Asian Development Bank
Compliance Review Panel

ADB

Final Report

on
Compliance Review Panel Request No. 2013/1
on the
Mundra Ultra Mega Power Project
in India
(Asian Development Bank Loan 2419)

9 March 2015

This is a version of the document considered by ADB's Board of Directors from which specific information has been removed in accordance with Appendix 9, para. 3(vi) of the ADB's Accountability Mechanism Policy 2012.

ACKNOWLEDGMENTS

The Compliance Review Panel thanks all those who contributed to the completion of the compliance review of the Mundra Ultra Mega Power Project in India: the complainants for their efforts and trust in the process, the Coastal Gujarat Power Limited, an ADB private sector client, and national and regional government agencies for their cooperation during the investigation and during our site visit, the Board of Directors, in particular, the members of the Board Compliance Review Committee; and ADB Management and staff.

ABBREVIATIONS

ADB	–	Asian Development Bank
BCRC	–	Board Compliance Review Committee
BP	–	Bank Policy
CAO	–	Compliance Advisor Ombudsman
CEIA	–	Comprehensive Environmental Impact Assessment
CGPL	–	Coastal Gujarat Power Limited
CRP	–	Compliance Review Panel
CSR	–	corporate social responsibility
EIA	–	environmental impact assessment
IFC	–	International Finance Corporation
IIFCL	–	India Infrastructure Finance Company Limited
IIPFF	–	India Infrastructure Project Financing Facility
MASS	–	Machhimar Adhikar Sangharsh Sangathan (Association for the Struggle for Fishworkers' Rights)
MoEF	–	Ministry of Environment and Forests
NAAQS	–	(India's) National Ambient Air Quality Standards
NGO	–	nongovernment organization
OM	–	Operations Manual
OP	–	Operational Procedure
PSOD	–	Private Sector Operations Department (ADB)
PM-10	–	(respirable) particulate matter less than or equal to 10 microns
PPAH	–	Pollution Prevention and Abatement Handbook (World Bank)
RMEIA	–	rapid marine environmental impact assessment
RPM	–	respirable particulate matter
SEIA	–	summary environmental impact assessment
SIEE	–	summary initial environmental examination
SPM	–	suspended particulate matter
TCE	–	TCE Consulting Engineers
TOR	–	Terms of Reference
TPC	–	Tata Power Company

WEIGHTS AND MEASURES

^{o}C	–	degree Celsius
kg/day	–	kilograms per day
km	–	kilometer
m	–	meter
m^3/hr	–	cubic meters per hour
mg/l	–	milligrams per liter
MW	–	Megawatt
Ppt	–	parts per thousand
ug/m^3	–	microgram per cubic meter

NOTE

In this report, "$" refers to US dollars and "Rs" to Indian rupees.

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EXECUTIVE SUMMARY

Mandate for Compliance Review

This report was prepared by the Compliance Review Panel (CRP) of the Asian Development Bank (ADB) in response to a request for compliance review of the Mundra Ultra Mega Power Project (Tata Mundra plant) in India. Under ADB's Accountability Mechanism Policy,[1] a compliance review is done to investigate alleged noncompliance by ADB with its operational policies and procedures that directly, materially, and adversely affect local people during the formulation, processing, or implementation of an ADB-assisted project. The review focuses on ADB's conduct and not on that of the borrowing country, the executing agency, or the private sector client. As an independent body, the CRP reports to the ADB Board of Directors (Board), from which it derives its authority to conduct compliance reviews.

Request for Compliance Review

On 17 October 2013, the CRP received a request for compliance review (Appendix 1) of Loan 2419-IND: Mundra Ultra Mega Power Project in India. The request was filed by Bharat Patel representing a group of affected persons, and by Gajendrasinh Bhimaji Jadeja and Harun Salemamad Kara as individual complainants. On 27 December 2013, the CRP determined the request eligible and recommended to the Board the conduct of a compliance review.

The Compliance Review

After the Board authorized on 17 January 2014 a compliance review, the CRP submitted the terms of reference (TOR) for the review to the Board Compliance Review Committee (BCRC) for clearance.[2] The BCRC cleared the TOR on 30 January 2014, which was circulated to the Board and made public on 31 January 2014.

The CRP investigation consisted of (i) a desk review of project documents; (ii) interviews with ADB Management, staff, and project consultants; (iii) meetings in India with the complainants, including their representative, other affected persons, and relevant government offices and research institutions; and (iv) visits to project facilities and nearby communities. The CRP visited the *banders*[3] adjacent to the plant, the Adani West Port (an associated facility of the Tata Mundra plant), including its intake and outflow channels.

The review team was led by Arntraud Hartmann (part-time CRP member) and had as members CRP Chair Dingding Tang, who joined the CRP on 10 June 2014 and Lalanath de Silva (part-time CRP member). In this compliance review, the CRP was supported by an international environment consultant; two local consultants (a marine environment expert and a fisheries expert); and a document reviewer. The Office of the Compliance Review Panel provided technical, logistic, and administrative support for the compliance review.

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[1] ADB. *2012 Accountability Mechanism Policy*. Manila.
[2] Footnote 1, paragraph 183.
[3] The term *bander* is used locally to identify a port or haven along the seashore where fisherfolk establish temporary or permanent communities for the purpose of carrying on their occupation.

The Project

The project under compliance review is a private sector, coal-fired power plant with a total capacity of 4,000 megawatts. The project consists of five power generation units, of which three units became operational in 2012 and two in 2013. The plant design is based on super-critical power generation technology which is more energy efficient and environment friendly than subcritical technology. The plant has a once through condenser cooling system. Imported low sulfur coal is selected as fuel. The total project cost is about $4.14 billion of which ADB financed US$450 million. The loan was approved in April 2008 by the ADB Board. In addition to the ADB loan, the project received financing from the International Finance Corporation; the Export-Import Bank of Korea; and from local banks. About $250 million were provided by the India Infrastructure Finance Corporation Limited under an onlending arrangement of an ADB-financed credit line.

The project is owned by the Tata Power Company (TPC). It has been constructed and is now operated by Coastal Gujarat Power Limited (CGPL), a subsidiary fully owned by TPC. TPC is a major player in India's power sector and is widely recognized as a company with a strong commitment for community services. TPC puts high visibility on its corporate social responsibility program and emphasizes its engagement in power generation based on environment-friendly technology.

The project is located 1.5 km away from the coast of the Gulf of Kutch, Mundra, Gujarat, India. The Gulf is known for its ecological richness. It is a large area, comprising 7,300 km^2, including a national marine sanctuary and a national park. More recently, the coastal zone along the Gulf has developed into an area of rapid industrialization. This industrialization has received international attention due to its perceived environmental impacts. The project is located in the Mundra region which is not designated as protected area. It is about 25 km away from the national marine sanctuary and the national park. The Mundra coastal zone does not sustain coral growth in the intertidal or subtidal area as found on the southern coast.

The project is 2 km away from another large coal-fired power plant, the Adani plant with a power generation capacity of 4,620 MW. Given the proximity of these two plants, attribution of environmental impacts exclusively to one or the other is often challenging. The project shares port facilities and the cooling water intake channel with the Adani plant. As these facilities are owned and operated by Adani and services are only leased by CGPL, the environmental impacts of the intake channel and the Adani port are the legal responsibility of Adani. These impacts are not assessed in this report.

TPC approached ADB for long-term financing in December 2006. Based on project documents reviewed, ADB project engagement seemed to have picked up in July 2007. By then, the Ministry of Environment and Forests (MoEF) had already given environmental clearances for the project. CGPL conducted environmental assessments in 2007, including a marine impact assessment which reviewed the impacts of the outfall channel on the marine environment, and a baseline social impact assessment. These studies constitute the environmental assessment required under ADB policies. After a decision to provide a larger cooling surface area for the outfall channel, the location of the channel was altered and a second marine impact assessment for this new location was conducted in 2009. The processing schedule for the project was brisk. The environmental assessments were issued in August 2007; concept clearance was obtained in September 2007; a first mission to the project site took place by end October 2007; the Summary Environmental Impact Assessment (SEIA) was posted on the ADB website early December 2007; and the project was approved by the ADB

Board in April 2008. The project was classified as a project with significant environmental impacts (category A). As the land on which the plant was to be constructed was used as grazing land, the project was classified as category B for involuntary resettlement which required the preparation of a short resettlement plan.

ADB pursued a rather hands-off approach in supervision of environmental safeguards until mid-2012, when a major mission was launched to discuss concerns raised in a report presented to the ADB by the *Machhimar Adhikar Sangharsh Sangathan* (Association for the Struggle for Fishworkers' Rights) or MASS. Since then, ADB has conducted regular project monitoring missions to follow up on these concerns and on the complaints articulated under this compliance review.

Findings of the Compliance Review

In its compliance review, the CRP considered the following ADB policies and operational procedures that were in effect when the project was processed and approved:[4]

(i) Environment Policy (2002);
(ii) Operations Manual (OM) Section F1: Environmental Considerations in ADB Operations (issued on 25 September 2006);
(iii) OM Section F2: Involuntary Resettlement (issued on 25 September 2006);
(iv) OM Section L3: Public Communications Policy (issued on 1 September 2005); and
(v) OM Section C3: Incorporation of Social Dimensions into ADB Operations (25 April 2007)

The CRP found several noncompliance areas with ADB operational policies and procedures which resulted in harm. The single biggest area of concern is the failure to conduct adequate and comprehensive consultations with fisherfolk early in the project design phase and to consider their views to assess project impacts. These failures have numerous consequences. The findings of the compliance review highlight the importance of ADB operational policies and procedures which provide for consultations and engagement of relevant stakeholders early in the project cycle. It also shows how important it is, to adequately listen to stakeholders and to seek their views on environmental impacts, no matter how tight the project processing schedule might be. Adequate listening to the voice of the affected people is particularly important if these people are poor and vulnerable. In this project under review – probably as a result of a very tight project processing schedule – some of these basic principles enshrined in ADB policies, have not been given adequate attention. The CRP is of the view that with adequate ADB guidance, the borrower would have likely responded favorably to proposals for consultation and mitigation measures for fisherfolk. It would have been consistent with CGPL's community engagement principles.

Further to the consultation failures, the CRP found that there is noncompliance with ADB operational policies and procedures for thermal and chemical pollution of waste water discharged through the outfall channel into the marine environment and finds that this noncompliance has led to harm to people fishing on foot in the area impacted by the outfall channel. The CRP also finds that there has been non-compliance with air pollution standards and that continuous violations of prescribed air standards, unless brought back into compliance

[4] References to ADB operational policies and procedures in succeeding sections of the report are only to those enumerated in this paragraph.

by remedial measures, are likely to lead to harm. In addition, the CRP finds noncompliance with ADB policies and resulting harm by not surveying and compensating people impacted by longer access routes to their traditional fishing grounds, as plant premises have been enclosed. The CRP recognizes that harm is being done through coal and ash pollution but finds that ADB staff appropriately supported and continues to support CGPL in defining and implementing mitigation measures. ADB thus acted in compliance with its policies. Complainants allege harm and noncompliance due to lowering groundwater tables; reduced horticulture yields; and inadequate employment of local labor and related human stress. The CRP did not find noncompliance with ADB operational policies and procedures that relate to harm on these issues.

Consultation failures: ADB policies require at least two consultations with relevant stakeholders for projects which have a significant environmental impact. The first of these consultations is to be held early during the preparation of the environmental impact assessment (EIA). The second is when the draft of the EIA has been completed. One reason for the early timing of the first consultations is to ensure that people who have an interest in the project have an opportunity to be heard early on, as they intimately know the area and can highlight potential impacts of the project. The timing of the second consultation is to assure that interested stakeholder and especially project affected people, have the opportunity to familiarize themselves with the findings of the environmental assessment and raise concerns before the assessment has been finalized. The project only had one consultation which included all relevant stakeholders. It was a public hearing which took place in September 2006, before the ADB got involved in this project. Such hearing is required under Indian regulations before an environmental clearance is provided by the MoEF. A second meeting which included all relevant stakeholders did not take place. Several meetings were held with residents of villages who were expected to give up land on the site where the project was to be constructed. These meetings appear to have been well conducted, but they were narrowly focused on only those villages which owned or used land required for the project. Compensation issues figured most prominently in these meetings.

With the exception of one meeting held with seven people at Kotdi *bander* in November 2007, the fishing community in the Mundra area was missed in any follow up consultations. In 2007, Fisherfolk – other than the people of Kotdi *bander* - were not considered as project affected people or as relevant stakeholders who ought to have had a voice in the room and a seat at the table. The Baseline Social Impact Assessment did not include fisherpeople as stakeholders in its stakeholder analysis and defined project affected people as residents of “project affected villages” which included only those villages which used land on the project site. Fishing communities were defined as “project affected community resource users” but the baseline study did not review and survey any fishing communities. The focus of the baseline study was only on villages where residents used land. In none of the socio-economic studies were the fishing communities included.

Fisherfolk ought to have been heard and should have been included in the Social Impact Assessment. It is somewhat puzzling why fisherfolk would not have been considered as stakeholders and as project affected people as a large outfall channel was to be constructed discharging cooling water from the plant to the sea. The construction of such large intake and outfall channels and discharging water into the sea typically has some impacts on the environment and on people who fish in the area. Nor was the fisher community small. An estimated 380 households who lived in communities near the plant and depended, at least for part of their income, on fishing. This omission is particularly noteworthy, as fisherfolk had raised their voices of concern during the public hearing in 2006, stating that the planned outfall channel with discharging of water at temperature levels above ambient levels and possible chemical

pollution could affect their fish yield. The fisherfolk also argued that their access to traditional fishing grounds could be cutoff, if the plant site were to be enclosed.

ADB staff argue that the conclusion that fisherfolk were not affected by the project was based on the findings of the two marine impact assessments, undertaken in 2007 and 2009. But ADB policies require stakeholders, including project affected people, to be heard **prior to the completion** of an environmental assessment. In the argument presented by ADB staff, the conclusion of a completed study is used as justification for excluding people from stakeholder consultations. Moreover, these studies did not assess the impacts on people fishing in the area. The Rapid Marine Environmental Impact Assessment states: "Since there are no commercial fishing operations in Kotdi Creek except shore based local fishing, the impact on fisheries would be minor and non-consequential."[5] The impact on "shore based local fishing" was not assessed. Assessments took a narrow focus on marine impacts and argued that any impacts would be low, as the area around the outfall channel is of low biological productivity. It further stated that the discharge of water at 4°C-5°C above ambient water temperature is not significant as the intertidal area experiences such temperatures and salinities even in the normal course of nature. The studies also pointed out that "the increase in water temperature may not be lethal to the organisms but proliferation of resistive organisms may change the community structure of the localized zone". It is not clear why these statements have been judged sufficient to exclude the possibility of fisherfolk being affected by the project, especially as some of the fisherfolk, and typically the poorest ones, fish by foot directly at or near the discharge weir of the outfall channel. Here even minor changes can lead to significant impacts on near shore fishing. The fact that the area is of low biological productivity, cannot be taken as justification for not assessing impacts on fish yields. Fisherfolk fishing in low productivity areas can also be impacted in their fish yields.

An important ADB document denied the existence of fisherfolk in the area. In paragraph 48 of the SEIA posted on the ADB website, it is stated that: "…there are no local fishing activities in the coastal waters fronting the project area." The CRP does not agree with this as there have been fisherfolk temporarily residing and fishing 1.5 km away from the Tata Mundra plant. There were foot fishers who fish on the shore fronting the plant and there were people fishing by boat 5 to 8 km into the sea. This is clearly fishing in coastal waters fronting the project. The people who fish in the area fronting the project are migratory fisherfolk living in temporary settlements for 8 to 9 months every year. A couple of families live there year-round. They have done so for many years, some for generations. Other people came from nearby villages to fish as foot fishers or by boat. ADB staff argue that the statement in the SEIA was made as there was no large scale commercial fishing taking place in the shallow waters in front of the project. But project affected people are not only large scale commercial fishers.

At the time of project design, fisherfolk were not perceived to be affected by the project (with the exception of people fishing at Kotdi *bander*). No social baseline survey was conducted and no monitoring data collected. The absence of any of such basic data and the very limited knowledge of the 'without project situation', seriously constrains the knowledge of the pre-project situation... The absence of this evidence is the result of due diligence failure of ADB and non-compliance with ADB policies. CGPL- supported by ADB – did conduct surveys for the Modwa and Tragadi villages in 2011 and for Tragadi *bander* in 2013. But these surveys came late into project implementation and cannot substitute for the missing pre-project baseline data.

[5] National Institute for Oceanography, Rapine Marine Impact Assessment, 2007, p.100.

In 2010, CGPL started consultations in Tragadi and Modwa villages, when fisherfolk recognized that the outfall channel would cut off their access to their traditional fishing areas and protested. CGPL responded promptly. A systematic consultation process was carried out, a socio-economic assessment conducted, a bridge was built across the outfall channel and boats were provided, so that people could access their fishing grounds. People also received compensation payments for the longer travel to their fishing areas. In addition, a number of community support and livelihood programs were introduced and have since been supported by CGPL. These measures are considered highly satisfactory. But the measures are concentrated on the two villages only. Interactions with the temporary settlement of fisherfolk at the coastal area opposite the plant remain fragmented. A limited survey on the social and economic situation has been carried out only in 2013. No project impacts have been considered, and no compensation payments made. CGPL does provide some support services under its Corporate Social Responsibility Program, but these programs cannot be taken as substitutes for consultation and measurement of impacts as required by the ADBs environmental safeguard policies. There have also been no consultations with fisherfolk who live in other villages and traditionally come to the coastal site in front of the plant. Thus, while the corrective actions undertaken with Tragadi and Modwa villages are highly commendable, these actions came late and were only focused on the two villages. They were not sufficiently inclusive of the fisherfolk fishing in the area impacted by the plant.

The CRP finds that ADB was noncompliant with provisions of the Environment Policy and OM Section F1, and OM Section L3. The CRP did not find any evidence that ADB staff informed CGPL that (i) a second consultation with relevant stakeholders needed to be conducted; (ii) the restriction of project affected people only to people who owned or used land on the plant site was far too narrow; (iii) the results of the environmental assessments needed to be discussed with project affected people and other relevant stakeholders; and (iv) additional inclusive consultations were needed after a relocation of the outfall channel was decided. These are significant due diligence failures, especially, as TPC, which owns CGPL, is a company widely recognized for its community engagement and corporate social responsibility services. The CRP is of the view, that with adequate guidance from ADB staff, CGPL would have responded positively, and would have engaged with the affected communities in a timely fashion. CGPL has reacted promptly and adequately with the Tragadi and Modwa villages when the access restrictions became evident. It is the role of ADB staff and Management to inform and support the borrower in the implementation of ADB policies and procedures. In this case, that has not been done.

Livelihood impacts on fisherfolk: Complainants argue that fisherfolk fishing in the area have experienced a drastic decline of fish catch as a result of (i) thermal pollution from the water discharged from the outfall channel; (ii) destruction of creeks and mangroves; (iii) deoxygenation of warm water; (iv) death of large numbers of seedlings with the pumped intake water; (v) chemical pollution of the discharge water; and (vi) high saline brine, discharged from the desalination plant.

The CRP did not find evidence for deoxygenation of water and for highly saline brine from the desalination plant. The CRP did not assess morbidity of seedlings pumped into the intake channel, as the intake channel is owned and operated by the Adani plant and outside the legal responsibility of CGPL. The CRP cannot exclude that there might have been some minor destruction of mangroves on the outfall channel, but as these mangroves would have been of stunted growth and discontinuous small patches, destruction of those rudimentary mangroves could not have been a cause for the alleged decline in fish catch.

The CRP finds that discharging water above 3°C is not in compliance with the standards described in the Thermal Power: Guidelines for New Plants (effective July 1998) of the *Pollution, Prevention and Abatement Handbook* (PPAH) of the World Bank, which ADB follows for its projects. The PPAH specifies that water discharged into the marine environment cannot exceed 3°C above ambient water temperature at the point where the discharge water mixes with the sea, unless a justification is provided. The environmental clearance provided by the MoEF allows water to be discharged up to 7°C above ambient levels at the discharge weir. None of the ADB reports took note of the fact that the thermal discharge standard adopted was different and less stringent than the one prescribed by ADB policies. In the SEIA, only the Indian standard was presented. No justification for a deviation from the PPAH standard was provided. Any justification would have required a careful review of the marine impact assessments as less stringent discharge standards could only be justified if resulting impacts were negligible. While management stated, that a review has been done, the CRP could not find any evidence of a detailed review by professionally trained experts of the marine impact assessments. It is unusual that a careful review of such an important document would not have resulted in written comments by the reviewer. The CRP is of the view that a careful review of the underlying assumptions of the marine impact assessments would have raised some questions about its conclusions. The CRP finds noncompliance with the Environment Policy, OM Section F1/OP, and relevant standards of the PPAH.

The CRP also finds that there is noncompliance with PPAH standards, as CGPL undertakes significant dilution in order to remain within the required water quality standards with regard to iron. ADB staff did not advise CGPL that the PPAH does not allow dilution. As ADB staff during its project monitoring missions did not check whether dilution does take place, this constitutes noncompliance with ADB operational policies and procedures. Such dilution could possibly result in harm. As ADB recently has agreed with CGPL on corrective action which would eliminate potential marine impacts, the CRP does not assume harm resulting from the noncompliance.

The CRP finds that the cumulative effects of discharging water above 3°C at the mixing zone, and of dredging work impacting the Modwa creek has led to harm to people who fish by foot in the intertidal areas impacted by the outfall channel. In these sensitive areas even minor changes in the water and creek conditions can significantly influence marine life, including the quantity and type of fish. Based on an assessment of the Marine Impact studies, site visits, qualitative, interview-based and anecdotal evidence reviewed, the CRP is of the view that people fishing by foot have experienced harm as a result of noncompliance with ADB policies and procedures.[6] The CRP relied on these sources of evidence, as – because of noncompliance with ADB policies – no pre-project baseline data was constructed.

Access Restrictions to Fishing Grounds: Complainants argue that access restrictions resulting from enclosure of the plant premises have caused longer travel routes to fishing grounds. CGPL constructed a new road around the plant which allows access, but the longer travel routes increase expenses for people travelling regularly to the fishing areas. In 2010, CGPL, with support of ADB staff, has successfully engaged with Modwa and Tragadi villages

[6] ADB staff in its previous supervision missions took the view that outfall channel operations could have direct impacts on *Pagadiya* fishermen from Tragadi Village who are fishing in shallow waters at Tragadi creek in front of Tragadi bander. The mission recommended that CGPL undertake studies on fish catch in the *Pagadiya* fishing areas at Tragadi creek, identify who is practicing *Pagadiya* fishing, collect socio-economic studies as well as monitor their fish catch data. ADB advises that if *Pagadiya* fishermen are adversely affected by the project, a robust income restoration and improvement program should be prepared by CGPL (Internal Note to File of July 2014 supervision report)

which experienced access restrictions as a result of the construction of the outfall channel. In 2007, ADB had also engaged in consultations with Kotdi *bander* to mitigate access restrictions resulting from the inflow channel. No consultations have been held with people at Tragadi *bander* who travel regularly to the coastal area in front of the plant. No survey or consultations have been done to establish whether people from other villages regularly travel to the fishing grounds for foot fishing. The CRP concludes that there is noncompliance with OM Section F2/Bank Policies (BP) and OM Section C3/Operational Procedures (OP) and that harm has been done.

