarvodaya Trust has been actively working and Virayatan has been working on education sector. Ujjas Mahila Sangathan has been working with women in the area.

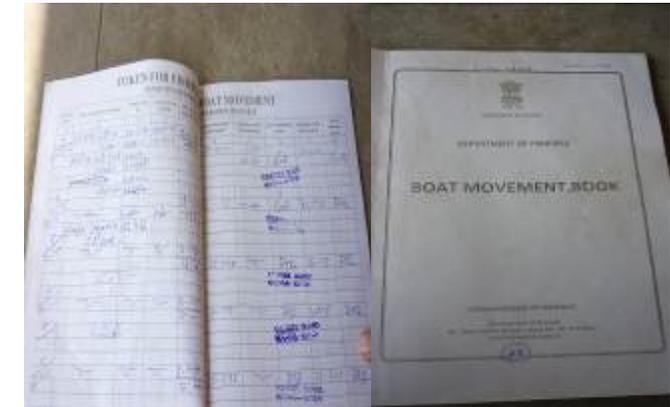
Regarding Industries and development in the region

- There are good initiatives happening as part of CSR activities/programs and CGPL in particular has been investing a lot. However, it has to be seen whether such positive benefits compensate for the negative impacts that have happened or not. And most importantly, whether the local community is satisfied with their efforts is not should be gauged. But in our experience of undertaking surveys in several villages in Mundra and Mandvi Talukas, we have seen a lot of good CSR initiatives. The survey included almost 40 villages for CGPL covering majority of the Mundra region and only a few villages of Mandvi.
- K-Link was a partner in undertaking the HH survey and also taking GPS data and undertaking detailed GIS studies and using technology. K-Link was not engaged in undertaking detailed data analysis. However, we had done GIS analysis and are in the process of developing software for them which will help them to better visualize the data and use it for better targeting their CSR activities. Such HH survey was conducted for both CGPL and Adani with more or less similar socio-economic assessment format with questionnaire etc. However, the study area varies for Adani and CGPL with some overlaps in the villages. GIS map was also only for HH specific and village level institutions are also included. And the same data can be overlaid on the Google Earth.
- Based on the survey, the K-link's experience was varied across different villages. Some of the community members were agitated and did not allow us to undertake the survey at all whereas some others were treating it casually and had some expectations. Agitation was mainly from the point of view that the families have not received any support and have only been negatively impacted in the process. Adani is engaged in power generation, port development and also SEZ and therefore Adani has a greater scope for generation of local employment than CGPL which is restricted to only the power plant.

Community Perception and Industries

- K-Link has also heard from the local community that the cash compensation received for sale of land from these big industries was further re-invested by some of the beneficiaries in areas where industries are anticipated to be set-up. This is being done with an expectation of further increase in the land rates. However, there are also other impacts associated with receiving cash compensation. For example: alcoholism and domestic violence has increased a lot in the region lately along with increase in the incidence of thefts/robbery etc. Maybe these are the same families who have received a lot of money at once. It is true that there has been also a dilution in the morality among people and the local community is more strategic and cunning now than before. Previously, they were very straight and simple. The dilution has happened because the community members have been exposed to the bargaining power and strength and now they are more aware of their power and being able to bargain diplomatically and carefully. So they need to be very clever and skillful. And the community is also more exposed to information and technology in ways like never before. All these changes are simultaneously happening. Trust is another factor between the corporate and community which has also eroded. The community does not trust the company for what they are promising. There may be many factors why this trust has eroded – 1) the breach of trust from the corporates and they may not have fulfilled the promises that they have made during the inception of the project; 2) the role played by middlemen is also critical in this regard – some of the community leaders are able to make higher gains and profits, whereas the rest of the community members are not benefitting in a similar way. The community leaders sometimes become agents of the corporate/company. And when they favor company or community is unpredictable and it is also difficult to trace the vested interests etc.
- The CSR expenditure may be seen by this middlemen as a source of income/revenue for themselves and sometimes they also become the barrier between the company and the target community. And it is very difficult to bypass these leaders to reach out to the community. And there is also a lack of willingness among the corporates sometimes that they don't want to get a detailed understanding of the community dynamics and issues etc. And they are forced to do CSR activities but otherwise the companies do not have a direct willingness to do any community development. They also find it easier to communicate with the community through middlemen and reaching out to 4-5 leaders in each of the villages instead of creating platforms for engagement with the larger community as well. But the middlemen provide assurance to the companies that no issues will be created. However, these days in the villages there isn't a big rift between the leaders and other community members in terms of awareness and exposure. The community at large has exposure to various information sources, they are reliant on good technology through smart phones etc. and they have access to all these facilities as well and can see for themselves what impacts do the industry have. Therefore, the agitation begins from the community as the companies try to handle the 4-5 leaders. But middlemen are very powerful and influential. They know how to manage the community and also the corporates.
- Government and government policies and schemes are also very crucial for the development in the region. The land acquisition process was managed by the government and even in CSR expenditure; they have an influence over the industries. The involvement of many players in CSR etc. complicates the scenario and also confuses the community sometimes in terms of what is happening.