Coal Dust and Fly Ash Pollution: There is significant coal dust and fly ash pollution during at least part of the year in Wand village, located immediately adjacent to the plant. The harm resulting from the pollution is recognized by both CGPL and ADB. Pollution is significantly worse than anticipated under the environmental assessment. ADB staff should have been more proactive in suggesting that the coal storage facilities on the plant site should be located further away from the Wand village. But ADB staff paid careful and ongoing attention to the implementation of mitigation measures to reduce coal dust and fly ash pollution in Wand village. The CRP is of the view that ADB has exercised due diligence and acted in accordance with para. 67 of the Environment Policy, which states that "Where unanticipated environmental impacts become apparent during project implementation…, ADB will assist executing agencies… to assess the significance of the impacts, evaluate the options, and estimate the costs of mitigation."

Ambient Air Quality: Complainants argue that air pollution leads to health impacts. The CRP found that the PPAH standard were not complied with, as PM-10 values measured prior to the construction of the plant, exceeded Indian standards, which are applicable in this case as per PPAH standards. Since the Tata Mundra plant started operation, the air quality has degraded further and the air quality was not in compliance with Indian ambient air quality standards. The SEIA stated that monitored ambient air quality was well within the stipulated Indian and World Bank guidelines. The CRP is of the view that this statement is not correct as neither Indian nor World Bank PPAH standards for PM-10 were complied with. Given the short time period the plant has been in full operation, it is at this point not possible to point to specific health impacts resulting from deteriorating ambient air quality. It is also important to note, that given the vicinity of the Adani plant, deteriorating air quality standards, cannot be attributed to the Tata Mundra plant only. But threshold standards have been defined based on empirical evidence which indicate when pollution levels become harmful to human health and well-being. Thus, if PM-10 standards are continuously and persistently violated, such violations of ambient air quality standards are likely to lead to harm, unless mitigation measures will bring air quality back into compliance with required standards.

I. INTRODUCTION

1. This report was prepared by the Compliance Review Panel (CRP) in response to a request for a compliance review of the Mundra Ultra Mega Power Project (Tata Mundra plant) in India under the Accountability Mechanism of the Asian Development Bank (ADB). The request was filed by Bharat Patel representing a group of persons affected by the project, and by Gajendrasinh Bhimaji Jadeja and Harum Salemamad Kara as individual complainants. The Accountability Mechanism is intended to provide an independent and effective forum where people adversely affected by ADB-assisted projects can voice their concerns, seek solutions to their problems, and request a compliance review of alleged noncompliance by ADB with its operational policies and procedures that may have caused, or is likely to cause, direct and material harm to them.[1] The review does not investigate the private sector client, the executing agency or government agencies of the country where the project is located. The conduct of these parties is considered only to the extent that it is directly relevant to the assessment of ADB's compliance with its operational policy and procedures.[2] This report documents the findings of the CRP's investigation. The findings are presented in section VIII of this report and the conclusions are provided in section IX.

II. THE PROJECT

2. The project under compliance review is a coal-fired power plant with a total production capacity of 4,000 megawatts (MW), constructed on a build–own–operate basis near Tunda and Wand villages in Mundra Taluka, Kutch district, in the Indian state of Gujarat. The power plant, with its five 800 MW units, supplies about 2% of India's power and delivers power to the states of Gujarat, Maharashtra, Punjab, Haryana, and Rajasthan. It is one of the first private sector generators in India to use supercritical technology, which is believed to be more environment friendly than conventional subcritical generation. Total project cost amounts to about $4.14 billion. A $450 million loan was extended to Coastal Gujarat Power Limited (CGPL) from ADB's ordinary capital resources without government guarantee and is administered in ADB by the Private Sector Operations Department (PSOD).[3] Of that amount, $200 million is a syndicated loan provided together with the Export–Import Bank of Korea (Korea Eximbank) under a risk participation agreement. The private sector loan was approved by the ADB Board of Directors (Board) on 17 April 2008. As of 15 October 2014, a total of $351.18 had been disbursed to CGPL under ADB Loan 2419. The loan is expected to close on 30 June 2015. Additional financing for the project has come from the International Finance Corporation (IFC), Korea Eximbank, and local banks.

3. CGPL also received financing from the India Infrastructure Finance Company Limited (IIFCL) through onlending from the ADB-financed Second India Infrastructure Project Financing Facility (IIPFF-II; Loan 0037).[4] IIFCL, an entity wholly owned by the Government of India, is the executing agency for IIPFF-II which is a $700 million multi-tranche financing facility. When IIPFF-II closed on 14 May 2014, about $252 million had been disbursed to CGPL.

4. The Tata Mundra plant is one of the ultra-mega power projects envisaged by the Government of India under its "Power for All by 2012" agenda. To meet the country's targets for power generation, the Ministry of Power launched an initiative to facilitate the development of

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[1] ADB. *2012 Accountability Mechanism Policy*. Manila. Para. 103.
[2] Footnote 1, para. 130.
[3] ADB Private Sector (Nonsovereign) Loan No. 2419: Mundra Ultra Mega Power Project with approval number 7276. Details of this project are at http://adb.org/projects/details?proj_id=41946-014&page=overview.
[4] Details of this project are at http://adb.org/projects/details?proj_id=41036-013&page=overview.

coal-based ultra-mega power projects in India. The large power projects were expected to result in cheaper power through economies of scale, and were to use supercritical technology, a more environment-friendly alternative to conventional subcritical generation.

5. The Government of India decided to play a proactive role in supporting these projects. The Power Finance Company (PFC) was tasked with doing groundwork before a developer was selected to build, own, and operate the plant. The developer was selected through competitive international bidding. Bids were opened on 18 December 2006, Tata Power Company (TPC) was selected, and a letter of intent was issued on 28 December 2006 in favor of TPC, which executed a power purchase agreement and other project-related agreements on 22 April 2007. Subsequently, the entire shareholding of CGPL was purchased by TPC and CGPL became its wholly owned subsidiary. CGPL was made responsible for constructing, operating, and maintaining the project.

6. Construction work for the project started in February 2008. The first three units of the plant were commissioned in 2012 and by mid-2013 all five units were in operation. A substantial design revision was made in 2009 to accommodate the lengthening of the cooling water outfall channel. This resulted in a relocation of the channel. Because of that design change, an additional marine environmental impact assessment (MEIA) was undertaken in 2009. Table 1 shows the series of environmental and social impact assessments conducted for the project. The environmental impact assessments were done by TCE Consulting Engineers (TCE), a consulting firm owned by the Tata Group. TCE, a legal entity independent from CGPL, had relevant experience. The two marine impact assessments were carried out by the National Institute of Oceanography (NIO).

Table 1: List of Environmental and Social Assessments of the Project

Document Date	Document Title	Author
Aug 2006	Rapid Environmental Impact Assessment Study Report	TCE Consulting Engineers
Aug 2006	Socio-Economic Assessment Study Report	TCE Consulting Engineers
Jan 2007	Rapid Marine Environmental Impact Assessment	National Institute of Oceanography
Aug 2007	Comprehensive Environmental Impact Assessment Report	TCE Consulting Engineers
Oct 2007	Rapid Socio-Economic Assessment	Saline Area Vitalisation Enterprise Limited
Nov 2007	Report on Baseline Social Impact Assessment	Saline Area Vitalisation Enterprise Limited
Nov 2007	Summary Environmental Impact Assessment Report	Coastal Gujarat Power Limited
May 2008	Household Survey and Needs Assessment Study	IL&FS Ecosmart Limited
Feb 2009	Marine Environmental Impact Assessment	National Institute of Oceanography
Sep 2009	Hydraulic Design and Modeling Studies	HR Wallingford
Nov 2011	Stakeholder Engagement and Benefit Sharing Study (Survey of Tragadi and Modwa villages)	Coastal Gujarat Power Limited
Nov 2011	Needs Assessment Study of Modwa Village	Coastal Gujarat Power Limited

Notes:
(i) The Comprehensive Environmental Impact Assessment (2007) and the Rapid Marine and Social Impact Assessment (2007) together constitute the ADB's environmental assessment, required to be conducted under its policies and procedures. Indian regulations, on the other hand, required the 2006 environmental and social reports as a precondition for environmental approval by the Ministry of Environment and Forests (MoEF).
(ii) Starting in 2011, CGPL did a series of additional studies including, among others, a study on the socioeconomic situation of Tragadi and Modwa villages (CGPL. 2011. *Stakeholder Engagement and Benefit Sharing*); a socioeconomic needs assessment for Modwa village (2013); monitoring reports on sea-turtle nesting (Bombay Natural History Society); and the impact of the CGPL project on the habitation, life, and livelihoods of fisherfolk in Tragadi *bander* (2014).

7. The project is located only 1.5 kilometers (km) away from the coast of the Gulf of Kutch, which has often been described as an "ecological miracle" because of its shallow waters, intertidal zones, stretch of mangrove forests, and corals.[5] More recently, the coastal zone along the Gulf has developed into an area of rapid industrialization. Between 2007 and 2012, the Ministry of Environment and Forests (MoEF) issued environmental clearances for 19,181 MW in power plant capacity.[6] In addition, numerous clearances have been provided for the expansion of ports in Gujarat. It has been argued that these developments, taken together, could have "huge adverse impacts on the environment and also on the livelihood of fishing communities."[7] The industrialization has received widespread international attention because of its perceived detrimental impact on the environment in the Gulf of Kutch.[8]

[5] Asher, Manshi. 2008. *How Mundra Became India's Rotterdam. InfoChange, December; and Fishmarc and Kutch Nav Nirman Abhiyan (with support from the Foundation for Ecological Security);* 2010. *Kutch Coast: People, Environment & Livelihoods. Draft report for discussion at a workshop in Kutch on 7–8 January 2010*. India.
[6] Ministry of Environment and Forests (MoEF). 2013. *Report of the Committee for Inspection of M/s Adani Port & SEZ Ltd. Mundra, Gujarat, April*. *Kutch Coast: People, Environment & Livelihoods.* pp. 73–74. New Delhi.
[7] Footnote 7, p. 74.
[8] Footnote 7.

Figure 1: Tata Mundra plant in the foreground with the Adani power plant in the background

8. The Tata Mundra plant was constructed on land that was adjacent to villages and was used as pasture land for the villagers' livestock. The project is very close to two villages, Tunda and Wand, and about 2 km away from the Adani coal-powered plant. The Adani plant was commissioned between 2009 and 2012 and at full capacity operates at 4,620 MW. The Adani plant does not use supercritical technology. Given the proximity of the Tata Mundra plant to the Adani plant, attribution of environmental impacts to one of the two plants is sometimes difficult. The Tata Mundra plant shares some facilities with the Adani plant. It uses the West port of the Adani port to unload its coal. It also uses the intake channel, which is owned and operated by the Adani plant, for the intake of cooling water. As these facilities are owned and operated by Adani and leased by CGPL,[9] their environmental impact is the legal responsibility of Adani. These facilities are therefore not assessed in this report.

9. TPC, which owns the Tata Mundra plant, is recognized in India for its strong corporate social responsibility (CSR) engagement, a feature mentioned by many of those interviewed by the CRP. TPC ascribes this unusual commitment to the vision articulated by its founder, Jamsetji Tata, who joined the power business in 1911. He used to say: "In a free enterprise, the community is not just another stakeholder in the business but is in fact the very purpose of its existence."[10] TPC creates high visibility for its community relations program and its five priorities: (i) primary education; (ii) health care; (iii) livelihood and employability; (iv) social capital and infrastructure; and (v) sustainable and inclusive growth.[11] In the project area, CGPL

[9] 2008 Development Agreement between Mundra Power and Special Economic Zone Limited and CGPL regarding the development of the seawater intake channel.
[10] CGPL. *Reflections, Annual Report 2014*. India.
[11] Tata Power. 2013. *A Decade of Sustainability Reporting, Sustainability Report 2012-13, Enabling Social Well Being*. India.

supports community activities under its CSR program.[12] However, being a responsible Corporate body, CGPL has planted 1,000 hectars of mangrove in Kantiyajal in Bharuch district in collaboration with GEC.

10. TPC approached ADB for long-term debt financing after it was awarded the contract in December 2006. ADB, having financed previous TPC projects, already had an established relationship with TPC. Project files indicate that the operational engagement of ADB started in July 2007. The project processing schedule was hectic. ADB concept clearance took place on 31 August 2007. The proposed loan was classified as category A under ADB's Environment Policy (2002), as the project was expected to have significant environmental impact. After some debate, the loan was classified as category B for involuntary resettlement and it was agreed that a short resettlement plan would be prepared. The summary environmental impact assessment (SEIA) was posted on the ADB website on 4 December 2007. ADB's safeguard mission and first site visit took place during 29 October-1 November 2007, after environmental assessments had been completed and while the SEIA was being prepared. The Private Sector Credit Committee met on 18 February 2008 and the project was approved by the Board on 17 April 2008.

11. According to project documents, ADB only undertook few missions to review social safeguard related issues until 2012. Prior to project approval by the Board, only one site visit took place October 27-31, 2007. A mission undertaken from 11-12 October 2009, reviewed safeguards application during the construction phase. A further mission was conducted during 3-5 August 2011, which, among others, addressed concerns raised by MASS in its complaint with the Compliance Advisor Ombudsman filed in June 2011. In 2012, ADB received a report by an independent team, prepared in collaboration with MASS, which argued that the Tata Mundra plant created significant detrimental impacts.[13] In response to this report, ADB significantly stepped up its involvement in the project, and launched a major mission to assess the complaints presented. Subsequent missions took place in April and October 2013, and in March and July 2014.

[12] Tata Power. 2014. *Social Initiatives, Mundra UMPP, Kutch; CGPL, Reflections, Annual Review 2014; Tata Power, A Decade of Sustainability Reporting, Sustainability Report 2012-13; CGPL, Turning The Tide, Molding the Lives of Fishermen on the Coastal Belt of Kutch, Gujarat*. India.

[13] Independent Fact-Finding Team on the Social, Environmental, and Economic Impacts of Tata Mundra Ultra Mega Power Project, Kutch, Gujarat. 2012. *The Real Cost of Power, Report of the fact-finding team, June 2012*. India.

III. PROJECT TIMELINE

Year/ Month	Milestone Events and Documents
2006	
August	Rapid environmental and socio-economic impact assessments
2007	
March	CGPL's MoEF environment clearance issued
April	CGPL corrigendum to environment clearance (dropping reference to closed cooling system)
	Transfer of CGPL shell company to Tata Power
August	Comprehensive environmental impact assessment
	Rapid marine environmental impact assessment
	ADB concept clearance
	Environmental Categorization
October	First ADB visit to project site (27-31 October)
November	Basic social impact assessment
December	Summary environmental impact assessment
2008	
January	Stakeholder engagement framework
February	Compensation management framework
April	ADB Private Sector Credit Committee meeting
	ADB Board Approval
2009	
February	Marine environmental impact assessment
October	ADB project monitoring mission
2010	
March	Coastal biodiversity assessment benchmarking report
	CTZ clearance for new outflow location
2011	
June	Complaint submitted by MASS to the Compliance, Advisor, Ombudsman
November	Stakeholder engagement and benefit-sharing study (also called survey of Tragadi village)
	Needs assessment survey of Modwa village
2012	
March	CGPL Unit 10 commercial operation
July	CGPL Unit 20 commercial operation
August	ADB mission to Mundra to assess concerns raised in the report "The Real Cost of Power"
December	CGPL Unit 30 commercial operation
2013	
January	CGPL Unit 40 commercial operation
February	Compliance Advisor Ombudsman (CAO) audit panel visit to Mundra
March	CGPL Unit 50, commercial operation date
October	Complaint received by the CRP
	ADB Project Monitoring Mission
November-December	CRP eligibility mission to Mundra
2014	
March	ADB project monitoring mission
July	ADB and IFC joint project monitoring mission
September	CRP investigation mission to Mundra

IV. REQUEST FOR COMPLIANCE REVIEW

12. The complaint was filed by (i) Bharat Patel, representing at least 12 individuals who were directly affected by the project;[14] (ii) Gajendrasinh Bhimaji Jadeja, a farmer; and (iii) Harun Salemamad Kara, a fish trader. The three complainants did not ask the CRP to keep their identities confidential. The complaint itemized the harm allegedly done by the project to the affected persons' livelihood, health, and environment, and attributed it to ADB's failure to adhere to its environmental and social policies and procedure. Meanwhile, the fishworkers' association, MASS, had also submitted a complaint to the Compliance Advisor Ombudsman (CAO) in 14 June 2011, and CAO had issued its audit report on 22 August 2013.[15]

V. ELIGIBILITY OF THE REQUEST

13. The request for compliance review of the project (Appendix 1) was forwarded by the complaint receiving officer to the CRP on 17 October 2013. In accordance with the Accountability Mechanism Policy and its operational procedures, the CRP initially assessed the complaint and determined that it was within the scope of the compliance review function. After reviewing the complaint, the CRP determined that none of the exclusions for compliance review applied to the complaint and that the complaint met the requirements for eligibility under paras. 147 and 148 of the Accountability Mechanism Policy.

14. Subsequently, on 25 October 2013, the CRP forwarded the complaint to ADB Management with a copy to the Board Compliance Review Committee (BCRC), and requested that a response to the complaint be submitted to the CRP. The CRP also informed the private sector borrower, CGPL, and the Director representing India in the Board about the receipt of the complaint.

15. In determining the eligibility of the complaint, the CRP considered the views of the Management as contained in its written response to the CRP on 26 November 2013. Likewise, the CRP fielded an eligibility mission from 28 November to 4 December 2013 to meet with the complainants; the borrower (CGPL); officials from relevant local government regulatory bodies; some affected persons; and visit the power plant and its nearby communities.

16. The CRP submitted its report on the eligibility of the case to the Board on 27 December 2013, with prior written notice sent by the CRP to the complainants, CGPL, ADB Board member representing India, ADB Management, and PSOD.

17. Acting on the recommendation of the CRP, the Board authorized the compliance review of the Project on 17 January 2014. Subsequently, the CRP presented its terms of reference for the compliance review to BCRC on 23 January 2014 and after consideration, said document was cleared by BCRC on 30 January 2014.

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[14] B. Patel submitted to the CRP on 20 January 2014 a list of affected persons whom he said he was representing. The letter contained references to MASS and B. Patel's position as general secretary. The president and the vice-president of MASS subsequently informed the CRP that MASS did not wish B. Patel to represent the association in this complaint. Accordingly, on 23 June 2014, the CRP accepted B. Patel as personal representative for the project-affected people for whom he presented authorization on 20 January 2014.

[15] Compliance Advisor Ombudsman (CAO). 2013. *Audit Report: CAO Audit of IFC Investment in Coastal Gujarat Power Limited, India, 22 August*. USA.

VI. SCOPE AND CONDUCT OF THE COMPLIANCE REVIEW

18. In its compliance review, the CRP considered the following ADB policies and operational procedures that were in effect when the project was processed and approved:[16]

(vi) Environment Policy (2002);
(vii) OM Section F1: Environmental Considerations in ADB Operations (issued on 25 September 2006);
(viii) OM Section F2: Involuntary Resettlement (issued on 25 September 2006);
(ix) OM Section L3: Public Communications Policy (issued on 1 September 2005); and
(x) OM Section C3: Incorporation of Social Dimensions into ADB Operations (25 April 2007)

19. The complainants mentioned Loan 2419 as the subject loan in their complaint regarding the Mundra Ultra Mega Power Project. The Management in its response to the complaint disclosed that ADB also funded the project under the IIPFF (India Infrastructure Project Financing Facility) Loan (Loan 0037 approved on 17 November 2009). The eligibility report, the Board's approval of compliance review and the terms of reference approved by the BCRC for this investigation referenced Loan 2419. In the course of its investigations, the CRP found that funding to CGPL was provided under Loan 0037 through an onlending arrangement. The CRP has not examined Loan 0037 with regard to this complaint nor does it make any findings on the same. All grievances set out in the complaint are adequately addressed by an investigation of and findings on Loan 2419.

20. The CRP review consisted of (i) a desk review of documents; (ii) interviews with ADB Management and staff; (iii) meetings with government officials of relevant regulatory agencies; (iv) soliciting expert opinion from relevant local research institutions in India; (iv) meetings with project consultants and with local NGOs; (v) meetings with the complainants, including their authorized representative, and with some affected persons; (iv) visit to the vicinity of the plant, including adjacent communities of migrant fisherfolk (or *bander*[17]) and villages. The CRP also visited the Tata Mundra plant, including its intake and outfall channels and the Adani West Port which it uses in receiving coal for its fuel. Site visits were also undertaken to the Kotdi and Modwa creeks. A list of the persons contacted by the CRP during the compliance review is in Appendix 3. The review team was led by Arntraud Hartmann (part-time CRP member) and had as members Lalanath de Silva (part-time CRP member) and CRP Chair Dingding Tang, who joined the CRP on 10 June 2014. In this compliance review, the CRP was supported by an international environment consultant; two local consultants (a marine environment expert and a fisheries expert); and a document reviewer. The Office of the Compliance Review Panel provided technical, logistic, and administrative support for the compliance review.

VII. ALLEGED HARM

21. Below is an enumeration of alleged harm which complainants argue they have suffered due to ADB's failure to abide by its operational policies and procedures in the design and implementation of the project.

[16] References to ADB operational policies and procedures in succeeding sections of the report are only to those enumerated in this paragraph.

[17] The term *bander* is used locally to identify a port or haven along the seashore where fisherfolk establish temporary or permanent communities for the purpose of carrying on their occupation.

(i) Failure to conduct free, prior, broad, and meaningful consultations with communities, which prevented complainants to adequately exercise the basic right to information and participation;
(ii) Significant and irreversible loss of livelihood of fisherfolk due to:
  a. destruction of creeks and mangroves,
  b. water discharge up to 7ºC above ambient temperature,
  c. deoxygenation of water,
  d. possible death of large number of fish seedlings with pumped water intake, and
  e. chemical pollution of water;
(iii) Highly saline discharge from desalination plant;
(iv) Fishing grounds became highly inaccessible;
(v) Local population was not provided employment;
(vi) Horticulture is negatively impacted;
(vii) Groundwater tables have declined;
(viii) Employment not provided for local population and human stress created due to unemployment;
(ix) Destruction of mangroves; and
(x) Ash contamination and air pollution affecting children's health.

22. For details of the complainants' statements see Appendix 1. The complainants further argue that social and environmental impact assessments are deeply flawed and that no cumulative impact assessments were undertaken.

VIII. FINDINGS

23. Section VIII assesses the complaints raised by the complainants and presents findings on ADB's noncompliance and related harm. Concerns expressed by the complainants are addressed as follows:

A. Failure to adequately disclose information and conduct consultations;
B. Loss of livelihood of fisherfolk;
C. Access restrictions to fishing grounds;
D. Coal dust and fly ash pollution and its impact;
E. Ambient air quality;
F. Ground water impacts;
G. Horticulture impacts; and
H. Labor issues and human stress.

24. In accordance with para. 186 of the Accountability Mechanism Policy, this section focuses on "whether ADB failed to comply with its operational policies and procedures in formulating, processing, or implementing the project in relation to the alleged direct and material harm." The CRP reviews compliance with ADB operational policies and procedures that were applicable at the time the project was prepared and implemented. The CRP assesses whether the alleged direct and material harm exists. If noncompliance is found and the alleged direct and material harm is confirmed, then the CRP assesses whether noncompliance is a cause for the harm. Para. 187 of the Accountability Mechanism Policy recognizes that "the assessment of direct and material harm in the context of a complex reality of a specific project can be difficult" and states that "the CRP will exercise careful judgment on these matters and will be guided by

ADB policies and procedures where relevant." The CRP, in its findings, has made every effort to exercise this careful judgment.

A. Failure to Adequately Disclose Information and Conduct Consultations

25. **Complainants' position.** The complainants argue that failure to conduct free, prior, broad and meaningful consultations with affected communities prevented complainants from adequately exercising their basic right to information and participation.

RELEVANT ADB OPERATIONAL POLICIES AND PROCEDURES

Environment Policy (2002), para. 63: "ADB requires public consultation and access to information in the environment assessment process. For category A and B project, the borrower must consult with groups affected by the proposed project and local NGOs. … For category A projects, the borrower will ensure that consultation will take place at least twice: (i) once during the early stages of EIA field work; and (ii) once when the draft EIA report is available, and prior to loan appraisal by ADB…."

OM Section F1/OP, para. 9: "ADB requires public consultation in the environmental assessment process. For category A and B projects, the borrower must consult with groups affected by the proposed project and with local nongovernment organizations (NGOs). The consultation needs to be carried out as early as possible in the project cycle so that the views of affected groups are taken into account in the design of the project and its environment mitigation measures. …For category A projects, ADB ensures that the borrower or private sector sponsor carries out public consultation at least twice (i) once during the early stages of EIA field work; and (ii) once when the draft EIA report is available, and before loan appraisal by ADB. …."

para. 11: "To facilitate the required consultations with project affected groups and local NGOs, ADB ensures that the borrower or project sponsor provides relevant information on the project's environmental issues in a form and language(s) accessible to those being consulted…."

para. 29: "A major change is one that materially alters or fundamentally affects the project's purpose (immediate objectives), components, costs, benefits, procurement, or other implementation arrangements as approved by the Board. All major changes in scope must be screened for environmental significance, and classified in accordance with paragraphs 6 and 7. All proposed changes that are under category A require an EIA,… In the case of environmentally sensitive changes, the SEIA or SIEE must be posted on ADB's website and submitted to the Board, at least 120 days before the change in scope is approved."

para. 5: "ADB reviews the environmental assessment report to ensure that it meets ADB requirements, and that it provides a sound basis for project processing and implementation. ADB monitors the borrower's implementation of agreed environmental mitigation measures."

para. 35 (iii): "In preparing the environmental assessment reports, ADB requires the borrower to take into account the views of project-affected groups, including NGOs, in accordance with paras. 9-12"

OM Section L3/OP, para. 15: "To facilitate dialogue with affected people and other individuals and organizations, information about a public or private sector project under preparation (including social and environmental issues) shall be made available to affected people. ADB shall work closely with the borrower or project sponsor to ensure information is provided and feedback on the proposed project design is sought, and that a focal point is designated for regular contact with affected people. This should start early in project preparation, so that the views of affected people can be adequately considered in project design, and continue at each stage of project preparation, processing, and implementation. ADB shall ensure that the project's design allows for stakeholder feedback during implementation. ADB shall ensure that relevant information about any major changes to project scope is also shared with affected people."

para. 19: "The borrower or private sector sponsor shall make relevant information on the project's environmental issues available to affected people before or during the consultations with project-affected groups and local nongovernment organizations (NGOs), as required under the environment policy. For category A projects, the borrower or private sector sponsor shall ensure that such information is available to affected people on two occasions: (i) during the early stages of environmental impact assessment field work; and (ii) when the draft environmental impact report is available, and before appraisal."

1. Insufficient Consultations with Relevant Stakeholders

26. ADB environmental policies require that for projects with a significant environmental impact (category A project) at least two consultations need to take place with relevant stakeholders. These consultations are to be conducted early during the preparations of the environmental assessment work and when the draft environmental assessment has been completed. The objective of these consultations is to give stakeholders a voice, allow them to become familiar with the project, and to listen to the affected people so that their concerns – and knowledge of the local situation – can be taken into account in the project design. Paragraph 201 of the Environmental Assessment Guidelines (2003) describe the benefits of public consultations as follows:

> Effective public consultation can add substantial value to the EA [environmental assessment] process. The information gained through public consultation on the stakeholders' concerns, interests, and their ability to influence decision-making helps identify key causes of environmental problems. This can be used to evaluate direct and indirect environmental impacts, and assess short-term and long-term resource implications. The input from local communities and NGOs can help evaluate alternatives and strengthen the EMP [Environmental Management Plan] by incorporating local input and know-how.[18]

27. These guidelines also provide guidance on how to choose the stakeholders for consultation. They state that meaningful public consultations require consultation with people who represent a range of legitimate interests including those (i) who will be directly or indirectly and positively or negatively affected; (ii) who are the most vulnerable; (iii) who might have an interest or feel that they are affected; (iv) who support or oppose the changes that a project will deliver; (v) whose opposition could be detrimental to the success of the project; (vi) whose cooperation, expertise, or influence would be helpful to the success of the project.

28. For the Tata Mundra plant, a public hearing was held on 19 September 2006 in accordance with Indian regulations. Invitations to the public consultations were issued through two local newspapers. By the time the public consultation was held, the Rapid Environmental Impact Assessment had been issued and the Comprehensive Environmental Impact Assessment (CEIA) and the Rapid Marine Environmental Impact Assessment (RMEIA) were in the early phase of preparation. The latter two reports were issued only in August 2007. For ADB, it is the CEIA and the RMEIA which constitute the environmental assessments. The public consultation meeting which took place in September 2006 thus was held in the early stages of preparation work for the CEIA and RMEIA. It satisfies the ADB requirements that at least one public consultation be held early during fieldwork for the environmental assessment.[19]

[18] ADB. 2003. *Environmental Assessment Guidelines, para. 201*. Manila.

[19] It is unclear whether the public consultation meeting satisfied the Indian requirement that a Summary of the Rapid Environmental Assessment be provided in the local language. A Summary in English was made available upon request. In spite of repeated requests the CRP could not obtain a copy of the summary in Gujarati language. As

29. Indian regulations require only one public hearing. But ADB requirements are more demanding. In addition to the early consultation meeting, ADB policies require at least one more meeting, to be held once the draft EIA is available but prior to appraisal. In the project, it is unclear what this second meeting constitutes among the various meetings conducted and referred to in project documents. The Resettlement Planning Document (September 2008) and the Baseline Social Impact Assessment (November 2007) make reference to eight meetings, which were held in Bhuj (five meetings) and in project-affected villages (three meetings).[20] However, these meetings were, with the exception of one meeting held with seven fisherfolk in Kotdi *bander*, only directed towards people who owned or used land on the site, where the plant was to be built. Issues raised and discussed referred only to resettlement related issues such as compensation rates and payments for land, alternative land for cattle grazing, and mitigation measures.[21] Thus, only residents from villages which owned or used land on the project site were invited to those meetings. The Baseline Social Impact Assessment (November 2007) states:

> The process has provided the affected communities a platform to voice their concerns as well as ground for negotiation. ….. In this meeting project details were provided using map showing land to be acquired and used for different purposes. The people raised their concern about the price at which the private land would be acquired. They also raised the issue of grazing land which is very important for people from Tunda Wandh who solely depend on animal husbandry.[22]

30. These narrowly focused consultation meetings, which addressed only people who are subject to the resettlement process, did not constitute a consultation process which "provides voice" to people who are concerned with the many diverse dimensions addressed under the CEIA and RMEIA. The meetings were not consultations which included all relevant stakeholders as outlined in the Environmental Assessment Guidelines (2003). Importantly, it did not provide an opportunity to all people affected by the project, as is required under OM Section F1. The assumption that only those people who used or owned land on the site where the plant was to be built were affected by the project is an exceptionally narrow definition of what constitutes people affected by a project. ADB policies lay out a much broader concept.[23] There is no evidence that the second consultation with project-affected people as required under ADB policy took place. Nor is there evidence that ADB management and staff have advised the CGPL that a second consultation, which included all stakeholders of the project, was needed after the completion of the draft CEIA. Project documents reveal that ADB actively focused the social reviews on the people affected by land acquisition and thus did not appropriately guide CGPL of what population groups should be considered 'people affected by the project'. The ADB staff explained to the CRP that this narrow focus was chosen, as there was great anxiety among

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the meeting was held in the Gujarati language, the CRP is of the opinion that the public consultations meet ADB requirements for the early consultation meeting.

[20] The Resettlement Planning Document (para. 31) and the Report on Baseline Social Impact Assessment (November 2007) state that since 2005 CGPL/PFC officials have met with villagers from time to time to discuss the land acquisition process. No written records are available of those meetings.. The Report of the President to the Board of Directors presents a series of three sets of meetings, first during 2005, then the public hearing in 2006, and subsequently the series of meetings with villages affected by the resettlement process. No records are available of meetings held in 2005. Villages subject to the resettlement process were generically described as "project affected."

[21] See CGPL, Resettlement Planning Document, September 2008, paras. 31 to 36 and the Baseline Social Impact Assessment, November 2007, p. 25, prepared by the Saline Area Vitalisation Enterprise Limited (SAVE).

[22] Saline Area Vitalisation Enterprise Limited (SAVE). 2007. *Report on Baseline Social Impact Assessment*. *November 2007.* p. 25.

[23] OM Section L3/BP (September 2005) para.1 B (i) states: "Affected People means people who may be beneficially or adversely affected by a project assisted by the ADB.

villages which owned and used land on the site where the project was to be constructed. Thus the focus on them had priority. ADB staff competently guided CGPL on how to appropriately handle the resettlement issues related to land acquisition. But by so singularly focusing on resettlement issues, ADB staff seemed to have lost sight of the need to conduct the inclusive consultations expected to be conducted under the environmental policy, the operational procedures and elaborated in the Environmental Assessment Guidelines (2003). Important stakeholders were thus excluded from a second round of consultations, including vulnerable groups, which apparently had less possibility to make their voice heard.

31. Based on project documents reviewed, the CRP came to the conclusion that ADB staff paid only minimal attention to the consultation process. Consultation issues were not discussed or commented on for the preparation of the SEIA. A summary paragraph on consultations was prepared at short notice before the Project Information Document (PID) was to be posted on the ADB website.[24] Although the review shows thoughtful inputs on resettlement and indigenous people issues, written inputs provided on social issues and the consultation process do not show a similar familiarity. It is noteworthy that this lack of concern persisted in spite of a series of automated messages which were sent by the "Disclosure Management System" at regular intervals to remind the task team "…that the public communications policy requires the project sponsor to inform ADB, before appraisal, how it intends to engage with affected people," and, "This is a reminder that the borrower or private sector sponsor must make relevant information on a project's environmental issues available to affected people before and during consultations, when the Draft EIA is available, and before appraisal."

32. The Summary Environmental Impact Assessment (SEIA) states that "further public consultations were conducted in villages as part of the preparation of the comprehensive EIA. More detailed information on the project was disseminated to villagers in villages within a 10 km radius of the project site." (See para. 115 of SEIA). There is no written documentation of any consultation meeting undertaken as part of the preparation of the CEIA. The CEIA does not make note of any consultations. Parties interviewed by the CRP during its mission to India in September 2014 could not recall any such consultations. The CRP did not find any basis for the statements presented in the SEIA.

33. There is also no evidence that adequate information has been made available to project-affected people as required by paras. 15 and 19 of OM Section L3/OP. The SEIA has been posted on the ADB website within the required 120 days prior to Board approval. Paragraph 15 of OM Section L3/OP states: "ADB shall work closely with the borrower or project sponsor to ensure information is provided and feedback on the proposed project design is sought,…" There is no evidence that any findings of the CEIA and RMEIA have been shared with the project-affected people and their views sought on the proposed design. There is no evidence that consultations took place with people prior to finalization of the CEIA and RMEIA. The only interactive process that took place between communities and CGPL prior to project appraisal was with communities who had lost land or land use rights on the plant site[25]. There is no evidence that ADB has advised and supported CGPL in the design and implementation of a

[24] A Public Information Document needed to be prepared to be posted together with the SEIA which required a statement on consultations planned or carried out. The statement posted makes references to the public hearing held on 19 September 2006. It states that "…The meeting discussed the Project, its potential environmental and social impacts, land acquisition, mitigation measures, and monitoring programs. All other concerns raised were clarified and recorded in minutes. Further public consultations were conducted in villages as part of the preparation of the comprehensive EIA, land acquisition process and the Social Impact Assessment that forms the basis for the livelihood restoration program."

[25] One meeting was held with seven people engaged in fishing at Kotdi *bander* in November 2007.

public disclosure and information process, which allows for a feedback mechanism. By the time drafts for the CEIA, RMEIA and the Baseline Social Impact Assessments were completed (all in 2007), ADB was already involved in the project. With more engagement, ADB could have played an effective advisory role to CGPL to make the project compliant with ADB policies. Given the strong community engagement and commitment of the Tata Power Company, it is very likely that CGPL would have responded positively to such guidance.[26] It is thus particularly regrettable, that this guidance has not been provided by ADB staff.

34. The CRP disagrees with the following statement of the Report and Recommendation of the President to the Board of Directors: "Public stakeholder consultations were held and views expressed by the project-affected people are incorporated in the final EIA."[27] Views of relevant project-affected people have not been sought on the final EIA. Contrary to ADB policies, only one stakeholder consultation has been held, and the findings of the draft RMEIA and draft CEIA have not been discussed with the project-affected people. They have not received information on the draft CEIA and RMEIA and views have only been sought on a limited set of issues with a subset of stakeholders and project-affected people.

35. Further to the consultation failures described above, an additional round of consultations was needed in 2009 after the second marine impact assessment (2009) had been completed. The first marine environmental impact assessment (RMEIA 2007) was based on a different location of the outfall channel. The second marine environmental impact assessment reviewed the marine impacts with regard to a new location of the outfall channel. There is no evidence that ADB Management and staff have advised the CGPL that supplemental consultations were needed, including in particular those people who were affected by the changed location of the outfall channel.

2. Fisherfolk Not Considered as Project-Affected People and Not Adequately Consulted

36. The single most important concern in this compliance review is the fact that fisherfolk, other than the few people fishing at Kotdi *bander*, were not considered as project-affected people or stakeholders until late during project implementation. As a result, fisherfolk were not adequately consulted when the environmental assessments were prepared, potential impacts on fisherfolk have not been identified, and no baseline and monitoring data has been collected. As potential impacts have not been identified, mitigation measures were not considered. As neither the findings of the RMEIA (2007) nor the MEIA (2009) were shared with fisherfolk, these people did not have an opportunity to provide their views on these findings, which could have influenced the design of the project.

37. Fisherfolk were included in the public hearing that took place on 19 September 2006. However, with the exception of one meeting with 7 people at Kotdi *bander,* no further meetings were organized with fisherfolk until 2009. Meetings held in 2007 were only directed toward so-called "project-affected communities." These communities used land on the site where the plant was constructed. They did not include any families which earned their income from fishing. In the Baseline Social Impact Assessment (2007), project-affected people were restricted to residents of "project-affected villages." The Baseline Social Impact Assessment states: "**Project Affected Villages (PAV):** These include the villages Tunda, Tunda-Wand, Mota Kandagra and

[26] CGPL also has responded very proactively since 2010 when it became apparent that at least some fisher communities have been impacted by the project.

[27] ADB. 2008. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to the India Mundra Ultra Mega Power Project*, para. 55. Manila.

Nana Bhadiya from whose jurisdiction land has been acquired for the Project."[28] (emphasis added)

38. ADB staff argues that fisher communities have been considered as project affected people, as fishing communities have been listed in the definitions of the Report on the Baseline Social Impact Assessment under the category "project affected community resource users".[29] But the study does not review fishing communities. No mention of fishing communities has been made except for a listing of the records of one meeting held with seven fisherfolk at Kotdi *bander* in the attachment. The study is exclusively focused on the so-called project affected villages, and these villages do not have households which depend on fishing. In none of the studies carried out as part of the environmental assessment process, the social and economic situation of fisherfolk was reviewed and potential project impacts assessed. Such assessments only took place in 2011 for two fishing villages and in 2013 for the *bander* located in front of the Tata Mundra plant. The CRP is of the view that simply listing fishing communities in a set of definitions does not constitute an adequate consideration of fisherfolk as project affected people. Fisher people were also not identified as stakeholders. They were not listed in the stakeholder analysis undertaken as part of the Report on Baseline Social Impact Assessment (2007).

39. ADB staff further argues that fisherfolk were not considered project affected people as the 2007 marine environmental impact assessment concluded that there was no impact on the marine environment resulting from the project. Therefore, the fisherfolk were considered project affected people only in respect to access restrictions. The CRP disagrees with this position on two accounts: (i) ADB policies require stakeholder consultations **prior** to the completion of the environmental assessment. Here, the conclusion of the environmental assessment is used to explain why stakeholders are not affected and thus excluded from consultations. Stakeholders are expected to be consulted prior to the completion of the environmental assessment in order to be able to influence the conclusions; (ii) the 2007 marine impact assessment did not assess impacts on the fishing communities. The study narrowly focused on marine impacts. They stated that the discharge of water at 4°C-5°C above ambient water temperature is not significant as the intertidal area experiences such temperatures and salinities even in the normal course of nature. The study also pointed to the fact that the "increase in water temperature may not be lethal to the organisms but proliferation of resistive organisms may change the community structure of the localized zone." This means that even minor changes can lead to significant impacts in localized areas. It is not clear to the CRP why based on the 2007 marine environmental impact assessment ADB staff took the decision that the only possible impact on fisherfolk were access restrictions.

40. The CRP finds it difficult to understand why fisherfolk were not considered as potentially project-affected people and why adequate consultations with fisherfolk were not conducted. The number of households engaged in fishing was significant. In 2007, when ADB became engaged in the project, a sizable fishing community estimated at, at least 380 households (about 2,400 people) lived in the vicinity of the plant site.[30] Table 2 provides the breakdown for these

[28] Saline Area Vitalisation Enterprise Limited (SAVE). 2007. *Report on Baseline Social Impact Assessment*, page 7. India.

[29] Footnote 29, page 7. The Report on the Baseline Social Impact Assessment defines Project Affected Community Resource Users as "persons and/or households whose livelihood is impacted because of loss of access to community resources that has been acquired under the land acquisition or may be impacted due to project operations (e.g. herding communities, pottery makers, charcoal makers, fishing communities etc.).

[30] Not all of these households fish at the coastal site in front of the plant. There are different sites which fisherfolk can use. As fisherfolk have not been consulted early on in the project, as no baseline data has been established and no

numbers. They are based on micro surveys conducted on behalf of CGPL, in the respective villages between 2007 and 2013. The actual number of households is larger, as estimates do not include data for Kotdi *bander* for which no survey data is available. Moreover, Table 2 shows the most conservative estimates for households at Tragadi *bander*, where complaints argue that the number of households residing at the *bander* was significantly larger.

Table 2: Households and People Engaged in Fishing (2006–2010)

Village/*Bander*	Total Number of Households	Households Dependent on Fishing	Population dependent on Fishing
Tragadi Village	162[a]	151[a]	755a
Modwa Village	189	179[b]	1214b
Tragadi *bander*[c]	30 (2008/09)[d]	30 (2008/09)[d]	330
Navinal		20	100 (estimated)
Total		**380**	**2399**

[a]Number of household estimate stem from a survey undertaken in 2011. As the village population is stable and little in and out migration takes place, it is assumed that the 2011 number represents the 2007 situation; CGPL, Stakeholder Engagement and Benefit Sharing, 2011, pages vii, 15 The table does not include numbers for Kotdi *bander* as no survey data on the size of the bander is available.

[b]Number of household estimate is taken from a survey carried out in 2011. As the village population is stable and little in and out migration takes place, it is assumed that the 2011 number represents the 2007 situation. Report Situation Analysis and Participatory Needs Assessment of Modhva village, Mandvi block, Kuth district, submitted to Tata Power Limited Gujarat, TRIO, 2011. The survey does not provide data on households involved in fishing, but states that fishing is the only key income generating activity in the village and everyone in a family is involved in fishing (page 8)

[c]The term *bander* is used locally to identify a port or haven along the seashore where fisherfolk establish temporary or permanent communities for the purpose of carrying on their occupation.

[d]The assumption of 30 households is based on the survey data presented in Notes based on observations made by Aakar during its engagement with the fisher community at Tragadi *bander*, page 11. The average household

Sources: CGPL, Stakeholder Engagement Framework and Benefit Sharing 2011, Interactive Karma India Srinikeatan 731236 page, 39; Rapid Socio Economic Assessment Ultra Mega Power Plant, October 2007; of CGPL project on habitation, life, and livelihoods of fisherfolk at Tragadi *bander*, Report 2, 2014, Notes based on observations made by Aakar during its engagement with fisherfolk community at Tragadi; Report Situation Analysis and Participatory Needs Assessment of Modhva village, Mandvi block, Kutch district, submitted to Tata Power Limited Gujarat, TRIOs, November 2011

41. Fisherfolk live in villages and at Tragadi *bander*. The *bander* is located only 1.5 km away from the Tata Mundra plant. Families at the *bander* reside there for 8-9 months out of each year. During the monsoon period, most families return to their home villages. Many of these home villages are 30-40 km away. The *bander* is a temporary settlement as people are registered as permanent residents in their home villages. But Tragadi *bander* is not a temporary phenomenon. Many families have been coming to this *bander* for more than 15 years. A survey undertaken in 2013 identified 21 families which returned every year for the last 15-20 years, 18 families for 10–15 years, and 25 families for 5–10 years.[31] Families interviewed by the CRP indicated that some families have been coming to the *bander* since generations. Additionally, a few families reside there throughout the year. Households are large, on average 10–12 people, and people live in deep poverty. Fishing is done by men, who use boats and typically fish up to

monitoring took place, it is not possible to estimate how many of the estimated 960 households actually fished at the time of project preparation on the coastal site in front of the plant.

[31] Notes based on observations made by Aakar during its engagement with the fisherfolk community at Tragadi, Report 2, page 10.

7 km away from the shore. Women separate, clean and dry the fish and traders come regularly to the *bander* to purchase fish. Estimates on how large the *bander* was in 2007 vary between 25 households and 80 households. A survey undertaken in 2013 specifies the *bander* population at 30 households in 2008.[32] This report makes the conservative assumption that 30 households resided in 2007 at Tragadi *bander*.

42. In addition to the families at Tragadi *bander*, there were about 151 households engaged in fishing at Tragadi village;[33] 20 households at Navinal village;[34] and 179 households in Modwa village.[35] Additional villages might have had families engaged in fishing, but no records on these villages were available to the CRP. It must be noted, however, that not all of these people fished in the coastal waters in front of the plant. A large number of them might well have been fishing at different locations. As no baseline data on the fishing community has been collected, the number of people fishing primarily in the coastal waters in front of the Tata Mundra plant is unknown.

Figure 2: Women at Tragadi *bander* sorting fish

[32] Notes based on observations made by Aakar during its engagement with the fisherfolk community at Tragadi, Report 2, page 11; and Fishmarc and Kutch Nav Nirman Abhiyan (with support from the Foundation for Ecological Security). 2010. Kutch Coast: People, Environment & Livelihoods. Draft report for discussion at a workshop in Kutch on 7–8 January 2010, page 47, which lists 35 families living at Tragadi *bander*.

[33] Coastal Gujarat Power Limited. 2011. *Stakeholder Engagement and Benefit Sharing*. *Interactive Karma India Sriniketan 731236*. The data were collected in 2011 and thus might not reflect the situation of 2007, but as people met by the CRP in Tragadi village stated that the population was very stable, 2011 data can be considered representative of the 2007 situation.