Appendix 3 Site Photo-log

		
<p>Photo 1: Modhwa Bunder</p>	<p>Photo 2: Fishing Equipment</p>	<p>Photo 3: Storage house of a trader in Modhwa Bunder – Provides ice box/cold storage facilities</p>
		
<p>Photo 4: Women engaged in drying and processing of fish (in this case – small shrimps)</p>	<p>Photo 5: Bombay duck fish being dried – among the common/popular variety of fishes caught in the shore.</p>	<p>Photo 6: Boat movement book maintained by each of the boat owners and verified by the coast guard – details of the crew and the dates of fishing in the deep waters are mentioned.</p>
<p>Project: CGPL</p>		<p>ERM India Pvt. Ltd. Building 10, 4th Floor, Tower A, DLF Cyber City, Gurgaon - 122 002 Board: +91- 0124 4170300 Fax: 0124- 4170301</p> 

Appendix 3 Site Photo-log



Photo 7: Older women engaged in drying/processing work - Modhwa



Photo 8: Adani Power Plant



Photo 6: Discussion with women SHG group in Tragdi village



Photo 10: Consultation with women of Wagher community (while the men have left for Jakhau coast for fishing)



Photo 11: Women involved in processing of shrimps in Tragdi Bunder



Photo 12: Women members engaged in processing activity

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Appendix 3 Site Photo-log



Photo 13: Dry fish traders purchasing the stock from fishermen in Tragdi Bunder



Photo 14: Periodical net repair works undertaken by the fishermen



Photo 15: Weighing sack bags with dry fish



Photo 16: Temporary shelters/huts for fishermen in Tragdi Bunder who migrate in during the fishing season from Anjar Taluka, among others for a period of 8-9 months



Photo 17: Temporary mobile toilets and water storage cans at Tragdi Bunder



Photo 18: Drying of fish at the bunder

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Appendix 3 Site Photo-log



Photo 19: RO plant provided by CGPL as part of CSR for drinking water facility to fishermen



Photo 20: Status of a temporary makeshift school with 1 teacher



Photo 21: Madrasa – trgadi bunder



Photo 22: Solid water disposed of in the areas surrounding to the habitation in Tragdu Bunder



Photo 23: Families migrating in along with livestock (goats) to Bunder during the fishing season



Photo 24: Donkeys as the most common and important form of transporting caught fish from the shore to the habitation.

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Appendix 3 Site Photo-log

		
<p>Photo 25: Kumbhar group engaged in pottery in Gundiwali village</p>	<p>Photo 26: Kumbhar group engaged in pottery in Gundiwali village</p>	<p>Photo 27: Women engaged in painting and finishing works for the pots</p>
		
<p>Photo 28: Livestock ownership in Tragdi - increased ever since milk collection centre was established few years back</p>	<p>Photo 29: Collective community grazing</p>	<p>Photo 30: CGPL Power plant</p>
<p>Project: CGPL</p>		<p>ERM India Pvt. Ltd. Building 10, 4th Floor, Tower A, DLF Cyber City, Gurgaon - 122 002 Board: +91- 0124 4170300 Fax: 0124- 4170301</p> 

Appendix 3 Site Photo-log



Photo 25: Women in Tragdi Bunder sorting shrimps



Photo 26: Children, elderly members and women of all ages engaged in processing/drying activities