[34] Saline Area Vitalisation Enterprise Limited (SAVE). *Report on Rapid Socio-Economic Assessment Ultra Mega Power Project, submitted to Coastal Gujarat Power Limited, October 2007*, page 25.

[35] Coastal Gujarat Power Limited. 2011. *Stakeholder Engagement and Benefit Sharing*. *Interactive Karma India Sriniketan 731236, page 39.* The data were collected in 2011 and thus might not reflect the situation of 2007, but as there are virtually no in movements of families and no new entrants into fishing, the number presents a lower estimate.

43. Fisherfolk had not been quiet with their concerns about the potential impact of the Tata Mundra plant. They spoke out clearly during the public hearing of 19 September 2006. The minutes of the meeting record: [36]

> Shri Anwar Ibrahimbhai from village Tunda-Wand stated that about 70 families are living in this area which are doing fishing activity and due to chemical discharge from this power plant into the sea would affect the fishing activity also this power plant would enclose an existing road. Company officials replied that there is no chemical discharge from the proposed power plant and the discharge into the se would be done at about 32^{O}C temperature.
>
> Shri Suleman Ismailbhai from Luni village stated that this project would affect 10,000 Fishermen due to high temperature wastewater would be discharged into sea. Company officials denied that their proposed project would affect fishing activity at discharge into sea would be done at 32 degree^{O}C Temperature.[37]

44. The presence of fisher families has been recognized in the Socio-Economic Assessment Study Report (2006). The treatment of fisherfolk is not prominent, but statistics presented in the report, point to fishing households at Gundiyali and Tragadi villages.[38] Moreover, the report includes a photo showing fisherfolk. The report states*:*

> Disposal of treated effluent from desalination plant and cooling system will not have any impact on local ecology and marine life, if disposed to deep sea through a properly designed out fall structures. Therefore, the livelihood of fishermen will not be affected. It would be advisable to provide loan facilities to needy the fishermen for buying better mechanized boats so that the fishermen can go deeper in the sea for fishing.[39]

45. It is somewhat puzzling that the Socio-Economic Assessment Study makes a judgment whether fisherfolk will be affected by the desalination and the cooling system, as this was not the subject of this study. But the statement indicates that the presence of fisherfolk only 1.5 km away from the plant site has been known and that reflections on how to support them were presented.[40]

46. The presence of fisherfolk who practice traditional fishing has also been noted in the RMEIA. The report states that there are no commercial fishing operations in Kotdi Creek except shore based local fishing.[41] The RMEIA further refers to some limited fishing in traditional boats. Internal ADB commenters in the preparation phase of the SEIA also pointed to the likelihood that the outfall channel might impact on people fishing in the area.

47. It is thus puzzling that the SEIA states: "Despite the fishing potential of the gulf, **there are no local fishing activities in the coastal waters fronting the project area**. This could be because most villagers are vegetarians and the presence of a vast intertidal mudflat. The

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[36] Gujarat Pollution Control Board. 2006. *Letter dated 2 November 2006. with Minutes of the Environmental Public Hearing of M/S Coastal Gujarat Power LTD*. India.

[37] The statement by the CGPL representative, that water would be discharged at 32ºC temperature was made before the outflow channel design had been completed and before the RMEIA had been conducted. The RMEIA had as its task to examine the very impacts of the plant and especially the thermal discharge on the marine environment. Actual water discharged is above 32 ^{o}C.

[38] TCE Consulting Engineers. 2006. *Socio-Economic Assessment Study Report.* India. Table. No.11, page 28. India.

[39] Footnote 40. page 41.

[40] Navinal village has also been shown as village with 20 households depending on fishing in the *Rapid Socio-Economic Assessment*, Ultra Mega Power Project by Saline Area Vitalisation Enterprise Limited (SAVE), October 2007, page 25.

[41] National Institute of Oceanography, 2007, *Rapid Marine Environmental Impact Assessment,* page 100

nearest small fishing community is located outside the project areas at about 2.8 km from Modwa creek, where the spent cooling water will be discharged."[42] (emphasis added) The same statement can be found in the Resettlement Planning Document (para. 18): "Although the fishing potential of the Gulf of Kutch is significant, **there are no local fishing activities in the coastal waters directly fronting the project area which has vast intertidal mudflats**, The nearest small fishing community is at Kotdi Creek bank located outside the project area …" (emphasis added). The CRP does not agree with the statement that no fishing takes place in the coastal waters fronting the project area. ADB staff explained to the CRP that this statement was made, as the RMEIA states that there is no large scale commercial fishing in the shallow waters in front of the plant. But ADB policies and procedures are not only directed towards large scale operators. It is the poor and vulnerable who in particular need to be consulted and for whom negative project impacts can seriously affect their livelihood and fisherfolk who fish in front of the Tata Mundra plant are mostly poor.

48. By 2009, CGPL started contacting the Tragadi and Modwa villages when the two communities realized that some of their fishing sites became inaccessible due to the construction of the outfall channel. One earlier consultation took place with Kotdi *bander* people to discuss the location and access to fishing sites which would be impacted by the construction of the intake channel. By 2010, CGPL engaged in systematic consultations with the Modwa and Tragadi villages. A stakeholder Engagement Plan was adopted for Tragadi village. Since then, a regular and intensive participatory process has been established which is considered highly satisfactory by village representatives. CGPL also launched and supports a number of social services and livelihood support programs for the two villages. People interviewed by the CRP at Tragadi village expressed appreciation for the support received. ADB mission report shows that from August 2012, ADB visited the two villages and showed a strong interest in the consultative process.

49. Contacts with Tragadi *bander* people were only established in 2011 and consultations were not systematically conducted. CGPL is of the opinion, that people living in Tragadi *bander* are not affected by the project as the *bander* people fish by boat, at some distance away from the shore. CGPL argues that the thermal discharge of the outfall channel would not impact fishing which takes place 3 km to 5 km out to sea.[43] CGPL thus felt that a systematic consultation process, comparable to the one undertaken in Modwa and Tragadi villages, was not required. Moreover, CGPL found it difficult to enter into consultations with Tragadi *bander*. As the *bander* is not an official permanent settlement, no village representative (*Sarpanch*) exists. CGPL also argues that after a fruitful beginning in 2011, a section of MASS leadership "began influencing the process and chose to approach the Compliance Advisor Ombudsman (CAO)*."*[44] CGPL started to support a number of CSR activities for Tragadi *bander*, such as provision of drinking water, mobile sanitation facilities and periodic services provided through mobile health units.[45] But these CSR activities, while most welcome, cannot be taken as a substitute for systematic consultations and assessments of potential impacts. Collection of any

[42] CGPL. 2007. *Summary Environmental Impact Assessment*, para. 48. India.
[43] ADB agrees with that position. An internal ADB document reporting on the 23-27 October 2014 mission states: *"A rise in the number of families of migratory fisherfolk is observed at Tragadi bander. These fisherfolk fish in deep sea at a distance of about 8 to 25 km from the Tragadi bander. The fish catch for these fisherfolk is not likely to be impacted due to the project…"*
[44] Tata Power: CGPL Mundra, Mundra UMPP: Myths versus Realities.
[45] CGPL, Tata Power, Mundra Ultra Mega Power Project, Towards a cleaner and greener future.

baseline data for Tragadi *bander* began only in 2013,[46] significantly later than the surveys carried out in 2011 for Tragadi and Modwa villages.[47]

50. The CRP finds that ADB did not do its due diligence when failing to recognize that fishing took place at the coastal waters in front of the plant and that fisherfolk could be affected by the project. The statement in the SEIA that there is no fishing in the area demonstrates a lack of attention to the analysis provided in the Socio-Economic Assessment Report (2006). Moreover, comments in project files before the issuance of the SEIA pointed to the need to reflect on the impact on the livelihood of fisherfolk.[48] In 2007, ADB staff did travel to Modwa village but the presence of Tragadi *bander* was not noted. The plant is located so near to the coastal site that it invites questions, why in this particular area there should be no fishing. A more careful reading of the environmental and socioeconomic reports and more active reflections of reviewers' comments might have led to a more nuanced view about the presence of fisherfolk in the vicinity of the plant and potential impacts on them by the plant. The exclusion of Tragadi *bander* from consultation processes is particularly serious, as people fishing in this *bander* live in deep poverty and are particularly vulnerable. The Environmental Assessment Guidelines (2003) call for an inclusion of the most vulnerable groups in stakeholder consultations. In this case, these most vulnerable groups were excluded from the decision-making process.

51. **Findings.** ADB failed to exercise due diligence by not advising CGPL that at least two broad based consultations were needed. ADB did not advise CGPL about the need to share information on the environmental assessments with project-affected people so that they could provide input into the project design process. ADB did not appropriately guide CGPL on the design and target groups of stakeholder consultations to be conducted under the environmental policy and ADB did not guide CGPL on what constitutes "people affected by the project". ADB did not advise CGPL that the findings of the draft MEIA needed to be shared with people affected by the relocation of the outfall channel and that consultations needed to be held. ADB in its safeguard reviews almost singularly focused on the applicable resettlement and indigenous people's policies and did not fully implement environmental, social and public disclosure safeguards and policies. The CRP was not provided with a satisfactory reason why the ADB failed to identify fisherfolk as a potentially project-affected group. The CRP is of the opinion that with more onsite engagement and thorough review of the marine environmental assessment, ADB staff should have recognized that the coastal site in front of the plant was an area where fishing took place and that these fishing people could be potentially impacted by the project. The CRP is of the view that insufficient consultations and failure to identify fisherfolk as project-affected people, led to direct and material harm. The CRP disagrees with the statement in the SEIA, that extensive public consultations have been carried out consistent with national and ADB policies.[49] The CRP finds that ADB staff was noncompliant with OM Section L3/BP, OM Section F1/OP and para. 63 of the Environment Policy (2002).

[46] CGPL. Impact of CGPL project on habitation, life, and livelihoods of fisherfolk at Tragadi *bander*.
[47] Coastal Gujarat Power Limited. 2011. *Stakeholder Engagement and Benefit Sharing*; Interactive Karma India; and *Situation Analysis and Participatory Needs Assessment of Modwa village, Mandvi block, Kutch district*, submitted to Tata Power Limited Gujarat, November 2011.
[48] Comments on fishing aspects were also made in a note on "Information Required for Social Safeguards Due Diligence Report", dated 3 December 2007. They point to the existence of a quite extensive fishing community, highlight the access restrictions of fisher as a result of the plant site closure and asks for the mitigation measures.
[49] CGPL. 2007. *Summary Environmental Impact Assessment*, para. 122. India.

B. Loss of Livelihood of Fisherfolk

52. **Complainants' position**. The complainants argue that there is significant and irreversible loss of livelihoods of fisherfolk. They state that "the loss destruction of mangroves and creeks resulted in drastic reduction in fish availability in the region, pushing the fishing communities to extreme social and economic difficulties." The following possible causes for the reduction of fish catch are listed:

(i) destruction of creeks and mangroves in the Kotdi and Modwa creeks;
(ii) thermal pollution from the power plant from the water discharged from the outfall channel;
(iii) deoxygenation of warm water;
(iv) possible death of large numbers of fish seedling with the pumped intake water;
(v) possible chemical pollution of the discharge water; and
(vi) highly saline brine, discharged from the desalination plant.

1. Thermal Pollution from Water Discharged from the Outfall Channel

53. **Complainants' position.** Complainants allege that thermal pollution from the power plant – the warm water coming out of the outfall channel – is a major cause for the decline in fish catch.

RELEVANT ADB OPERATIONAL POLICIES AND PROCEDURES

Environment Policy (2002) para.62: "In determining appropriate environmental standards for ADB projects, ADB will follow the standards and approaches laid out in the World Bank's *Pollution Prevention and Abatement Handbook*. However,…, the environmental assessment for any individual project may recommend adoption of alternative emission levels and approaches to pollution prevention and abatement. This flexibility is required to best reflect national legislation and local conditions in determining the appropriate standards and emission levels. In all such cases, the environment assessment report will provide justification for the levels and approaches chosen for the particular project or site."

OM Section F1/OP, para. 4: "…Important considerations in undertaking environmental assessments include examining alternatives; identifying potential environmental impacts, including indirect and cumulative impacts, and assessing their significance; achieving environmental standards; designing least-cost mitigation measures; developing appropriate environmental management plans and monitoring requirements; …. and appropriate reporting of results."

para. 5: "…ADB reviews the environmental assessment report to ensure that it meets ADB requirements, and that it provides a sound basis for project processing and implementation. ADB monitors the borrower's implementation of agreed environmental mitigation measures…."

PPAH section entitled "Liquid Effluents" on "Thermal Power: Guidelines for New Plants (p. 419): "The effluent levels presented in Table 1 (for the applicable parameters) should be achieved daily without dilution." Table 1 sets the temperature for increase of temperature for the effluent to no more than 3°C.

54. Sea water is brought along an intake channel to the plant and primarily used to cool it. The water is then discharged back to the sea through an outfall channel. The outfall channel has been designed so that the temperature of discharged water will not exceed 7°C above ambient water temperature at the discharge weir. As the discharge water goes over the weir, it mixes with the ambient air resulting in a further drop of its temperature before entering the

marine environment. During high tide, the tidal level reaches close to the toe of the discharge weir. During this condition, the discharge water starts mixing with the marine environment just downstream of the discharge weir. During low tide, mixing with the marine environment starts further downstream. Impacts on the marine environment therefore differ whether there is high tide or low tide, as the mixing zone will vary significantly, according to the tide. A study of the modeling results by HR Wallington (September 2009) leads to the following conclusions:

- During high tide, the thermal plume is more concentrated close to the shore around the toe of the discharge weir. During low tide, the hot water in the outfall channel is carried further offshore towards the open sea of Gulf of Kutch.
- The distance required for the excess temperature to reduce to 3°C and 0.25°C (while discharging at 7°C in excess to the ambient) is about 3 km and 5 km from the discharge weir.

55. The dominant tidal current near the outfall channel is in the east-west direction. The modeling also identifies three critical conditions based on the east-west tidal flow and outward flow (south-west) through the outfall channel:

- During peak flood, tidal forcing induces significant flow in the easterly direction in the coastal water body adjacent to Tragadi *bander* (i.e. from the outfall channel toward the intake channel).
- During weak tidal velocity, the outward flow from the outfall channel is most dominant and creates flow in the south-west direction. This deflects the thermal plume towards the open sea of the Gulf of Kutch and Modwa shoreline under this condition.

Figure 3: Outfall channel taking water from the plant to the sea

56. CGPL has put in place continuous measurement and recording of temperature in the outfall channel at a location which is 3,650 m upstream of the discharge weir. Data provided by CGPL shows that the temperature difference between the measurement at this location and the intake to the condenser remained below 7°C. The average temperature difference was 5.2°C, the maximum reached was 6.5°C. The temperature would drop further by the time the water reaches the discharge weir, as heat radiation will take place over a distance of 3,650 m. However, there is no continuous recording of water temperature in the outfall channel just before the discharge weir which would indicate the magnitude of the temperature drop. Manual measurements are taken periodically near the intake and the discharge weir of the outfall channel. Data provided by CGPL to the CRP shows that the water temperature above the ambient level at the discharge weir varies between 4°C and 5°C. One can thus assume that CGPL complies with the requirements stipulated by MoEF but not with the requirements of the PPAH water temperature standard of 3°C to be achieved at the mixing zone.

57. A Model Conformity has been conducted in December 2013 and issued in September 2014.[50] This study has not been made available to the CRP during its investigations. The study has been referred to in the comments to the draft report by management. Under normal circumstances, documents submitted or referred to after the completion of the draft report cannot be considered. The CRP has decided to make an exemption and has reviewed the documents of the Model Conformity Study even after the completion of the draft report. CGPL and Management argue that this study shows that near ambient conditions were being attained at a distance of 500 m from the mouth of the channel. The CRP disagrees with this statement as it draws a general conclusion from one particular measurement. The model does not show that ambient temperatures are reached uniformly within a 500 m distance from the mouth of the channel. The spread of excess temperature is neither uniform with respect to direction away from the mouth of the channel nor invariant in respect to time. The spread of excess temperature depends on the tidal, wind and wave conditions. In fact, the extensive model predictions by HR Wallingford (2009)[51] for various scenarios have indicated that the excess temperature is spread more in the east (towards the intake), west (towards the small creek which drains out during low tide), and southwest towards the Modha shoreline. NIO data furthermore shows temperature of 28°C and 27°C nearly 4 or 5 km away from the channel mouth along the Modwa shoreline.[52] These values are higher than an assumed ambient temperature of 26°C. Moreover, for the interpretation of the area to be affected by the excess temperature, one must look at the area originating from where the mixing starts (right at the toe of the discharge weir in high tide conditions) and not from the mouth of the discharge channel. The mouth of the discharge channel is at a distance of approximately 3000 m from the initial mixing zone just downstream the discharge weir. Unfortunately, the model does not assess the spread of the thermal plume across the outfall channel in the east-west direction, which is where Tragadi bander is located. Based on the monitoring result of the Model Conformity Study, one can conclude that the part of the Tragadi bay area that experiences excess temperature is not insignificant. In addition, there is – under certain conditions – spread of excess temperature in a significant distance along the Modwha shore line. The model does show that the area 5 km to 8 km into the sea where boat fisher people from Tragadi *bander* fish, are free from excess temperature.

[50] National Institute of Oceanography, Model Conformity Study and Monitoring for Condenser Cooling Water Discharge from CGPL in the Coastal Waters of Mundra, sponsored by CGPL, September 2014

[51] HR Wallingford, Coastal Gujarat Power Ltd UMPP, Mundra Hydraulic design and modeling studies, Report EX 6138, September 2009

[52] See footnote 56 Fig. 4.2.14 page 209/228

58. Based on the documents reviewed, there is no evidence that ADB staff had discussed with CGPL the PPAH requirement in 2007 or 2008 before the outfall channel was built. Neither the environmental assessments (CEIA and SEIA) nor the two marine environmental impact assessments (RMEIA and MEIA) mention PPAH standards. The fact that this standard requires the discharge water to remain below 3°C above the ambient water temperature after mixing with the sea has not been discussed. One can argue that the CEIA and RMEIA had been completed before ADB showed an active engagement in the project.[53] But the SEIA was posted on the ADB website only on 4 December 2007 and project records indicate that it was drafted with a very strong direct involvement of ADB. In spite of this ADB involvement, the SEIA does not mention the PPAH standard.[54] The SEIA in its Table 12 only presents the Indian standards.[55] The MEIA, which was conducted in 2009, also does not mention the PPAH standard. In the CRP's view, the PPAH standard needed to be mentioned.

Figure 4: Warm water from the outflow discharging over the weir to the marine environment

59. If ADB was of the opinion that PPAH standards should not be applied, then para. 62 of the Environmental Policy (2002) provides for the flexibility to apply a different standard, provided that a justification is given. As none of the documents take note of the fact that the PPAH requires a different standard, none of the documents provide a justification for deviation from PPAH standards.

60. Nevertheless, the CRP examined whether a justification could have been made that the discharge temperature from the outfall channel can be higher than the 3°C PPAH standard. Was the lack of justification for a deviation from the PPAH standard simply an administrative oversight and are there reasons which would justify non-application of the PPAH temperature standard? One could argue that a different standard prescribed in the PPAH can be adopted, if no negative impacts on the marine environment are to be expected. The marine impact assessments (RMEIA and MEIA) argue that there will be an impact on the marine environment

[53] The CEIA and RMEIA were issued in August 2007. First project correspondence available to the CRP is July 2007.
[54] Project documents reviewed show that reviewers of the SEIA point to the fact that the SEIA only presents Indian standards but not the ADB standards and that the PPAH standards are more stringent. But the SEIA peer review meeting did not address this written comment.
[55] CGPL. 2007. *Summary Environmental Impact Assessment,* p. 22, Table 12. India.

during construction of the outfall channel, albeit this impact would be temporary.[56] The RMEIA and MEIA state that once the plant becomes operational, the discharge of water from the outfall channel at up to 7°C above ambient water temperature would not have significant impacts on the marine environment as the intertidal zones already experienced variations in temperatures and salinity:

> The temperature in a limited area comprising the discharge channel and its immediate vicinity will however have temperatures of 4-5°C above ambient. This increase may not be lethal to the organisms but proliferation of resistive organisms may change the community structure of the biota. The intertidal area however experiences such temperatures and salinities even in the normal course.[57]

61. These statements require careful evaluations. The CRP is of the view that the RMEIA and MEIA reports present a somewhat incomplete picture. The reports do not include a trend analysis. Field investigations were conducted only during one season, the post-monsoon season. For other seasons data were taken from a report conducted for the Adani plant. Yearly trends for ecological parameters are given for some locations, but they exclude the most important project influenced creek, the Modwa creek. Fish landing data from the Office of the Fisheries Commissioner, Gujarat (Jamnagar and Kutch Districts) was used for assessing fishery potential and no site specific data was included. Ecological data specific to the most sensitive creeks is missing, especially the Modwa and Kotdi creeks. No actual data on fish catch in the fishing villages closest to the project was included in the report. Experimental fishing undertaken in the Gulf segments does not specify the methodology used and the protocol followed. The data thus cannot be used with confidence to draw conclusions on the impacts of the project on fish resources.

62. Moreover, the report reveals that fish eggs and larvae were fairly common among zooplankton, albeit small in number. It also shows that the relative occurrence of the fish larvae was more than fish eggs. There was a significantly greater density of fish eggs and larvae in the creeks than in the Gulf. But the outfall channel was expected to alter creeks, which housed more fish eggs and larvae. No impacts from the alterations to the creek were assessed on fish resources in terms of negative effects on fish eggs/larvae. Moreover, zooplankton samples were collected with one mesh size only and at one towing speed. Considering the biases with mesh size and towing speed for zooplankton sampling, estimation of fish/shellfish eggs/larvae based on a zooplankton sample which is collected only with one single mesh size and towed with a single speed, may not provide reliable results. More careful sampling efforts with regard to fish eggs/larvae should have been undertaken as the project is located in the near vicinity of fishing grounds.

63. Documents reviewed do not show any written comments by ADB staff on the RMEIA.[58] ADB staff and consultants reviewed the CEIA and reviewers involved in the review process for the SEIA asked for a copy of the RMEIA but ADB staff only seemed to have obtained a copy of the RMEIA in late October 2007.[59] ADB management states that the RMEA has been reviewed

[56] NIO. 2009. *Marine Environmental Impact Assessment*, pp. 86 and 87. India.

[57] Footnote 55, p. 87; Almost the same statements are made in the RMEIA on pp. 88 and 89.

[58] In the review of project documents, the CRP noted that by October 2007, ADB still had not received the RMEIA. Internal reviewers suggested to obtain a copy of the RMEIA as it would be needed for the preparation of the SEIA.

[59] Comments presented by the International Finance Corporation (IFC) and ADB note the importance of a review of the RMEIA. They state: "The CEIA did not investigate the thermal impact of the cooling water discharge on the marine environment. The EIA also did not assess the physical and ecological impacts of the once-through cooling system on the two creeks that will be dredged and expanded to use as the inlet and discharge channel."[59] "The marine EIA is separately carried out. We need the report to enable us to see the whole picture. I presume the MEIA

by an environmental consultant, but internal documents provide no evidence that any ADB staff or consultant qualified in marine science had been asked to look at the RMEIA. It is unusual that a careful review of such an important environmental document would not have resulted in written comments by the reviewer. Paragraph 5 of OM Section F1/OP requires ADB to review the environmental assessment report to ensure that it meets ADB requirements, and that it provides a sound basis for project processing and implementation. As the marine environmental impact assessment was a part of the environmental assessment, it did require ADB review. A careful review was particularly called for as the project proceeded with more relaxed standards than the ones required by PPAH standards. A justification for a deviation from the prescribed standards could have only been based on a careful assessment of the findings of the RMEIA. Based on evidence available, the CRP came to the conclusion that insufficient due diligence has been done in the review of the RMEIA.

64. ADB also did not insist on a careful evaluation of alternatives to the once through cooling system as is required under ADB environmental policies. The SEIA does provide some sentences on the alternative of a closed cooling system. The CRP is of the view that this assessment is rudimentary.[60] It consists of two paragraphs in which it is argued that a once through cooling system is preferable as the once through system is (i) more economical and (ii) impacts of salinity from the closed cooling system would have a stronger impact on the marine environment than the once through system which is considered to have no impact on the marine environment.[61]

65. **Findings.** The CRP finds that ADB staff did not exercise due diligence when agreeing to the 7°C water discharge standard without presenting the PPAH standard in the SEIA and assessing the impacts of the deviation from ADB required standards on the marine environment. Agreeing to a 7°C discharge water temperature above ambient temperatures, without providing a justification for the deviation from PPAH standards, is noncompliant with ADB operational policies and procedures. Project files provide no evidence that a review of the RMEIA had been done. A review of the RMEIA was required by OM Section F1/OP, para. 5 as the report is part of the environmental assessment. Moreover, a careful review would have been essential to assess the impacts of the 7°C standard on the marine environment. Any justification of a deviation from PPAH standards would have required a qualified and careful assessment of the RMEIA. The CRP finds that ADB has been noncompliant with the Environment Policy (2002), with the standards laid out in PPAH (p. 419), and with OM Section F1/OP, para. 5.

2. Chemical Pollution, Salinity and Deoxygenation of Cooling Water Intake

66. **Complainants' position.** The complaints state that chemical pollution discharged into the sea along with the cooling water, might cause changes in the chemical property of the seawater which could lead to a decline in fish catch. They further state that highly saline brine, discharged from the desalination plant of the power project might also be increasing the salinity, changing pH (i.e., measure of acidity or basicity) of the seawater, and thus driving fish away. Complainants argue that deoxygenation is a possible factor which contributes to what they describe as a drastic reduction of fish catch in the area.

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would assess the impacts of the proposed cooling water system included the extent of the thermal plume, impacts on the two creeks and impacts on the local fishing activities."

[60] Comments prepared on the CEIA noted that adoption of a once through cooling system was unusual for a power plant of this size and raised the questions whether the once through cooling system was appropriate.

[61] CGPL. 2007. *Summary Environmental Impact Assessment,* paras. 56 and 57. India.

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Environment Policy (2002), para. 61: "for category A projects, the borrower prepares environmental assessment reports… and the summary EIA reports. Important considerations in preparing the environmental assessment include assessing induced, indirect and cumulative impacts, examining alternatives, achieving environmental standards, designing least-cost mitigation measures, developing appropriate environmental management plans and monitoring requirements,…"

para. 62: "In determining appropriate environmental standards for ADB projects, ADB will follow the standards and approaches laid out in the World Bank's *Pollution Prevention and Abatement Handbook*…., the environment assessment for any individual project may recommend adoption of alternative emission levels and approaches to pollution prevention and abatement. This flexibility is required to best reflect national legislation and local conditions in determining the appropriate standards and emission levels. In all such cases, the environment assessment report will provide justification for the levels and approaches chosen for the particular project or site."

OM Section F1/OP, para. 5: "…ADB reviews the environmental assessment report to ensure that it meets ADB requirements, and that it provides a sound basis for project processing and implementation. ADB monitors the borrower's implementation of agreed environmental mitigation measures...."

PPAH section entitled "Liquid Effluents" on "Thermal Power Guidelines for New Plants (p. 419): "The effluent levels presented in Table 1 (for the applicable parameters) should be achieved daily without dilution." Table1 sets the effluent levels for several parameters including iron (Fe) with a maximum concentration in the effluent limit to 1.0 mg/liter."

67. The Tata Mundra plant outfall consists of the hot water condenser cooling discharge and the desalinization facility discharge. When all five units of the Tata Mundra plant are operating, the hot water condenser cooling discharge has a flow rate of 630,000 m^3/hr and the desalinization facility has a maximum flow rate of 11,675 m^3/hr (and possibly a flow rate as low as 2,789 m^3/hr). Various chemicals are added in the desalinization facility. These chemicals are: sodium bisulfite as antiscalant agent in the two reverse osmosis (RO) stages; ferric chloride, sodium hypochlorite and a polyelectrolyte as coagulant for the treatment (in a clarifier) of the second-stage RO rejects; and hydochloric acid and sodium hydroxide as regenerates for the mixed-bed iron exchangers. Among these chemicals:

(i) Hydochloric acid (HCl) and sodium hydroxide (NaOH) in regeneration wastewaters are not a concern as these chemicals are not discharged to the outfall channel of the Tata Mundra plant.

(ii) Sodium hypochlorite (NaOCl) along with the RO rejects would contribute to the salinity of the outfall. Prior to the commissioning of the Tata Mundra plant, the salinity of the sea water in the project area was found to range from 34.0 ppt (October 2007) to 38.0 ppt (December 2008). After commissioning of this plant, the salinity levels in the Tata Mundra plant intake and outfall have been monitored by CGPL and were reported to be 40.0 ppt and 40.2 ppt, respectively, for January 2013; 42.4 ppt and 43.6ppt, respectively, for February 2013; and 42.5 ppt and 42.2 ppt, respectively, for March 2013. Considering a very large dilution of the desalinization facility discharge by the cooling wastewater, the monitoring data indicates an increase in salinity of 0.2 ppt in January 2013, an increase in salinity of 1.2 ppt in February 2013, and a decrease in salinity of 0.3

ppt in March 2013. A 1.2 ppt increase or a 0.3 ppt decrease in salinity does not have an adverse impact on the marine life in this project area because of its likely adaptation to similar fluctuations that occur naturally between the high evaporation (high salinity) and monsoon (low salinity) periods. Regarding the increase in the background seawater salinity levels (34.0-38.0 ppt) since the Tata Mundra plant's commissioning (to 40.0-43.6 ppt), there is no scientific evidence that such an increase has led to driving fish away in the project's area of influence. CGPL's recent decision to dispose of the sludge from its desalinization plant instead of discharging it to the sea would help reduce potential adverse impacts, if any, with respect to higher salinity levels.

(iii) Sodium bisulfite ($NaHSO_3$) is added as an antiscaling agent in the first-stage and second-stage RO units at a rate of 1.5 ppm (with a consumption rate of about 50 kg/day per RO stage for a total of 100 kg/day for the two stages). Sodium bisulfate reacts with dissolved oxygen (DO) in the water and any excess bisulfite tends to reduce the oxygen concentration in the water (also increasing the potential for increased anaerobic biological growth with heavy slime formations that can rapidly foul the RO system). In addition, warming of the condenser cooling water would intuitively lead one to expect higher evaporation rates of oxygen from water, reducing the DO level in the outfall to the sea. The DO levels in the Tata Mundra plant intake and outfall were measured to be both 4.8 mg/l for January 2013; 5.3 mg/l and 5.2 mg/l, respectively, for February 2013; and 3.3 mg/l and 4.2 mg/l, respectively, for March 2013. The DO levels for all three months monitored complied with India's Primary Water Quality Criteria (PWQC) of 4.0 mg/l for Class II waters (for bathing and commercial fishing); and that of February 2013 with India PWQC of 5.0 mg/l for Class SW-I waters (for salt pans, shell fishing, marine culture and ecologically sensitive zone). Therefore, addition of sodium bisulfate in CGPL's RO facility and the warming of the intake seawater in CGPL's condensers do not seem to adversely impact the quality of the receiving waters.

(iv) Ferric chloride ($FeCl_3$), sodium hypochlorite (NaOCI) and a polyelectrolyte coagulant are added in the clarifier that receives the reject from the second-stage RO concentrate. The chemical of most concern here is ferric chloride, which would end up in the clarifier sludge as ferric hydroxide ($Fe(OH)_3$). CGPL informed CRP that $FeCl_3$ addition in the clarifier of this RO facility is maximum 500 kg/day, corresponding to 172.5 kg/day of Fe (i.e. 500x56/162.5) or 7.19 kg/hr. Assuming full capacity operation of the Tata Mundra plant with all of its five units, the flow rate of Tata Mundra plant discharge in the outfall channel would be 630,000 m^3/hr. Therefore, discounting any dilution of the outfall by the RO facility wastewater discharges, the Fe concentration in the Tata Mundra plant outfall would be approximately 0.0114 mg/l (i.e. 7.19x106mg/hr/630x106liters/hr). This Fe concentration would be in compliance with the maximum Fe concentration of 1.0 mg/l required by ADB as per the PPAH. However, it should be noted that: (i) this compliance is achieved with a very large dilution of the RO plant's clarifier bottom sludge, mainly with the hot water condenser discharge and to a minor extent with the first-stage RO rejects, and (ii) such a dilution is not permitted by PPAH. As iron (Fe) is a heavy metal discharged from the Tata Mundra plant outfall, adverse impacts on the available fauna - in terms of bioaccumulation, biotransformation and biomagnification is possible. However, considering that varying degrees of impacts would depend on such factors as marine species,

growth stages, sex, physical-chemical parameters, and given the lack of bioassay studies to determine the impacts of iron on the specific (commercially important) fish and shellfish species from the region, no conclusion has yet been drawn. As iron is a heavy metal that is likely to enter in the human food chain, good practice would require that sludge not be disposed of into the sea. More recently, ADB agreed with CGPL not to dispose iron bearing sludge into the cooling water channel before the discharge point and ADB advised CGPL to take necessary corrective measures. CGPL agreed to disconnect the sludge line from the reverse osmosis reject line, and to connect it to the fly ash pond, to eradicate any disposal of sludge into the sea.

68. **Findings.** The CRP finds no evidence for non-permissible levels of salinity and de-oxygenation in the water. However, the CRP notes that CGPL undertakes significant dilution in order to remain within the required water quality standards with regard to Fe and there is no evidence showing that ADB staff advised CGPL that the PPAH does not allow dilution. There is thus noncompliance with PPAH requirements. ADB staff states in an internal document which reports on the August 2012 mission, that the mission had reviewed water quality monitoring data, but provides no details on the data. The fact that the iron concentration is 0.81 mg/liter at the retaining wall of the outfall channel of the Tata Mundra plant does not guarantee compliance with the PPAH maximum of 1.0 mg/liter in the discharge because this monitored concentration results from a dilution of the iron-bearing sludge by warm water from condenser cooling. As this dilution is significant, compliance with the PPAH requirement of 1.0 mg/liter daily without dilution is highly unlikely. The mission did not check whether dilution took place.. As it is a well-known principle that the "solution to pollution is not dilution", ADB should have exercised due diligence in the supervision process to assure that the PPAH standards are adhered to. It is possible that this discharge of iron into the sea has adverse impacts on the available fauna in terms of bioaccumulation, biotransformation and biomagnification. The CRP takes note that corrective action is being taken by ADB agreeing with the borrower to dispose sludge into the fly ash pond. This will help reduce potential adverse impacts associated with Fe and other pollutants in this sludge.

3. Destruction of Creeks and Mangroves in the Kotdi and Modwa Creeks

69. **Complainants' position.** Complainants argue that destruction of creeks and mangroves have contributed to the alleged drastic reduction of fish. They argue "that both the Kothdi and Mudhwa creeks have been badly damaged by Tata's dredging, widening and denudation". And that "large tracts of mangroves, dry-land forests and creeks, rich in biodiversity, and mud-flats were destroyed by the company in the course of its construction activities. The construction of associated facilities like port (which is being shared with that of the adjacent Adani power project), the intake water channel (also shared with Adani project), and the outlet water channel caused irreversible damage to the fragile environment. These mangroves also serve as protection to the estuaries which acts as nursery for a variety of marine animals."

70. This report does not consider compliance with safeguard provisions in the facilities owned and operated by the Adani plant, even if these facilities are used under a contractual agreement by CGPL. Prior to 2009, ADB did not have a policy requirement which made it necessary to adopt ADB safeguard provisions to associated Modwa facilities.[62] This report thus

[62] A provision to adopt ADB safeguard policies for associated facilities was only introduced with the 2009 Safeguard Policy Statement. The Environmental Policy (2002) and OM Section F1/BP does not include any provisions for associated facilities. A requirement to conduct due diligence to determine the level of risk to affected people and to

does not respond to claims made with regard to the Adani-owned and operated intake channel and the port facilities.

71. As to the outfall channel, there are – albeit limited – impacts on the Modwa creek. The Modwa creek is located south of the weir of the outfall channel. The outflow of the channel into the sea crosses the Modwa creek. The creek was likely to have been impacted by the dredging works and changes in water flow resulting from increased velocity and currents from the outfall channel. The potential harm of this alteration on *Pagadiya* fisherfolk is discussed below. (See paras. 78-84.)

72. The CRP does not agree with the complainants that large tracts of mangroves have been damaged by the construction of the outfall channel and that this destruction of mangroves is a cause for a reduction in fish catch. The CRP undertook site visits along the outfall channel, together with professional experts, who found the soil conditions around the outfall channel unsuitable for mangrove growth, other than for rudimentary patches of mangroves. The CRP also interviewed people from Tragadi village and Tragadi *bander* on observed mangrove growth prior to the construction of the outfall channel. People interviewed confirmed that there were small patches of mangroves but of rudimentary growth. The MEIA and RMEIA commented on the presence of mangroves in the area where the outfall channel was to be constructed. The MEIA (2009) states "The land portion proposed for the discharge channel falls under saline bank is devoid of mangrove vegetation. Very poor leaching of salts due to low frequency of inundation and poor rainfall results in salt encrustation of saline banks rendering them unsuitable for vegetation to grow except for stray halophytes like *Sueda maritima*."[63]

73. The RMEIA, which reviewed the presence of mangroves in 2007 in a different area than where the outfall channel was finally constructed, notes: "Overall assessment indicates that the site proposed for the development largely falls under the category of supralittoral and saline banks devoid of mangroves. However, the area proposed for intake and discharge channels sustain sparse (plant density 0-4/100m^2 average 1plant/100 m^2 stunted (<0.6m) mangroves of monospecies (A*vicennia marina*)."[64]

74. The CRP cannot exclude that some small, rudimentary patches of mangroves might have been destroyed during the dredging of the channel, especially at the sandbank where the outflow water reaches the sea. But the mangroves which might have been destructed would have been very rudimentary and discontinuous. The CRP is of the view that the possible destruction of some low growth patches of mangrove would not be a cause for a decline in fish yields. The CRP does not offer a view on alleged mangrove destruction which resulted from the construction of the intake channel. The Report of the Committee for Inspection of M/s Adani Port & Sez Ltd Mundra, Gujarat (2013) recorded "rampant destruction of mangroves."[65] Due to the absence of an ADB policy in 2007 which require application of ADB safeguards to associated facilities, any destruction of mangroves at the intake channel by the Adani Power plant or its contractors cannot be considered noncompliance with ADB policies and procedures. From legal documentation examined by the CRP, it is clear that the Adani Power has control over the intake channel and has agreed to let CGPL take water from that channel for cooling purposes for valuable consideration.

ADB by associated facilities is provided for in OM Section F2/OP Section A, para.2 footnote 2. Such a reference is not included in OM Section F12.

[63] National Institute of Oceanography (NIO). 2009. *Marine Environmental Impact Assessment*, section 4.5.1 (a), p. 44. India.

[64] NIO. 2007. *Rapid Marine Environmental Impact Assessment*, section 4.5.1 (a) India.

[65] Report of the Committee for Inspection of M/s Adani Port&Sez Ltd. Mundra, Gujarat, April 2013, p. 78.

4. Possible Death of Large Numbers of Fish Seedling with Pumped Intake Water

75. **Complainants' position.** The complainants argue that the possible morbidity of large numbers of fish seedlings which are pumped with the intake water maybe a cause for the reduction of fish catch.

76. The RMEIA proposed the installation of nets and moving screens along the intake channel to avoid that fish seedlings are drawn into the intake water and facilities:

> Impingement and entrainment of marine organisms, due to large quantity of intake, should be avoided by placing suitable nets across the intake channel and moving screen at the intake with suitable washing mechanism like water jets using sea water may be used and the collected biota may be directed suitably to nearby creeks/ a shallow water course may be provided to the east of the intake channel. The local fishing community should be encouraged to fish in the channel. However, destruction of very small organisms cannot be avoided.[66]

77. CGPL informed the CRP that they have installed screens and nets at the intake channel.[67] CGPL has installed a travelling screen at the intake channel before the pumps intake, but this is close to the plant.[68] As the intake channel is owned and operated by the Adani plant and ADB, at the time when this project was prepared, had no clear policy to adopt environmental safeguards to associated facilities, the CRP cannot consider this claim.

5. Assessment of Harm

78. Complainants argue that there has been a drastic reduction in fish and that it is probably caused by the influences discussed above. The CRP considered whether there was evidence of a reduction in fish catch. Data on fish catch for a larger area does not show a reduction in fish.[69] The data shows that on these landing sites fish yields in 2013-14 have significantly increased compared to 2008-2013. Reasons given for these increases are a larger fishing fleet, increased productivity in fishing as more efficient technology is used, increases in fishing frequency, and migration of fishes to the area.[70] But the data is not site specific to the coastal area in front of the Tata Mundra plant and thus does not provide an answer to the question whether fisherfolk who fish in front of the Tata Mundra plant are suffering from reduction in fish catch. The landing sites for which data are available are at some distance and thus do not reflect the fish yield at the site close to the plant. Each landing center covers between 3 km and 10 km of the surrounding area. This is a rather vast area and average numbers in fish catch could conceal significant variations in catch at different sites. Fish caught in the vicinity of the Tata Mundra plant is estimated to amount to only 0.05% of total fish caught in the adjacent landing centers. This quantity is so insignificant that it cannot influence the overall data set.

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[66] Footnote 67, section 9.2, page 88.

[67] CGPL stated in Tata Power: CGPL Mundra "adequate screening devices have also been provided for avoiding fish seedling to get into the condenser."

[68] Fixing nets at the point where water is diverted to the Tata Mundra plant will not serve the purpose as trapped organisms will then be ejected back to the Adani intake channel.

[69] Fish statistics from Fisheries Statistics of Gujarat (2011-12) Commissioner of Gujarat, Ghandinagar, Gujarat state

[70] Noticeable in the data set is a decline of some fish which in the past had been important. The composition of fish type caught appears to be changing. This might point to a migration of fish and shift or reflect impacts of temperature raises resulting from global warming. For example, the fish yields of pomfret have declined significantly. Noteworthy is also the significant decline of jumbo prawns and lobster, while catch of medium size shrimps and prawns has increased.

79. No time series of data has been collected from fisherfolk who fish on the coastal site in front of the plant. The RMEIA provides skeleton longitudinal fishing data which is not site specific and not sufficiently disaggregated to be useful as baseline data. No information has been provided on the site and methodology for the experimental fishing in January 2006. The site or the experimental fishing is only specified as "catch off Mundra during January 2006".[71] Longitudinal data provided refer to Navinal Creek, Bocha Creek and the Gulf, which are not site specific locations. In 2013, CGPL supported a study which monitors fish catch and other livelihood conditions at Tragadi *bander*. It states: "There is no historical fish catch data available for Tragadi *bander*. So we cannot directly compare old data with new data."[72] Fish catch has been monitored since October 2013 on a sample of 20 fishing families. Given the absence of adequate baseline and monitoring data, CRP bases its judgment of harm on an assessment of the Marine Impact Assessments, stakeholder interviews, and site visits.

80. The CRP finds that *Pagadiya* fisherfolk have been harmed. *Pagadiya* fishing is described as follows:

> Pagadiya fishing is fishing on foot. During low tide, fishermen walk into the sea, usually a little ahead of the waves where the water-level is low. They place their nets on sticks planned into the mud. As the water comes in during high tide, the water covers their nets, and brings the fish from the sea in the algae-rich intertidal zone to feed there. When the water recedes during low tide, the fish that have swum into the intertidal zone get caught in these nets. The fishermen walk and collect these fish.[73]

81. The number of *Pagadiyas* who fish regularly in front of the Tata Mundra plant is small. Rough estimates point to about 30-40 *Pagadiyas*.[74] People who live on income from foot fishing typically are poor, living close to the poverty line.[75] As *Pagadiyas* fish in the intertidal zone, directly at the shore, harm has likely occurred as a result of the increased water temperature discharged from the outfall channel. Impacts are also likely as a result of dredging work and of changes in water conditions in the Modwa creek which is a spawning ground for fish.

82. The RMEIA states "since there are no commercial fishing operations in Kotdi Creek except shore based local fishing, the impact on fisheries would be minor and non-consequential".[76] The RMEIA does not provide an assessment on the impact of shore based local fishing. The RMEA argues that the construction of the outfall channel and the discharge of water at a temperature up to 7°C above ambient temperature will have no significant impact on the marine environment. But data provided in the RMEIA point to the fact that there could be impact on fish typically caught by *Pagadiyas*. The RMEIA stated that fish eggs occurred in 67% samples and fish larvae occurred in 75% of zooplankton samples. Large quantities of fish eggs and larvae were primarily in the creek region than in the Gulf. It is very likely that the impact on the Modwa creek influences those species which use the creek as nursery grounds. This could

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[71] RMEIA, Table 4.5.34

[72] Notes based on observations made by Aakar during its engagement with the fisherfolk community at Tragadi, Report 2, Impact of CGPL project on habitation, life, and livelihoods of fisherfolk at Tragadi *bander*.

[73] Tro Development Support Ltd. 2011. *Situation Analysis and Participatory Needs Assessment of Modwa village, Mandvi block, Kutch district, November 2011*. New Delhi.

[74] Interactive Karma India. *TCP Social and Economic Survey (2006) and Coastal Gujarat Power Limited, Stakeholder Engagement and Benefit Sharing (2011).* India; Tro Development Support Ltd. 2011, Situation Analysis and Participatory Needs Assessment of Modwa village, Mondvi block, Kutch district, November 2011, New Delhi.

[75] CGPL. 2011. *Stakeholder Engagement and Benefit Sharing*, Interactive Karma India (with detailed data on livelihood situation in Tragadi village). India.

[76] RMEIA, page 100.

explain the significant decline in prawns and crabs observed. The RMEIA report also reveals that decapod larvae was one of the two most dominant groups, the other being the copepods in the zooplankton sample in the study area. The high density of decapod larvae in the creeks is an indication that the creeks served as nursery grounds for the decapod prawns. It is also likely that Modwa creek has been harboring *Acetis indicus*, an economically important species of shrimps which is mostly located in waters shallower than 5 m. With the impact of the Modwa creek through dredging and changed circulation and velocity of outflow water, it is likely that this species has been impacted.

83. Even if the increased temperature from the outfall channel does not kill the fish, heating of water to more than their tolerance range can increase the physiological stresses to some species and interfere with the natural life processes such as growth rates, respiration, reproduction, and distribution. A temperature rise of 4°C to 5°C above ambient water temperature may not be lethal to the organisms but proliferation of resistive organisms may change the community structure of the biota. It may particularly impact the fish population in the immediate vicinity of the outfall channel. The original species could be reduced or wiped out and/or replaced by species which may or may not be as economically as important to fisherfolk as the earlier ones.