Photo 27: Consultations and survey being undertaken in Tragdi Bunder



Photo 28: Women engaged in gathering water from RO plant, transporting with the help of donkeys and storing water in cans



Photo 29: Coal ash deposits on the terrace in one of the houses in Vandh village



Photo 30: Conveyor Belt Route

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Appendix 3 Site Photo-log

		
<p>Photo 25: Water Intake Channel</p>	<p>Photo 26: Consultations with village leaders and opinion makers in Village Vandh – Rabari Community (traditionally semi-nomadic pastoralist group)</p>	<p>Photo 27: Women and children engaged in gathering firewood for cooking purpose in Vandh</p>
		
<p>Photo 28: Aerial view of Vandh village</p>	<p>Photo 29: Consultations with wage labourers/workers engaged in CGPL and Adani</p>	<p>Photo 30: Rabari community women engaged in making handicrafts</p>
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Appendix 3 Site Photo-log



Photo 25: Traditionally house structures among Rabari community which has given way to modern cemented structures



Photo 26: Consultation with a Harijan family in Nani Khakkar village



Photo 27: Cooking area used by migrant workers during peak harvest season



Photo 28: Consultations with sarpanch and village members of Nana Bhadiya



Photo 29: Discussion with women group in Nana Bhadiya



Photo 30: Agriculture and plantations in Moti Khakkar

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Annex 4

Household Survey Questionnaire

કુટુંબ સ્તરનું પત્રક

નામ	રજામત	તાલુકો	કાલો	તારીખ	કુટુંબ પત્રક નંબર	
મુળ નામ	મુળ તાલુકો	મુળ કાલો	કેટલા વર્ષોથી તમારું કુટુંબ માછીમારી અટકે ત્રણથી બંદર આવે છે?		કુટુંબના વહીવટી ઉમેશ નામ	
કુટુંબના વહીવટી નામ		મોબાઈલ નંબર		કેન્ડીલાઈટનું નામ		
વર્ષ	શ્રાવણ	શ્રાવણ પ્રકાર (SC/ST/OBC/General)	મરણ પ્રકાર : પાકુ/ કાચુ/ બચુ-પાકુ/ ઝુપકુ		રાશન કાર્ડ છે? હા/ના	
બી.સી.એલ (A.O-૧૬/B.૧૭-૨૦/C.૧૯)		ઉદ્યોગ કાર્ડ છે? ઉમરલાયક બધાનું/ઉમરલાયક થોડાકનું	મરણથી કોઈનું બેભાન પાતુ છે? હા/ના		જો હા, બેંકનું નામ	
કેન્ડીલાઈટ છે? હા/ના	શિવાના માછીમારી સુવિધા : નળ/ જાહેર સ્ટેન્ડપોસ્ટ/ કુવો/ તળાવ/ ટેન્કર/ આ રો પ્લાટ/ અન્ય _____			શિવળી જોડાણ : પોતાનું મીટર/ બાજુમાંથી સ્કીલાર /નથી		
વ્યવસાયને લગતા કોઈ લાભ મળ્યા છે? હા/ના		જો હા તો કોના દ્વારા? સરકાર/ સંસ્થા/ કંપની			લાભના પ્રકાર : વ્યવસાયના સાધનો/ રોકઠાં અન્ય	