84. The CRP finds that *Pagadiya* fisher people have been harmed. The CRP bases its findings on a careful review of the marine impact assessments, site visits and interviews with *Pagadiya* fisher people. The CRP could not rely on baseline data which reflected the pre-project situation and on data which monitored fish yields and fish catch as such data was no established. ADB environmental and social safeguard policies required the establishment of pre-project baseline data, as *Pagadiyas* should have been considered stakeholders and project affected people and thus should have been included in the social assessments and surveys. The fact that these policies have not been complied with, is the reason, why the baseline data is not available. The CRP is of the view that if noncompliance is the cause of unavailability of data, the CRP needs to base its conclusion on the best alternative evidence available, including such evidence as interviews and site visits. Arguing differently would implicitly endorse non-compliance behavior which undermines safeguard application. ADB staff seems to agree with the conclusion that there is sufficient anectodal evidence that *Pagadiya* fisher people have been harmed. An ADB internal document, reporting on the October 2013 mission states:

> The mission visited Tragadi bander, Tragadi and Modhva villages to understand the complaint related to outfall channel operation impacts on fishing. … The stakeholder consultations indicate that the income of Pagadiya fishermen has been impacted due to thermal discharge from once through cooling system (OTCS). The thermal discharge has impacts temperature as well as water velocities profile in the Modhva creek. There is also an indication of siltation of part of the creek due to dredging of the outfall channel and change in water currents…..
>
> Based on available information the likely maximum increase in ambient sea temperature, in the mixing zone, could be up to 5°C. It is necessary to undertake field observations to determine the impact of such temperature rise as well as change in water velocity profile on commercial fish species caught by Pagadiya fishermen…. Pending the completion of such a study CGPL may consider providing an additional grant equivalent to 25% of maximum monthly income from fishing for Pagadiya fishermen of Tragadi Village (158 families) and Modvha village (350 families).

C. Access Restrictions to Fishing Grounds

85. **Complainants' position.** Complainants argue that access to their traditional fishing grounds was adversely impacted by the enclosure of the project site, and the outfall and intake channels. Complainants state that access routes to fishing and grazing grounds have either been blocked or unusually lengthened by the intake and outfall channels of the Tata Mundra plant. They argue that the access routes have been lengthened by 4 km and that fisherfolk are forced to pay an incremental Rs350 for the auto rickshaw rides.

RELEVANT ADB OPERATIONAL POLICIES AND PROCEDURES

OM Section F2/BP, para. 2: "Involuntary resettlement" addresses social and economic impacts that are permanent or temporary and are (i) caused by acquisition of land and other fixed assets, (ii) by change in the use of land, or (iii) restrictions imposed on land as a result of an ADB operation. An "affected person" is one who experiences such impacts."[3]

"[3] The term affected person includes any households, firms, or private institutions who, on account of changes that result from the project will have their (i) standard of living adversely affected; (ii) right, title, or interest in any house, land (including residential, commercial, agricultural, forest, and/or grazing land), water resources, or any other moveable or fixed assets acquired, possessed, restricted, or otherwise adversely affected, in full or in part, permanently or temporarily; and/or (iii) business, occupation, place of work or residence, or habitat adversely affected, with or without displacement…"

OM Section C3/OP, para. 8: "Based on issues identified and process initiated during the IPSA [initial poverty and social assessment], a social analysis is carried out during the project design to examine opportunities, constraints, and likely social impacts of the project, and to identify and formulate design measures and implementation arrangements to maximize the social benefits and avoid or minimize the social risks of the project in a participatory manner. The social analysis should… (iv) provide baseline data for monitoring social impacts of the project."

86. Access is restricted as the site of the Tata Mundra plant is secured by a fence and thus closed for walking through. There was an old road connecting the village Wand to the highway. This road passed through, what are today, CGPL premises. CGPL constructed a new road around the Tata Mundra plant site. This road is in good condition and is used by residents, but it lengthens the access to the sea site in front of the Tata Mundra plant by several kilometers. Moreover, the outfall channel cuts the access of people from Tragadi and Modwa villages from fishing grounds which some of the residents use for foot fishing and for boat fishing. To secure continued access, a bridge was built across the outfall channel and boats were provided. Inhabitants of the Modwa and the Tragadi village consider these measures adequate. However, for people fishing in the *bander,* the travel route to and from the *bander* has been lengthened by 3.8 kilometers. If households residing in the *bander* sell their catch to local traders which come to the *bander*, then they might only use the access route twice during the year, once to move in and once to move out of the *bander*. But some people from the *bander* commute more regularly as they sell fish to traders outside the *bander*. Fish traders who regularly travel to the *bander* to purchase fish are also affected. In addition, fishermen who travel from other villages, to do foot fishing at the coastal zone experience longer access ways.

87. At the time when social and economic assessments were conducted, access concerns to fishing grounds were only identified for people from Kotdi *bander*.[77] Marine environmental

[77] It should be noted that the specific access issues for the Modwa and Tragadi villages only arose after the location of the outflow channel had been changed. The original design for the channel in 2007 would not have resulted in access restrictions of the Modwa and Tragadi villages to their traditional fishing grounds.

impact assessments were not shared with them and they thus did not have knowledge on where the outfall channels would be located. As fisherfolk were not identified and consulted (other than in one meeting with Kotdi bander in 2007), their access restrictions also were not taken into account. Fisherfolk had no early input into the design of the project. Access issues were recognized when in 2010 inhabitants of the Tragadi village staged a protest, once they realized that a channel was constructed and that this channel would disconnect them from the coastal area where a number of people from their village fished. The CGPL acted quickly, entered into a dialogue with the villagers, constructed the bridge and provided additional support. The Modwa village was provided with two boats so that the village fisherfolk could access their traditional fishing grounds crossing the outfall channel. In addition, for the Modwa and Tragadi villages, CGPL made compensation payment to each household in the amount of Rs100,000 and introduced programs to improve living conditions for the village population. Importantly, a livelihood support fund has been created which supports development activities in both villages. Measures undertaken by CGPL – with the active support of ADB staff – are fully satisfactory and appreciated by the two communities. ADB has actively supported CGPL on how to design the surveys and how to design the livelihood fund.

88. Beyond these two villages, access restriction issues have not been appropriately addressed. No systematic assessment has been undertaken to determine which people would be affected by access restrictions. The socio-economic surveys conducted in 2006 and 2007 did not explore these questions. As a result of the absence of any baseline data, it is now unknown how many people are impacted by the access restrictions. The extent and costs of access restrictions have also not been discussed with people fishing at Tragadi *bander*. All households at Tragadi *bander* are impacted, at least to some extent, as families have longer distances to travel to and from the *bander* and for their intermittent travels. No compensation payments have been made to people at Tragadi *bander*. CGPL's engagement is restricted to the provision of some community services under its CSR activities.

89. This report points to the consultation failures and to the failure to identify fisherfolk as project affected people. If the fisherfolk would have been adequately consulted the access concerns would have been articulated and appropriate mitigation measures would have been adopted. Access issues were raised during the public hearing held on 19 September 2006. For households which regularly use the coastal sites as fishing grounds, the resettlement policy applies. The resettlement policy addresses social and economic impacts that are permanent or temporary restrictions imposed on land as a result of an ADB operation. The outfall channel constructed by CGPL, imposed restrictions on land which was used by households which regularly used the coastal sites in front of the plant as fishing grounds.

90. **Findings.** The CRP finds that ADB staff has not done due diligence in identifying those people who have been affected by constrained access to their traditional fishing sites as a result of enclosing of the premises of the Tata Mundra plant site. While corrective action has been taken to compensate affected households in the Modwa and Tragadi villages, no impacts have been assessed on people living in Tragadi *bander* and on people living in villages other than the Modwa and Tragadi villages. No mitigation measures have been taken for people who regularly travel to the shore site and experience longer access routes as a result of plant enclosures. The CRP thus finds that ADB staff was noncompliant with OM Section F2/BP and OM Section C3/OP. Noncompliance with these policies and procedures resulted in harm as people not identified could not be properly compensated.

D. Coal Dust and Fly Ash Pollution

91. **Complainants' position.** Complainants argue that fly ash emanating from the project falls on fish put out for drying, making it inedible and nonmarketable. The fish that gets contaminated with the toxic fly ash is highly unsafe to consume, particularly for women at child bearing age. Complainants further argue that ash also falls on salt pans around the project area and that ash falling on fields and its grass consumed by animals put them in danger of serious illness, in some cases fatal. Exposure to such toxic particles in the air, and the high pollution resulting from Tata and the adjacent Adani project, puts the people at high health risk. Complainants further state that coal dust and fly ash has a very significant impact on the Wand village. Whenever the wind blows from the conveyor side to their side, there are layers of coal dust covering their floors and their bodies when they sleep outside on the terrace. Villagers also complain about breathing difficulties.

RELEVANT ADB OPERATIONAL POLICIES AND PROCEDURES

Environment Policy (2002), para. 61: "For category A and B projects, the borrower prepares environmental assessment reports… and summary EIA reports. Important considerations in preparing the environmental assessment include assessing induced, indirect and cumulative impacts, examining alternatives, achieving environmental standards, designing least-cost mitigation measures, developing appropriate environmental management plans and monitoring requirements,…"

OM Section F1/OP, para. 4: "…Important considerations in undertaking environmental assessment include assessing alternatives; identifying potential environmental impacts, including indirect and cumulative impacts, and assessing their significance; achieving environmental standards; designing least-cost mitigation measures; developing appropriate environmental management plans (EMPs) and monitoring requirements; …"

para. 5: "…ADB reviews the environmental assessment report to ensure that it meets ADB requirements, and that it provides a sound basis for project processing and implementation. ADB monitors the borrower's implementation of agreed environmental mitigation measures...."

para. 67: "Where unanticipated environmental impacts become apparent during project implementation… ADB will assist executing agencies and other relevant government authorities to assess the significance of the impacts, evaluate the options, and estimate the costs of mitigation…"

92. During its missions in November/December 2013 and September 2014, the CRP could not find visible evidence at Tragadi *bander* of fly ash or coal dust deposits on fish put out for drying. This does not mean that fly ash dust pollution does not take place, but visible evidence could not be established. Evidence would require chemical analysis of the dried fish samples. However, clear evidence of fugitive coal dust was visible at the Wand village during the CRP mission in November/December 2013. Large amounts of coal dust deposits could be seen on houses, trees, and terraces. During the CRP's mission in September 2014, coal dust pollution was much less evident. Apparently, the extent of coal dust pollution depends on the direction of winds. According to CGPL, coal dust pollution is strong during the three winter months when wind blows from the coal stock piles towards the village. Residents of the Wand and Tunda villages confirmed this, but also indicated that they were regularly cleaning to remove the dust deposits. They complained about strong coal dust pollution all year round. The pollution is much stronger at Wand village, where some houses are located less than 300 m away from the CGPL coal storage area and conveyors.

93. There are numerous sources for fugitive coal emissions, both from the Tata Mundra plant and the nearby Adani plant. Fugitive coal dust emissions can also originate from the West Port where the imported coal is unloaded and stored, from the partially-covered conveyor belt that connects the West Port to the coal handling facility at the Tata Mundra plant. The West Port is owned and operated by Adani. Coal for CGPL is imported from Indonesia by ship and delivered to CGPL on land. This is done by conveyor belt transportation either to CGPL's temporary coal storage area near the West Port or to Tata Mundra plant. CGPL's temporary coal storage area at the West Port has several piles, providing a total of 300,000 ton capacity. For mitigating fugitive dust emissions, the coal piles are continuously wet by sprinklers. However, no air monitoring of fugitive dust emissions is conducted at the CGPL's coal handling facility at the West Port. Given the size of the coal handling operations at the West Port, large fugitive dust emissions are likely to occur.

94. Fugitive coal dust pollution further takes place during the transportation of the coal from the West Port to the plant site. At the time when the CEIA and SEIA were prepared, a merry-go-round rail system was conceived for conveying coal from Mundra Port to the plant's coal handling area. However, following Adani's application for the construction of the West Port and purchase of the land for the conveying system, conveyor belt transportation was determined to be a more cost-effective option than rail car transportation. The conveyor belt system was constructed to receive coal from CGPL's coal handling facility at the West Port and transport it to the coal handling facility at the Tata Mundra plant, where coal is stored in two piles and at a distance of only a few hundred meters away from the Wand village. As the conveyor belt system is not completely covered, it contributes to fugitive coal dust pollution.

95. CGPL recognized that coal dust pollution is a serious concern for the Wand village. The company has undertaken measures to reduce the impacts of the coal dust from the coal handling facility at the Tata Mundra plant. The height of the two coal piles has been reduced from 9 m to 6 m and fixed water sprinklers have been installed at the coal stockpile area. A system for coal dust collection for coal bunkers has been established and coal dust collected is recycled. A wind barrier of 9 m height has been erected at the boundary facing the Wand village. Other coal dust mitigation measures included the hood design and the dry fog spraying system for the coal conveyors and tree plantation near the wind barrier. Moreover, CGPL indicated that they have already taken action for a tubular design for the 2-km portion of the currently used hooded conveyor belt near the Wand village. The CRP mission was advised at the time of its mission in October 2014 that this system is expected to be completed within 14 months. However, recent ADB supervision missions found the coal-dust mitigation measures insufficient and suggested a more pro-active approach to coal dust management.

96. A dust study recently undertaken also points to the evidence of coal and ash pollution. In May 2014, CGPL's new environmental consultant (CEG Test House) monitored dust at the Wand village, in addition to three other villages and two *bander*s. The results assessed the total dust fallout rate (expresses as g/m^2/month) broken down into the soluble and insoluble fractions, and composition of the fallout dust (in terms of type as ash, coal and chemical content and silica). The results for the Wand village indicate that the ash and coal fractions in the overall fallout to be 86.3% and 13.7%, respectively. The silica content in the overall fallout was 0.71%. These findings show that the pollution experienced at the Wand village and other villages, where residents complain about pollution, does not only stem from CGPL's coal handling facility as the ash content of 86.3% is by far the most significant component. It is urgent, that the sources of ash pollution be identified and mitigated. Ash pollution could originate from the Tata Mundra plant, the Adani Power Plant, or – most likely – both. Ash emissions from these plants

may occur from the stack as fly ash and as windblown fugitive emissions – of dried ash deposits – from the ash ponds.

Figure 5: Coal stockyard on CGPL premises in the vicinity of the Wand village

97. There is clearly a problem with fugitive dust emission and ash pollution. The CRP can confirm harm to Wand villages, as coal dust pollution was very visible in December 2013. However, the CRP could not visibly confirm dust deposits on dry fish, salt pens and animal feed. Dust analysis in May-June 2014 also showed high ash contents (89.6%) at Tragadi *bander*, which is located 1.5 km away from the plant. This is the area where large quantity of fish is dried on wooden structures. If ash and coal dust are deposited on the fish, it is likely that this ash and coal enters the human food chain. However, insufficient data is available to conclude whether the amount of dust deposited would cause harm. Further data would need to be collected. Coal and ash pollution for animal feed seems less relevant as CGPL supports a very comprehensive livestock feeding program which feeds a very significant number of animals in the area.

98. Fly ash and coal dust pollution also has significant health impacts. These health impacts could not, as yet, be verified by surveys. But the lack of evidence for health impacts should not come as a surprise. The Tata Mundra has been in full operation only since 2013. Health impacts typically cannot be observed after such short periods of time. With health statistics collected for such a short time period, one cannot take the absence of evidence as evidence. Given the persistent level of coal dust and ash pollution, harm is being done at Wand village.

Figure 6: Fish hanging for drying at Tragadi *bander*

99. But has this harm resulted from ADB's noncompliance with its policies and procedures? ADB's Environment Policy (2002) states "Important considerations in preparing the environmental assessment include assessing induced, indirect and cumulative impacts, examining alternatives, achieving environmental standards, designing least-cost mitigation measures…"[78] Did the environmental assessments appropriately address the risk of coal and ash pollution and did ADB do its due diligence in reviewing and responding to these assessments? The risk of coal dust and ash pollution was already raised during the public consultation meeting held on 19 September 2006.[79] Two local residents raised concerns about the potential impacts of fugitive dust emissions from Tata Mundra plant's coal handling activities to the Tunda and Wand villages. The residents' concerns were related to the anticipated distance from the project boundary to the nearest house in the village and whether or not there were any legal requirements in India for siting the coal handling facility. At the time when the project was designed, there were no Indian regulations about minimum distances to coal storage piles. "Guidelines for Coal Handling" were introduced in 2010, but no such guidelines were in force at the time the Tata Mundra plant was designed and constructed. The location of the two coal piles in the vicinity of a village thus did not appear to violate Indian regulations. But did it violate ADB environmental policies which require that environmental impacts be minimized and impacts mitigated? The CEIA and SEIA did not question the location of the coal piles but focused on mitigation measures.

100. One could argue that ADB should have questioned the close location of coal piles to a nearby village and that ADB should have insisted on the relocation of coal storage facility and that this would have prevented at least the coal dust pollution on the Wand village. The fact that there were no Indian requirements in force at the time should not have been relevant as ADB's environment policies require examination of alternatives and least cost mitigation measures. The CRP is of the view that ADB's lack of insistence on relocation of ash piles is unfortunate but does not constitute inadequate due diligence. There was a strong focus in the CEIA on

[78] ADB. 2002. *Environment Policy*, para 61. Manila.

[79] Minutes of the Environmental Public Hearing of M/S Coastal Gujarat Power Ltd. (Proposed 4000 MW imported Coal fired Mundra Ultra Mega Thermal Power Project) Village Tunda-Wand, T.A. Mundra, Dist. Kutch Held on 19/09/2006 at 16:00 hrs. at Mundra Rest House, TA Mundra, Dist. Kutch.

mitigation measures on coal dust and fly ash pollution and ADB did pay adequate attention to coal dust pollution and its impacts on the Wand village during supervision missions. ADB discussed with CGPL management the need for further mitigation measures to reduce coal dust pollution on the Wand village. ADB does monitor progress made in the implementation of these measures. In all internal reports of ADB missions, discussions on mitigation measures to reduce coal dust pollution figure prominently.

101. ADB showed less concern in following up on the alleged ash contamination of drying fish, salt and green-fodder. An ADB internal document of 28 August 2012 states that "the mission could not check the impact of ash and coal dust on fishing enterprises, as August is a lean period for fishing". The same document states that "coastal areas are very windy for most part of the year and as a result there is a high probability that such winds would raise and spread dumped ash from ash ponds."[80] Another internal document on ADB's subsequent project monitoring mission (24-26 April 2013) gives attention to coal dust pollution at the Wand village and summarily states: "No other village, salt pans or fish drying areas are likely to be impacted due to coal dust due to plant operations due to considerable distance of these facilities from the coal storage area." Tragadi *bander*, where large quantities of fish are dried, is located only 1.5 km away from the plant. CGPL argues that coal dust may not travel such long distances, referring to MOEF's guidelines that specify a distance from the coal storage yard to the nearest residential area to be 500 m. However, the results of the dust study just completed, point to the high ash (89.6%) and coal (10.4%) content of dust examined at Tragadi *bander*. To date, the sources of the ash and coal have not yet been identified.

102. The CRP finds that due to coal and ash pollution, harm has been done at Wand village which, at least for several months of the year, suffers very significant pollution. Harm is also possibly caused from ash and coal dust deposited on drying fish but further studies are needed to determine the presence and, if so, the amounts of heavy metals in these deposits and the risks they pose to customers. Possible deposits would also need to be studied on salt pans and fodder around the project area. In the absence of such studies, the CRP does not take a position on possible harm resulting from ash and coal dust deposits on drying fish, salt pans and fodder.

103. **Findings:** The CRP finds that ADB staff has shown significant engagement in supporting CGPL in the design of mitigation measures to reduce coal dust pollution on the Wand village. ADB efforts have been strong and persistent since 2012 when the impacts were recognized. The CRP finds that, even though there is evidence of harm, ADB has made significant efforts in asking and supporting CGPL to rectify coal dust pollution and thus has acted in accordance with para. 67 of the Environment Policy (2002) which states that "Where unanticipated environmental impacts become apparent during project implementation…ADB will assist executing agencies and other relevant government authorities to assess the significance of the impacts, evaluate the options, and estimate the costs of mitigation…" Studies need to be carried out to determine the extent of coal and ash pollution on fish, grass, agricultural products and saltpans to establish whether coal and ash deposits are so significant that they lead to harm.

[80] During its mission in September 2014, the CRP observed that the data displayed at the entrance gate of the plant was not real time.

E. Ambient Air Quality

104. **Complainants' position.** Complainants argue that there have been impacts on health due to pollution, especially a 20% increase in children's respiratory diseases in the past years as a result of heavy air pollution.

RELEVANT ADB OPERATIONAL POLICIES AND PROCEDURES

Environment Policy (2002) para. 61: "For category A and B projects, the borrower prepares environmental assessment reports… and summary EIA reports. Important considerations in preparing the environmental assessment include assessing induced, indirect and cumulative impacts, examining alternatives, achieving environmental standards, designing least-cost mitigation measures, developing appropriate environmental management plans and monitoring requirements,…" (See also OM Section F1/OP, para. 4)

para. 62: "in determining appropriate environmental standards for ADB project, ADB will follow the standards and approaches laid out in the World Bank's PPAH"

OM Section F1/OP, para. 5: "…ADB reviews the environmental assessment report to ensure that it meets ADB requirements, and that it provides a sound basis for project processing and implementation. ADB monitors the borrower's implementation of agreed environmental mitigation measures..."

PPAH Thermal Power: Guidelines for New Plants, page 424; Table C.1. Ambient Air quality in Thermal Power Plants:

(micrograms per cubic meter)

Pollutant	***24-hour average***	***Annual average***
PM-10	150	50
TSP[a]	230	80
Nitrogen dioxide	150	100
Sulfur dioxide	150	80

a. Measurement of PM-10 is preferable to measurement of TSP.

PPAH. Page 424: "The maximum emissions levels are expressed as concentrations to facilitate monitoring. Dilution of air emissions to achieve these guidelines is unacceptable. Compliance with ambient air quality guidelines should be assessed on the basis of good engineering practice (GEP) recommendations. See Annex X for ambient air quality guidelines to be applied if local standards have not been set"…

"The guidelines presented in Table C.1 are to be used only for carrying out an environment assessment in the absence of local ambient standards. They were constructed as consensus values taking particular account of WHO, USEPA, and EU standards and guidelines. They do not in any way substitute for a country's own ambient air quality standard."

105. The CRP mission assessed the data available on air quality and found that there was air pollution prior to plant construction. Prior to plant construction, some ambient air parameters were not in compliance with the standards specified in the PPAH and with Indian Air Quality Standards. As India has national air quality standards, the Indian standards are applicable (see PPAH page 424). Annual average air quality concentrations of RPM (i.e. PM-10) were above the NAAQS (see Table 3). However, during the public hearing on 19 September 2006, the

representative of CGPL stated that ambient air quality was well within the stipulated NAAQS.[81] Based on data reviewed, the CRP is unable to agree with this statement. Since the Tata Mundra plant became operative, the air quality deteriorated further. The 24-hour average Indian NAAQS for PM-10 standard is violated at seven nearby villages. (See Table 4.)

106. Tables 3 and 4 illustrate compliance of the ambient air quality monitoring data prior to construction and during the operation of the Tata Mundra Plant with respect to India's NAAQS and PPAH standards. CGPL argues that any noncompliance of air quality with India's NAAQS and PPAH standards was solely due to natural causes (i.e. the sand dust which pollutes the air, as the plant is located in a very dry and sandy area). ADB, in its Environmental Safeguards Review Mission Report, dated 11-12 October 2009, recognizes that PM-10 and SPM exceeded PPAH standards, but attributed this to emissions from vehicles and dust generated during construction of the plant.[82] The dust analyses undertaken by CGPL shows that dust contains a very significant amount of ash and some coal, whereas the silica fraction is minute. Thus, sand dust is only a very minor contributor to the pollution and ash and coal are significant contributors for PM-10 standard violations.

Table 3: Ambient Air Quality at Baseline Conditions
(i.e. prior to plant operation)

	Monitoring Data	NAAQS (India) Standard	NAAQS (India) Result	WB's PPAH (ADB) Standard	WB's PPAH (ADB) Result
PM-10:					
- 24-hr avg.	89 (worst case)	100	Complied	150	Complied
-Annual avg.	64.2-73.0	60	Not complied	50	Not complied
SPM:					
- 24-hr avg.	134-142	200	Complied	230	Complied
-Annual avg.	101-115	140	Complied	80	Not complied

NAAQS=National Ambient Air Quality Standards; PM-10=(respirable) particulate matter less than or equal to 10 microns; PPAH=Pollution Prevention and Abatement Handbook; SPM= suspended particulate matter; WB=World Bank.
Note: Air Quality monitoring was conducted at 8 locations within 10 km of CGPL during summer 2006, post monsoon 2006 and winter 2006/2007.
Source: Comprehensive Environmental Impact Assessment Report by TCE Consulting Engineers Limited, India, August 2007.

[81] Minutes of the Environmental Public Hearing of M/S Coastal Gujarat Power Ltd. held on 19/09/2006 at 11:00 Hrs. at Mundra Rest House, TA-Mundra, Dist. Kutch.
[82] ADB. 2009. *Environmental Safeguards Review Mission Report for the Mundra Ultra Power Mega Power Plant, 11-12 October 2009*, para.12. Manila.

Table 4: Ambient Air Quality During Power Plant Operation
(Tata Mundra plant operating at 2,400 MW (4,000 MW full capacity) and Adani Plant operating at 4,620 MW (full capacity)

	Monitoring Data	NAAQS (India) Standard	NAAQS (India) Result	WB's PPAH (ADB) Standard	WB's PPAH (ADB) Result
PM-10:					
-At 7 villages	123-134	100	Not complied	150	Complied
-CGPL's main gate	106	100	Not complied	150	Complied
-CGPL's hostel and labor colony	98	100	Complied	150	Complied

NAAQS=National Ambient Air Quality Standards; PM-10=(respirable) particulate matter less than or equal to 10 microns; PPAH=Pollution Prevention and Abatement Handbook; SPM= suspended particulate matter; WB=World Bank.
Note: Air quality monitoring was conducted at 7 nearby villages and CGPL's main gate, hostel and labor colony during January 2013-March 2013.
Source: Quarterly Environmental & Social Performance Report-Tata Ultra Mega Coal Fired Power Plant, Mundra, Period: January to March 2013, Annex 13 on p. xxvi and Annexure 14 on page xxviii, SENES Consultants India Pvt. Ltd, June 2013.

107. **Air Quality Results Prior to Plant Operation.** The annual average values of RPM for the three seasons in 2006-2007,[83] ranged between 64.2 ug/m^3 and 73.0 ug/m^3 at all eight monitored stations. These values were above India's NAAQS (60 ug/m^3 for residential and rural areas). The 24 hours averages for the maximum and the 98 percentile values of RPM at all eight locations monitored during the summer of 2006 were very close (within 89 percent of) to India's NAAQS of 100 ug/m^3 for "residential and rural areas". SPM values are less disconcerting than RPM because of lower health impacts. The 24-hour averages during the summer period of 2006 ranged between 67% and 71% of India's NAAQS of 200 ug/m^3.

108. The SEIA states that "the monitored air quality indicates that values of SPM, RPM, SO_2 and NO_X are well within the stipulated NAAQS and World Bank guidelines for residential and rural areas, as shown in Appendix 2" (para. 33 on p. 12). As discussed above, the CRP disagrees with this statement because India's and ADB's requirements for the annual average standard for PM-10; and ADB's requirement for the annual average for SPM were not complied with at any of the 8 monitoring stations.[84] The CRP is of the view that the data calculated in the SEIA Tables A.1.2, A.1.3, and A.1.4 of Appendix 2 is incorrect. The reported minimum pollutant should have been labeled as "maximum" values, and the reported average pollution concentrations should have been labeled as "minimum" values.[85]

109. **Air Quality Monitoring During Plant operation.** During the January 2013-March 2013 period, the ambient air quality monitoring was conducted at seven villages around the Tata

[83] Air standards were measured during three quarters only as no measurements were undertaken during the monsoon season.
[84] As the averages calculated are based on three observed periods only as no data was available for the period June, July, August, September 2006, this statement assumes that the data for the non-observed period is in line with the periods for which data has been observed.
[85] The judgment that the air parameter analysis in the CEIA and SEIA are confusing and partly incorrect is also expressed in the CAO audit report. The CAO report also concludes that the Tata Mundra plant was built in a degraded airshed and thus offset measures should have been applied (see CAO, Audit of IFC Investment in Coastal Gujarat Power Limited, India, 22 August 2013, pages 33-34).

Mundra plant. At that time all 4,620 MW of the Adani Thermal Power Plant and 2,400 MW of the CGPL Thermal Power Plant (out of the 4,000 MW) had been commissioned. The ambient air quality monitoring data at these seven villages revealed that the 24-hour average PM-10 (RPM) concentrations ranged between 123 ug/m^3 and 134 ug/m^3, not complying with India's NAAQS of 100 ug/m^3 at any of these villages. The ambient air quality monitoring conducted during this period, also indicated the NAAQS 24-hour average PM-10 standard was not being complied with at CGPL's main gate (106 ug/m^3) and was just below the standard at CGPL's hostel and labor colony (98 ug/m^3).

110. Ambient air quality monitoring was conducted in December 2013-January 2014 and May-June 2014 by CGPL's consultant (Ashwamedh Engineers and Consultants) at three locations within the Tata Mundra plant site (CGPL hostel, labor colony and main gate) and seven nearby villages (Tragadi, Moti Khakar, Mota Kandagara, Nana Bhadiya, Wand, Tunda, and Siracha). The monitoring data indicate noncompliance with India's NAAQS for the 24-hour average PM-10 of 100 ug/m^3 at the main gate and all seven villages. However, monitoring results for PM-2.5 were in compliance with the NAAQS of 60 ug/m^3.

111. In May 2014, CGPL asked a new environment consultant (CEG Test House) to conduct ambient air quality monitoring at three CGPL sites (namely, at the main gate, labor colony, and field hostel), two *bander*s (Tragadi and Kotdi *bander*s), and seven villages (Mandavi, Wand, Bhadreshwar, Tragadi, Motikhakhar, Nana Bhadia, and Mota Kandagra villages). Except for the data measured at the main gate of the Tata Mundra plant, all monitoring data was in compliance with the 24-hour average Indian NAAQS for PM-10 of 100 ug/m^3 (and also with the ADB requirement of 150 ug/m^3). It is noteworthy that the monitored PM-10 values were much lower than those reported by CGPL's previous consultant (Ashwamedh Engineers and Consultants). In addition, the data showed compliance with the 24-hour average India's NAAQS for PM-2.5 of 60 ug/m^3. The CRP mission could not obtain an explanation why the environmental data generated by the new consultant (CEG Test House) differed so significantly from the environmental data generated by the previous monitoring consultants. The monitoring results of the new environmental consultant (CEG Test House) present a significantly better situation of air quality than previous monitoring results.

112. **Noncompliance Issues on Air Pollution.** Project files reviewed by the CRP show that various concerns about appropriate measurement and data were also raised during ADB internal review process of the SEIA. The ADB Report and Recommendation of the President to the Board of Directors states: "The EIA confirms that (i) the emissions will meet national standards in India as well as the World Bank's emission guidelines for new power plants, and (ii) the ambient air quality will not exceed these standards even if emission from all planned future power plants in the vicinity are considered."[86] This statement is not only incorrect; it also projects the impression that a comprehensive cumulative impact assessment including all planned future power plants in the vicinity of the Tata Mundra plant has been undertaken. The cumulative impact assessment presented in the SEIA only takes account of 660 MW power generation capacity of the Adani plant. The Adani plant now operates with a power capacity generation of 4,620 MW. The justification given for the limited cumulative impact assessment with an assumption of only 660MW is that, at the time when the assessment had been carried out, MoEF had only granted approval for the phase I of the Adani plant, which amounted to 660 MW. The approval for the second phase of the Adani plant was given only in February 2008. It is thus correct, that at the time when the cumulative impact assessment was carried out, MoEF

[86] ADB. 2008. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to India for the Mundra Ultra Mega Power Project,* para. 55*.* Manila.

had given approval only for 660 MW. Additional Adani units were commissioned very rapidly between May 2009 and March 2012. By March 2012, Adani was operating a plant with 4,620 MW. Under ADB policies, cumulative impact assessments are required for all planned investments. The CRP is of the view, that ADB should have engaged actively with the regulatory authorities to learn about pending expansion plans for the Adani project and, should these expansion plans have already been under preparation, that these should have been included into the cumulative impact assessment.

113. Since 2013, ADB staff became cognizant of the noncompliance situation in respect to PM-10 standards. ADB has since discussed with CGPL the need to improve monitoring. CGPL emphasized to the CRP that ADB staff takes a strong interest on air quality monitoring and possibilities for air quality improvements during its supervision missions.

114. **Has noncompliance resulted in harm?** Complainants argue that there have been adverse health impacts. A health sector survey contracted by CGPL does not show evidence of health impacts.[87] This should not be surprising. As the Tata Mundra plant has been in operation only for a short period, it would be unlikely that surveys done now would show a statistically significant health impact. But lack of statistical evidence does not mean that there is no health impact or that there will not be lack of measurable health impact in the near future. The Tata Mundra plant violates PM-10 standards. Standards are based, among other things, on empirical evidence which demonstrates that pollution above the standard are linked to negative health impacts and impacts on human welfare. If these standards are exceeded consistently and over a long period of time, health impacts can be presumed. Noncompliance with standards should thus be taken as a proxy for evidence for impacts on health. But this harm can only be partially attributed to the Tata Mundra plant. The Adani plant is located adjacent to the Tata Mundra plant. The respective contributions of each plant to air pollution can only be determined after a detailed study is undertaken to assess the respective contribution of air pollution by each polluter.

115. **Findings**. The CRP finds that there has been noncompliance with para. 62 of the Environment Policy (2002); para. 4 of OM Section F1/OP; and applicable PPAH standards. The CRP finds that if the violation of air quality standards is continuous, this is likely to lead to harm.[88] In this finding, the CRP has been guided by para. 187 of the Accountability Mechanism Policy which states: "Because the assessment of direct and material harm compared to the context of the complex reality of a specific project can be difficult, the CRP will exercise careful judgment on these matters and will be guided by ADB policies and procedures where relevant." The ADB Accountability Mechanism Policy provides for "likely harm" to be considered as direct and material harm. Under the heading "Objectives and Guiding Principles" para. 103 of the Accountability Mechanism Policy states: "The objectives of the Accountability Mechanism will be to provide an independent and effective forum for people adversely affected by ADB-assisted projects to voice their concerns and seek solutions to their problems, and to request compliance review of the alleged non-compliance by ADB with its operational policies and procedures that may have caused, **or is likely to cause,** them direct and material harm."(emphasis added) In

[87] Taleem. 2013. *Health Need Assessment Study*.

[88] The CRP has considered likely harm as well as harm as discussed herein. The Objectives and Guiding Principles of the Policy state in para.103: "The objectives of the Accountability Mechanism will be to provide an independent and effective forum for people adversely affected by ADB-assisted projects to voice their concerns and seek solutions to their problems, and to request compliance review of the alleged non-compliance by ADB with its operational policies and procedures that may have caused, or is likely to cause, them direct and material harm." (emphasis added). The Accountability Mechanism Policy further refers to likely harm in paras. 103, 106, 139, 151, and 179.

the project, the "likely harm" is partially attributable to noncompliance with ADB policies of the Tata Mundra Plant. According to the Accountability Mechanism Policy, harm partially caused by noncompliance with ADB policies of ADB funded projects should be assessed.[89]

F. Groundwater Impacts

116. **Complainants' position.** Complainants argue that ground water tables have declined rapidly during the last few years. Complainants attribute the declining ground water tables "to the gigantic construction projects, along with port and other factories, which are alleged to have withdrawn massive amounts of water from aquifers, depleting them extensively." The task of the CRP is to assess the impacts of only the Tata Mundra project on the groundwater levels. The MoEF clearances specify that no groundwater can be used by the Tata Mundra plant construction project and by the Tata Mundra plant in operation. Drinking water was to be generated by a desalination plant. CGPL argues that they have strictly adhered to this condition. It is possible that farmers who can pump groundwater from wells have supplied drinking water to laborers on the Tata Mundra plant construction site. CGPL argues that if this has happened it was neither with their knowledge nor with their consent.

117. The CEIA and the two marine impact assessments take note of the declining groundwater tables in the Mundra area which can be observed since a number of years. The MEIA (2009) states: "The level of water suitable for drinking and irrigation ranges from 5 m to 35 m below ground. The water at greater depths tends to be saline. Increased rate of extraction and scanty rainfall in recent years has not only led to groundwater depletion but seawater ingress has occurred in many areas along the coast."[90]

118. **Findings.** The CRP does not find that declining groundwater tables in the Mundra area can be attributed to the CGPL plant. There are multiple factors explaining the decline of groundwater levels, including incentives provided through subsidization to pump groundwater.

G. Impacts on Horticulture

119. **Complainants' position**. Complainants argue that since the Adani and Tata power plant started (even before all units were operational), some crops like "Chiku" have drastically fallen in yield. Economically important crops, such as date palms, which grow under the transmission lines, are also argued to be impacted. It is argued that in 2012, the date production was especially poor in the villages of Jarapra, Navinal and Dhrab, all located within 5 km of the Tata Mundra and Adani power plants. They argue that date production is impacted by heat and dust emissions. As dates are one of the main cash crops in the region, this decline implies a very large livelihood impact.

120. A causal link between air pollution and heat pollution cannot be excluded but to establish evidence for such a causal link requires a study with an adequate time series and statistical analysis which defines the significance of impacts of multiple factors on yield levels. Declining

[89] Footnote 46 of para. 187 provides guidance on the harm which is partially caused by ADB's non-compliance. It states: "---- If the CRP finds that the alleged direct and material adversial effect is **not totally or partially** caused by ADB noncompliance, its …Compliance review report will state this without analyzing the direct and material adverse effect itself or its causes."(emphasis added). Grammatically, this is a parallel construct which means "not total and not partially" cause by ADB noncompliance. In this project, the harm is partially caused by ADB's non-compliance and thus should be investigated. In the project, the harm is partially caused by ADB's non-compliance and thus should be investigated."

[90] NIO. 2009. *Marine Environmental Impact Assessment,* page 30. India.

groundwater levels with resulting increased salinity is likely a major contributor to declines in yields. It is unlikely that construction work on the Tata Mundra plant site would have any significant impact. It is also unlikely that the operation of the Tata Mundra plant would already have a significant impact. The Tata Mundra plant started to operate with three units in 2012 and with all five units in 2013. Such short duration in operation is unlikely to have a significant impact on date and Chiku yields. But a combined effect of the Tata Mundra plant the Adani plant and the associated facilities, cannot be excluded and should be investigated in further studies.

121. **Findings.** Given the multiplicity of factors which influence agricultural yields in Mundra, especially the declining ground water levels, and with short duration the Tata Mundra plant is operating, the CRP finds it unlikely that declining yields in recent years are caused by the Tata Mundra plant. The CRP thus assumes that harm is unlikely to be caused by the project and does not assess any noncompliance issues.

H. Labor Issues and Human Stress

122. **Complainants' positions.** Complainants' state that only very few local residents are employed by CGPL. They argue that the project is pushing out people of their traditional fishing and livelihood activities but that these people are not absorbed in the project's workforce. Complainants further argue that the "large number of stressed out migrant labor often indulge in alcoholic drinks and associated ills. As a result, the illegal production and sale of liquor in the area, in a dry state like Gujarat, has sharply increased. The local men folk are now being impacted directly, getting hooked onto this, and domestic violence has increased sharply after the entry of these two mega plants in this area."[91]

123. The MoEF permission to operate specifies that CGPL has to engage local labor for construction and plant operations. ADB policies and procedures do not provide for such a policy. OM Section C3/OP lays out the areas to be addressed in the IPSA. There is no requirement for actively supporting labor absorption into an ADB supported project.[92] One could argue that the social stress issues outlined by the complainants, could have been anticipated by ADB staff and that social stresses should have been identified under the risks and vulnerabilities section of the IPSA which needed to be addressed during implementation.[93] However, it is difficult to envision how ADB staff could have insisted that CGPL puts in place special support measures for released labor who previously had been temporarily employed during the construction phase. Such support would have been innovative and could have had a positive development impact, but they are not required under ADB policies and procedures.

124. **Findings.** The CRP does not find noncompliance of ADB operational policies and procedures in respect to labor and human stress concerns alleged by complainants.

IX. CONCLUSIONS

125. This section summarizes the conclusions arrived at by the CRP as a result of the foregoing analysis and findings. The CRP concludes the following:

A. Failure to Adequately Disclose Information and Conduct Consultations

[91] See point 8 on ADB Accountability Mechanism's Complaint form submitted by complainants.
[92] ADB. 2007. Incorporation of Social Dimensions into ADB Operations. *Operations Manual*. OM C3/OP, para.6. Manila.
[93] Footnote 95.

126. **Findings.** The CRP finds that ADB was noncompliant with para. 63 of the Environment Policy; with OM Section L3; Public Communications Policy; and OM Section F1/OP: Environmental Considerations in ADB Operations. ADB failed to advise CGPL that at least two public consultations needed to be held prior to project appraisal, which included relevant stakeholders, especially all people affected by the project. Only one such consultation was held on 19 September 2006. Thereafter, consultations were restricted to people from villages which owned or used land on the site where the plant was to be constructed. CGPL did not include fisherpeople as stakeholders and project-affected people into those consultations. Stakeholders were also not given project relevant information as required under para. 15 of OM Section L3/OP and thus did not have an opportunity to raise their concerns and present their view on the design of the project.

127. The CRP finds that there is noncompliance with para. 63 of the Environment Policy (2002) and OM Section F1/BP as fisherfolk have not been considered as people affected by the project. The SEIA incorrectly states that there is no fishing in the coastal waters fronting the project. As fisherfolk in the area have not been adequately consulted, potential impacts have not been identified; no baseline data has been collected; and no monitoring system was established. First monitoring efforts at Tragadi *bander* started only in 2013. Fisherfolk in the Modwa and Tragadi villages have been recognized as been affected by access restrictions in 2009, and a participatory, inclusive consultation process has started and livelihood support measures have been introduced. CGPL has shown significant engagements in conducting consultations with Modwa and Tragadi villages which ADB staff supported. But these measures came late and were mainly designed as compensation for access restrictions to these two villages. Other fisherfolk, potentially affected by the project, were not engaged in this process. Lack of a comprehensive identification and adequate consultation with fisherfolk as project affected people did lead to harm.

B. Loss of Livelihood of Fisherfolk

128. The CRP finds that ADB did not exercise due diligence when agreeing to the 7^{o}C water discharge standard without presenting the PPAH standard in the SEIA and assessing the impacts of the deviation from ADB required standards on the marine environment. Agreeing to a 7^{o}C discharge water temperature above ambient temperature, without providing a justification for the deviation from PPAH standards is noncompliant with ADB operational policies and procedures. While management states, that a review of the RMEIA has been done, project files provide no evidence that a review of the RMEIA has been carried out and no written comments are available. A review of the RMEIA was required by OM Section F1/OP, para. 5 as the report is part of the environmental assessment. Moreover, a careful review would have been essential to assess the impacts of the 7^{o}C standard on the marine environment. Any justification of a deviation from PPAH standards would have required a qualified and careful assessment of the RMEIA. The CRP finds that ADB has been noncompliant with the Environment Policy (2002), with the provisions laid out in PPAH (p. 419), and with OM Section F1/OP, para. 5.

129. The CRP finds noncompliance with PPAH provisions which prohibit dilution. CGPL does exercise dilution in order to meet water quality standards without any adequate advice by ADB. ADB has monitored the water quality standards but did not exercise sufficient due diligence in assessing whether these were achieved through dilution. ADB should have assured appropriate staffing in the project team. A qualified expert could have found the inconsistencies with PPAH standards and could have discussed with CGPL how this practice could be altered to avoid harm. The CRP recognizes that CGPL's recent decision to dispose of the sludge from the its

desalinization plant instead of discharging it to the sea would help reduce potential adverse impacts associated with Fe and possibly other pollutants in this sludge. Assuming that this practice will be implemented, the CRP does not assume harm resulting from noncompliance with PPAH provisions which prohibit dilution.

130. The CRP does not find that cutting of mangroves could have resulted in a negative impact on the livelihood of fisherfolk. Given the very sparse and stunted growth of mangroves in the area, destruction of mangroves would have been so insignificant that mangroves could not have provided spawning grounds for fish. Thus, no causal link between the alleged cutting of mangroves and reduction of fish catch by the fisherfolk can be established.

131. The CRP cannot take a position on associated facilities such as the intake channel and the port, which are owned and operated by the Adani plant, as the environmental policies and procedures applicable at the time when the project was prepared, appraised and approved by ADB, did not provide for application of environment safeguard provisions to associated facilities. The CRP thus does not review the complaint's claim of destruction of mangroves at the intake channel, destruction of the Kotdi creek and the death of large number of fish seedling with pumped intake water.

132. The CRP finds that construction of the outfall channel and its impacts on the Modwa creek and thermal pollution by allowing water to be discharged at up to 7^{o}C above ambient water temperature harm *Pagadiya* fisherfolk.

C. Access Restrictions to Fishing Grounds

133. **Findings.** The CRP finds that ADB has done insufficient due diligence in defining the group of people who are affected by constrained access to their traditional fishing grounds as a result of closing of the premises of the Tata Mundra plant. While corrective action has been taken to compensate affected households in the Modwa and Tragadi villages, no systematic assessment has been done on impacts resulting from access restrictions on people living in Tragadi *bander* and on people living in villages other than Modwa and Tragadi villages. The CRP thus finds that ADB was noncompliant with OM Section F2/BP and OM Section C3/OP. Noncompliance with these policies and procedures resulted in harm. As people were not identified, they could not be compensated.

D. Coal Dust and Fly Ash Pollution

134. **Findings.** The CRP finds that ADB has shown significant engagement in supporting CGPL in the design of mitigation measures to reduce coal dust pollution in the Wand village. Since 2012, ADB efforts have been strong and persistent when the impacts were recognized. The CRP finds that while there is evidence of harm, ADB has made sufficient efforts in rectifying coal dust pollution and thus has acted in accordance with para. 67 of the Environment Policy (2002) which states that "where unanticipated environmental impacts become apparent during project implementation…ADB will assist executing agencies and other relevant government authorities to assess the significance of the impacts, evaluate the options, and estimate the costs of mitigation."