મિલકતો (✓ કરો)		વસુધન			માછીમારી			ખેતી	
<input type="checkbox"/>	કિડ	વસુધો	સંખ્યા	આવક હુમ ઉત્પાદન (મિટરમાં)	માછીમારી કરો છો? હા/ ના		પકડતી માછલીનું નામ		તમે ખેતી કરો છો? હા/ ના
<input type="checkbox"/>	ટી.વી	ગાય			માછીમારીના સાધન અને સાઈલન્સ (✓ કરો)		૧.		જો હા તો કેટલી જમીન છે? (એકરમાં)
<input type="checkbox"/>	મોબાઈલ	ભેંસ			<input type="checkbox"/>	બોટ	<input type="checkbox"/>	ત્રાજ્યું	
<input type="checkbox"/>	ટુ વ્હીલર	બકરી			<input type="checkbox"/>	માછીમારીનું મોટું જાળ	<input type="checkbox"/>	પગલીયા લાયસન્સ	૩.
<input type="checkbox"/>	ત્રી વ્હીલર	ધેણ			<input type="checkbox"/>	માછીમારીનું નાનું જાળ	<input type="checkbox"/>	બોટ લાયસન્સ	૪.
<input type="checkbox"/>	કોર વ્હીલર	છીટ			<input type="checkbox"/>	આઈસ બોક્સ	<input type="checkbox"/>	કસ્ટમ કાર્ડ	૫.
<input type="checkbox"/>	ટ્રેક્ટર	બળદ			<input type="checkbox"/>	લંગર	<input type="checkbox"/>	કીચર મેન ક્રાઈ	૬.
<input type="checkbox"/>	ટ્રક્ટિન્કર	ગધેણ			માછલી ક્યાં વેચો છો?		ગામ _____	૭.	ખેતી (ચિત/બિનચિત/બન્ને)
<input type="checkbox"/>	ગધેણ ગાઠી	ધોલ			તાલુકો _____	પોલિસ્ટીપ રી _____	જો વેપારી, તો નામ જણાવો _____	૮.	

GPS No	GIS Code	N			E			Elevation	માહિતી લેનારનું નામ	તારીખ

Annex 5

Supplement Questionnaire for Pagadiya Households

Supplement Sheet: Pagadiya Households

Date	
Name of Enumerator	
Village Name	
Household Number	(Mention the Same number as of the HH Questionnaire)
Name of Respondent	

Sr. No	Indicators	Responses				
1.	Which are the most preferred fishing spots for your household			Reason for Preference (Advantages)	Disadvantages (Reasons why this may not be preferred)	
		I.	Tragdi Bunder			
		II.	Modhva Bunder			
		III.	Salaiya			
		IV.	Sadau			
		V.	Others			
2.	Since when (approx. year) have you been fishing by foot in Tragdi Bunder?					
3.	Which fishing equipment used for undertaking fishing in the area	I.	II.	III.	IV.	V.
4.	How much is the input costs associated with these equipment per month?	I.	II.	III.	IV.	V.
5.	List out the major fresh fish species in the area	Fresh Fish		Months/Period	Average Catch (on a good day/ bad day)	Price/kg
		I.	Kadha			
		II.	Kekda			
		III.	Dhangli			
		IV.	Nani Shodi			
		V.	Gadhio Nani			
		VI.	Charri/Soddhi/ Ghoga			
		VII.	Chaiyo			
		VIII.	Selai			
		IX.	Other			
		X.	Other			
		XI.	Other			
6.	what is the role of women in the following activities related to fishing	Activity		Women's role		
		a.	Stocking			
		b.	Fishing			
		c.	Feeding			
		d.	Harvesting			
		e.	Processing			
		f.	Marketing			
		g.	Transportation			
		h.	Other (specify)			
7.	Typically, which are the markets (towns/villages) where you sale your fish catch? Which markets are preferred and why?					

8.	Has the number of pagadiya fishermen increased in Tragdi Bunder? If yes, why so?	
9.	Which fish species have witnessed a reduction in quantity and quality over the past 7-8 years? Specify them.	
10.	Are there any fish species which have increased in quantity, over the past 7-8 years? Specify them.	
11.	Does increase in boat owners also affect the fish catch for pagadiya? How?	
12.	At what age you would involve your son in fishing activities?	
13.	Will you like your son to take up fishing on a full time basis? What other alternative livelihood opportunities you foresee for him?	
14.	Do you have ice box and cold storage facilities? How do you access one if you need?	
15.	Do you aspire to own a boat and go for deep sea fishing? Have you ever tried for it?	

16. Average Catch and Income Month-wise

Months	Predominant Fish Species	Avg. no. of days of fishing	Average Catch in case of a good month	Average Catch in case of a bad/lean month	Fishing Revenue/Income in a good month	Fishing Revenue/Income in a lean month
--------	--------------------------	-----------------------------	---------------------------------------	-------------------------------------------	----------------------------------------	----------------------------------------

January

February

March

April

May

June

July

August

September

October

November

Months	Predominant Fish Species	Avg. no. of days of fishing	Average Catch in case of a good month	Average Catch in case of a bad/lean month	Fishing Revenue/Income in a good month	Fishing Revenue/Income in a lean month
December						