E. Ambient Air Quality

135. **Findings.** The CRP finds that there has been noncompliance with para. 62 of the Environment Policy (2002) and of para. 4 of OM Section F1/OP. The CRP finds that the

noncompliance is likely to lead to harm. The PPAH specifies that Indian national standards are applicable and the annual average PM-10 ambient air quality standard was not complied with before the plant became operational. Measurements undertaken since the plant operated at full capacity shows violation of Indian standards for 24-hour average PM-10 concentration.

F. Ground water Impacts

136. **Findings.** The CRP recognizes that there are declining ground water tables in the Mundra area but does not find that these declining groundwater tables can be attributed to the Tata Mundra plant. There are multiple reasons which influence the ground water tables in the area. The Tata Mundra plant does not use groundwater and is required to provide water through its desalination plant. The CRP did not find contrary evidence. As alleged harm cannot be attributed to the Tata Mundra plant, the CRP does not assess potential noncompliance with ADB operational policies and procedures.

G. Impacts on Horticulture

137. **Findings.** Given the multiplicity of factors which are influencing agricultural yields in the Mundra area, especially the declining ground water levels, and given the short duration of the operation of the Tata Mundra plant, the CRP finds it unlikely that declining yields in recent years are caused significantly by the Tata Mundra plant. The CRP thus assumes that the alleged harm cannot be attributed to the Tata Mudra plant and thus, it does not assess potential noncompliance with ADB operational policies and procedures.

H. Labor Issues and Human Stress

138. **Findings.** As there are no applicable ADB operational policies and procedures relating to the alleged labor and human stress issues, the CRP has no findings on noncompliance.

X. SOME FURTHER CONCLUSIONS – LESSONS LEARNT

139. The CRP provides below some important lessons that the CRP learned based on its experience in this case. These would also feed into learning reports and other institutional learning activities, which OCRP, jointly with the Office of the Special Project Facilitator, the Independent Evaluation Department, and Regional and Sustainable Development Department, is expected to deliver according to paras. 196, 209, and 212 of the Accountability Mechanism Policy.

140. **Establishment of Evidence Where Noncompliance of ADB Policies Prevented Pre-Project Evidence Base to be Established.** ADB's safeguard policies, such as the environmental and social policies, require the Borrower to undertake early surveys and studies with the intention of (a) establishing the baseline data, (b) identifying impacts, and (c) monitoring impacts. If these policies are not complied with, then baseline data are not established and impacts may be difficult to be identified and monitored. Without this information, the pre-project situation is often difficult to reconstruct. If, as a result of non-compliance with ADB policies, adequate baseline information is not available, the CRP will, of necessity, base its conclusion on the best other evidence available. This is essential in order to ensure that the ADB safeguard policies and ADB Accountability Mechanism are effective.

141. **The Importance of Early and In-depth Consultations with Stakeholders and Project-affected People.** ADB safeguard policies require consultations with stakeholders and

affected people at different junctures during project preparation and implementation. Failure to conduct these consultations with adequate care can lead to serious project design mistakes and safeguard non-compliance issues which later are difficult and costly to correct. The ADB management and staff culture needs to recognize the particular value of listening to the voices of stakeholders. Adequate time and resources for consultations are required even in the tightest of processing schedules.

142. **The Role of ADB Staff in Assisting the Borrower to Comply with ADB Operational Policies and Procedures.** ADB safeguard policies are often unknown to the borrower. It is the task of ADB staff to assist and support the borrower in the implementation of these policies. Not providing the appropriate support, undermines the effective implementation of ADB safeguard policies, and burdens the borrower unnecessarily with the often costly corrective actions which are later on called for.

143. **Adequate Review of Environmental and Social Assessment Reports.** ADB policies require a review of studies carried out under ADB safeguard policies. Staff with adequate professional expertise needs to be tasked with such reviews and be provided with adequate resources. Project leaders need to give adequate attention to the outcome of reviews and need to adjust project design and supervision programs, if needed. If ADB jointly finances with other International Financial Institutions, it cannot be assumed that their due diligence meets ADB standards.

144. **Avoidance of Conflict of Interest constellations with Staff Providing Assistance to Borrower in Preparation of Studies and Signing of on Compliance Review Status.** Staff assisting the borrower in the preparation and implementation of ADB safeguard policies should not be the same as the staff which subsequently approves (sign-off) the compliance review status, as this places the staff in a conflict of interest situation.

/S/ Dingding Tang
Chair, Compliance Review Panel

/S/Lalanath de Silva
Part-time Member Compliance Review Panel

/S/Arntraud Hartmann
Part-time Member, Compliance Review Panel

Manila, Philippines
9 March 2015

AM ACCOUNTABILITY MECHANISM

Office of the Special Project Facilitator | Office of the Compliance Review Panel

ADB

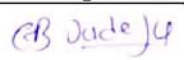
ADB Accountability Mechanism Complaint Form

The ADB Accountability Mechanism aims to provide an independent and effective forum for people adversely affected by ADB-assisted projects to voice their concerns and seek solutions to their problems, and to request compliance review of alleged noncompliance by ADB with its operational policies and procedures that may have caused, or is likely to cause them direct and material harm.

The Accountability Mechanism is a **"LAST RESORT"** Mechanism and covers only ADB-assisted projects. As such, it is encouraged that complainants first seek a fair resolution of their case with available grievance mechanisms at the project level or within the relevant Operations Department of ADB.

A. Complainants' Choice and Contact Information

1. Complainants' Choice
a. Please forward complaint to: *(Please choose only one and DO NOT leave this BLANK)* ☐**Special Project Facilitator***(Assists people directly, materially, and adversely affected by specific problems caused by ADB-assisted projects through informal, flexible, and consensus-based methods with the consent and participation of all parties concerned)* ✓**Compliance Review Panel***(Investigates alleged noncompliance by ADB with its operational policies and procedures in any ADB-assisted project in the course of the formulation, processing, or implementation of the project that directly, materially, and adversely affects local people.)*
b. Do you want your identities to be kept confidential? ☐**Yes** ✓ **No**

2. Information on the Complainants (*The identities of complainants will be kept confidential unless the complainants agree to disclose their identities, but anonymous complaints will not be accepted.)*					
Names and designations (Mr., Ms., Mrs.)	**Signatures**	**Positions/Organizations** ***(If any)***	**Addresses**	**Contact numbers**	**E-mail addresses**
Mr. Gajendrasinh Bhimaji Jadeja		Member	At PO Navinal, Tal Mundra, Kutch, Gujarat, India		gajendrasinhjadeja544@gmail.com
Mr. Harun Salemamad Kara		Member	Village: Badreshwar, Taluka: Mundra Kutch District, Gujarat, India		
Mr. Bharat Patel		General Secretary, Machimar Adhikar Sangharsh Sangathan	Bhadreshwar, Mundra Taluka, Kutch District, Gujarat, India	+91.9426469803	bharatp1977@gmail.com

3. Information on Authorized Representative ***(If any)***. *(The identities of representatives who are not at the same time complainants will be disclosed to ensure transparency).* **Please provide evidence of the authority to represent the complainants.**					
Names and designations	Signatures	Positions/Organizations *(If any)*	Addresses	Contact numbers	E-mail addresses
NA					

B. Project Information

Project name	Tata Mundra Ultra Mega Power Project
Project Number	41946-014
Project location	Tundawanda village, Mundra Taluka, Kutch district, Gujarat, India
Brief description of the project	Tata Mundra Project is the first super critical, 4,000-megawatt (5 units of 800 MW each) power plant that was approved by the Government of India and is being developed by Coastal Gujarat Power Limited (CGPL) Mundra, Kutch district in Gujarat state. A consortium of Banks including multilateral agencies and Export Credit Agencies invest in this project which costs US $4.14billion. Financing comprises of equity of INR 42.50 billion, External Commercial Borrowings (ECB) of up to USD 1.8 billion and Rupee Loans of up to INR 55.50 billion. The ECBs include the Asian Development Bank, the International Finance Corporation, the Export-Import Bank of Korea, Korea Export Insurance Corporation, and BNP Paribas. National financial institutions (FIs) involved are State Bank of India, the India Infrastructure Finance Company Ltd., Housing and Urban Development Corporation Ltd., Oriental Bank of Commerce, Vijaya Bank, State Bank of Bikaner & Jaipur, State Bank of Hyderabad, State Bank of Travancore and State Bank of Indore.

C. The Complaint

1. What direct and material harm has the ADB-financed project caused to the complainants?

SOCIAL

1. **Failure to conduct free, prior, broad and meaningful consultations with communities prevented us from adequately exercising our basic right to information and participation**

The company failed in consulting most of the affected communities before the project started. Neither was relevant information provided, nor was it translated into local languages. Despite the significant adverse project impacts to affected communities, the consultation process did not demonstrate free, prior and informed consultation and did not facilitate informed participation. As such, our views as affected communities were never incorporated into the project decision.

2. Deeply flawed social and environmental impact assessments

The EIA of Tata Mundra UMPP says – "*The project area covers 1,254 hectares (ha) of vacant land near the villages of Tunda and Wandh, including 202 ha of right of way outside the project boundary, and is about 2 km from the first-phase development area of the Mundra Special Economic Zone (MSEZ), where a 660 MW power plant project, the Adani Power Project, is being implemented by Adani Power Limited.*"[1] However the areas has a high rural population density, and the land having multiple rural economic activities (fishing, fish drying, animal grazing being the main ones) for the last many decades at least. This was either a failure to recognize or an act of willful ignorance.

Far from being vacant, this land is being used for decades by the fisherfolk for various fishing related activites. They use this land for their hutments for 8-9 months a year, since they practice seasonal fishing, and also for boat landing, fish drying, net mending and a multitude of other related activities.

Apart from failing in recognizing the fishing communities as affected in the impact assessments, it also failed to recognize salt-pan workers/owners and pastoralists as affected communities.

Both the Rapid and Comprehensive Environmental Impact Assessment (EIA) reports are also questionable, as the impact assessments were carried out by TCE Consulting Engineers – a Tata-owned venture. The credibility of such documents is, therefore, highly questionable.

For us, ADB failed to analyze the multitude of risks and impacts of the project during the key stages including pre-construction, construction, operations, and decommissioning or closure.

3. Significant and irreversible loss of livelihoods of fisherfolks

The loss destruction of mangroves and creeks resulted in drastic reduction in fish availability in the region, pushing the fishing communities to extreme social and economic difficulties. The Independent Expert Fact Finding Report in 2012[2] shows that:

"Possible factors contributing to the drastically reducing fish catch in this area over the last few years are as follows --

- *One of the major factors identified by almost all, was the **destruction of creeks and mangroves** (with the Adanis contributing in a much larger scale) – nurseries of marine life, as described earlier in this report. Both the Kothdi and Mudhwa creeks have been badly damaged by Tata's dredging, widening and denudation.*
- *Another major factor identified by the fishing community is the **thermal pollution from the power plants – the warm cooling water coming out of their outfall channels**. This is a very large volume of warm water mixing with the gulf water here. The CGPL claimed*

[1] "Environmental Assessment Report – Mundra Ultra Mega Power Project", prepared by CGPL for ADB, 2007.
[2] Full report appended

that they have permission from Ministry of Environment and Forests to discharge cooling water at 7°C above ambient, but even on request, no such permission/clearance was shown.

- ***In such a sensitive area, this will have a huge negative impact. This is also a violation of their environmental clearance, which was for a closed cycle cooling system.*** *The adjacent Adani super mega coal power plant is building its so-called closed cycle cooling system – with an array of forced-draft cooling towers visible, reducing required cooling water volume by nearly 90%.* ***The failure ofthe Tata-Mundra plant to adopt a closed-cycle cooling system, as cleared, raises concerns as to whether they are cutting corners in order to increase profits.*** *Further, no cumulative impact studies were done to ascertain the impacts of warm water from all these power plants in this small area.*
- ***The other likely impact of warm water is de-oxygenation*** *– as a result of the increased temperature in the areas around the cooling water discharge, the dissolved oxygen level in the water is likely to go down, affecting all kinds of marine life very badly. This has a direct consequence for communities dependent on marine resources in these coastal areas. This has not been taken into account by the company.*
- *Another possibility pointed out by the marine scientist in the fact finding team, was the* ***possibledeath of large nos. of fish seedling with the pumped intake water****, unless high technology special filters are used. The fact finding team specifically asked the CGPL management about this on their meeting on 19th May afternoon, during our meeting at their office, but* ***the CGPL could not give any specific information, giving us the impression that in all likelihood they are not using any such screening device. It may be noted here that while in most countries IFIs insist on such safeguards – with US EPA documents indicating that any intake rate over 2 million gallons/day should follow those safeguards – no such conditions were set forth by them here.*** *"....2 million gallons per day intake threshold, over which facilities fall under this rule. The literature indicates that the mortality due to impingement and entrainment increase dramatically above this threshold."*[3] *The CGPL's proposed intake rate at full capacity is 15.12 million M³/day, or about 3994 million gallons/day, or about 2000 times the high-damage threshold! Even with just one unit operational, this is higher than the high-mortality threshold by nearly 400 times!*
- *The* ***possibility that chemical pollution is also being discharged*** *along with the cooling water, causing change in the chemical property of the water, as detailed later. This is indicated, as stated, by the persistent frothiness.*
- *The* ***highly saline brine, discharged from the desalination plant*** *of the power project, might also be increasing the salinity / changing pH of the water, driving fish away. As the Tata EIA says, -"Rejects from the desalination plant will be discharged into the sea through the discharge channel of the cooling water system", and this is a substantial volume of brine (reject) added to the gulf shores everyday."* (emphasis as in the original)

[3] "National Pollution Discharge Elimination System –Regulations Addressing Cooling Water Intake Structures for New Facilities", US-Environment Protection Agency, http://water.epa.gov/lawsregs/lawsguidance

4. **Fishing grounds became highly inaccessible**

Access routes to fishing and grazing grounds have either been blocked or unusually lengthened by the Tata's water channels. What was once a shorter route, has become lengthier by nearly 4 KMs, and the fisher-folk are now forced to shell out Rs.450 for each trip by an auto-rickshaw, in place of the earlier Rs.150 per trip. The route is also not maintained well and the women folk often are delayed when returning from the markets after selling the fish.

5. **No employment for locals**

While the project is in part premised on improving the living standard of local communities, only very few locals are employed by the company. That this project is pushing people out of their fishing and other livelihood activities and who are not absorbed in the project's workforce only proves that the project failed to generate secure and sustainable employment and failed to improving the living condition of the economically-displaced local population.

6. **Impact on horticulture**

Since Adani and Tata power plants started (even before all units were operational), some crops like "Chiku" ('Safeda') has drastically fallen in yield (similar reports came from other locations close to coal power plants, like Dahanu in Maharashtra). Many Chiku farmers have cut down their plants and gone to other crops. Economically important Date Palms – those coming under many of the power transmission lines – withering away.

In 2012, the date production was very poor in Jarapra, Navinal, Dhrab – all within five kilo-meters from these two gigantic thermal plants. Last year the rains didn't come early to reduce any impacts that these two plants are causing – both by their heat and coal dust/ash emissions, unlike this year, when the rains came early. Even with a 'good natural climate', date farmers – as well as the local Krishi Vigyan Kendra worker we met and discussed with - said that the production is just about 60% of what it used to be earlier. Date being one of the main cash crops in many villages in the area, the huge adverse impact can easily be imagined.

7. **Impact on ground water**

Another impact reported is that of ground water table having gone down fast in the last few years. In an area with little rain, the gigantic construction projects, along with port & other factories, have withdrawn massive amounts of water from the precious aquifers, depleting them extensively.

8. **Labour Issues and Social Unrest**

The large number of stressed out migrant labour, who often indulges in alcoholic drinks and the associated ills. As a result, the illegal production and sell of liquor in the area, in a dry state like Gujarat, has sharply increased. The local men folk are now being impacted directly,

getting hooked onto this, and domestic violence has increased sharply after the entry of these two mega coal plants (and port etc) in this area. Local women's groups are forced to organize themselves and protest against this.

II. ENVIRONMENTAL

1. **Destruction of mangroves**

Large tracts of mangroves, dry-land forests and creeks, rich in biodiversity, and mud-flats were destroyed by the company in the course of its construction activities. The construction of associated facilities like port (which is being shared with that of the adjacent Adani power project), the inlet water channel (also shared with Adani project) and the outlet water channel caused irreversible damage to the fragile environment. These mangroves also serve as protection to the estuaries, which are acts as a nursery for a variety of marine animals.

2. **Absence of Cumulative Impact Studies**

In a small stretch of the Kutch coast there are a number of projects coming up. The real impact of the Tata Mundra can be determined only when a cumulative impact assessment is done, which was never done. In the absence of cumulative impact assessment, companies will dodge the responsibility by passing it on to the other industry while the people will suffer endlessly.

III. HEALTH

1. **Ash Contamination and health issues**

Fly ash emanated from the project falls on the fish put out for drying, making it inedible and non-marketable. The fish also will get contaminated with the toxic fly ash falling on it, making it highly unsafe to consume, particularly for women of child bearing age. Exposure to mercury during pregnancy can cause a range of health effects including developmental disabilities. Apart from fishes, the ash also falls on the salt pans around the project, which is one of the highest salt producing areas of India. Fly ash falling on fields and its grass consumed by the animals put them in danger of serious illness, in some cases, fatal. Exposure to such toxic particles in the air, and the high pollution resulting out of the Tata and the adjacent Adani project put the people at high health risks.

A recent study – Coal Kills – estimate about 100-120 people are killed every year within this region only because of the impact of the thermal power projects in this area.

The full operational CGPL is invading houses all around the plant with coal dust. Coal dust has engulfed all walks of life, whether food, drinking water or even their houses. Fly-ash is intense. As per their own admission, the CGPL plant is burning anything between 12-13 million tons of

coal every year, and that coal is coming in (post landing after a long sea voyage) through a nearly 15 KMs long coal conveyor from the landing jetty in Mundra. And this is creating havoc in the Tunda-Vandh village, whenever the wind blows from the conveyor side to their side (which is quite often). There are layers of coal dust covering their floors, their bodies when they sleep outside on the terrace (something which is normal in summer). Villagers from Tunda-Vandh also reported breathing difficulties, whenever the coal conveyor runs "at speed".

2. Children's Health at Risk

There is a roughly 20% increase in children's respiratory diseases in the past two years, since the CGPL is functioning. It is a startling figure, never seen in "normal" change situations, but this was expected by all normal logic of exposure to heavy air pollution, where young children are impacted first. The huge injustice of the situation is that the CGPL plant is sending overwhelming part of its generated power to five states, including far off Maharashtra, whereas the health cost (totally un-compensated in any way) is being borne by the young children of this area the most.

The question of adverse health impacts due to both huge amounts of coal dust from CGPL and fly-ash from CGPL (& Adani power), is a critical one, as these two together are bringing in and burning nearly 28 million tons of coal every year in that small area. If one take a close look at the satellite image of the location of the villages Tunda, Vandh, Navinal, Mota Kandagra and Nana Bhadiya – one is struck by the closeness of all these to both the mega coal plants. In fact Tunda-Vandh is sandwiched between the two mega polluters, as has been written earlier. The huge amounts of dust and ash are spreading in the area, damaging health, crops and more.

2. Have the complainants made prior good faith efforts to solve the problem(s) and issue(s) with the concerned ADB operations department?

✓**Yes** If YES, please provide the following: when, how, by whom, and with whom the good faith efforts were made.

On November 30 2012,a good faith letter was sent to Michael Barrow, ADB Director for Infrastructure Finance Division Fund 1. Copied in the letter were Takeo Koike, Investment Specialist andSujata Gupta, Head of Private Sector Operations Department at ADB's India Resident Mission . It was sent thru email by MASS representatives including Bharat Patel, Harun Sale Kara and Gajedrasinh Jadeja.[4]

Please describe any response the complainants may have received from or any actions taken by ADB

Here are the important dates of our communication with the ADB following the Novermber 23, 2012 letter.

1. On 11 December 2012, we received an acknowledgment from Mr. Takeo Koike. He wrote "Sorry for taking a bit of time for me to

[4]Copy of the correspondence is annexed.

respond to your email below. We are currently looking into the points you have shared with us by the email, and will try to get back to you shortly. Meanwhile, we would appreciate your patience."

2. On 15 February 2013 (more than 2 months after acknowledging), Mr. Koike wrote back asking to meet us"during the 4 week of March 2013". Bharat Patel replied saying that since he was in Delhi on the 4th, he could meet them in Delhi. That did not materialize.
3. On 19 February 2013, Mr. Koike proposed 6 or 7th meeting in Mundra and Bharat Patel confirmed in an email dated 5 March 2013 that MASS will meet Mr. Koike on March 7 meeting. Again, that planned meeting did not materialize.
4. On 09 April 2013, we emailed Mr. Toike (Mr. Lubis and DeSilva from CRP were included in the email) expressing our disappointment with the signifantly delayed and meaningless response of the ADB.
5. On 11 April. Mr. Koike replied, stating the "we continue to communicate..." and confirming that "we will visit Mundra later this [April]...".
6. On April 14, we emailed Mr. Koike confirming our meeting with him and his team on 26 April 2013.

In the meeting people explained their concerns to the team.The team, in some cases, explained the steps taken / facilities started by the company ostensibly to improve our situation. We explained the situation developed after company's 'divide and rule' policy, with some people in a village getting benefits and others left out, resulting in tension among people. The team heard the people.

Few days after this meeting we received the following letter from Michael Barrow:

From: <mpbarrow@adb.org>
Date: May 2, 2013 9:01 AM
Subject: CGPL
To: "Bharat patel" <bharatp1977@gmail.com>

Dear Mr. Patel,

It was a pleasure for my colleagues and I to meet with you and fellow members of MASS last week. Takeo and our team will be following up with you on a regular basis, but I wanted to also personally assure you that we take very seriously all concerns that are raised by people from communities located close to infrastructure projects that we help to fund. We very much value the chance to interact with MASS and the very frank and detailed discussion last week helped me to better understand your concerns. We are looking into all of these, though some of the impacts relate to wider development along the coast of the Gulf of Kutch. We are working with CGPL to identify and implement additional mitigation measures which can be taken by CGPL to further address the concerns directly related to their operations. These measures are expected to include additional monitoring, design measures within the plant

and enhanced engagement with, and more focused assistance to, project affected people. These possible additional measures are being investigated now with a view to ensuring that they are realistic, optimal and well-directed. As we develop these measures with CGPL we will be communicating them to you and others close to the project. We will engage with you on a regular basis and I personally look forward to visiting Mundra and the surrounding villages very soon.

With kind regards,
Mike

Michael Barrow
Director

Infrastructure Finance Division 1
Private Sector Operations Department
Asian Development Bank
6 ADB Avenue, Mandaluyong City
1550 Metro Manila
Philippines
Tel No. (632) 632-6483
Fax No. (632) 636-2347
email: mpbarrow@adb.org

Since then we have not heard from the Operations department.

☐**No**

3. Have the complainants contacted the Office of the Special Project Facilitator or the Compliance Review Panel about their concerns?

☐**Yes**, Office of the Special Project Facilitator ✓**Yes**, Compliance Review Panel

☐**No**

If YES, please provide information on when the contact was made, how, by whom and with whom.

On the first week of December, Mr. Rusdian Lubis, Chair, Compliance Review Panel concurrently Head, Office of the Compliance Review Panel (OCRP), and Mr. Geoffrey Crooks, Principal Compliance Coordination Specialist, OCRP gave a briefing session in Washington DC about the ADB's Accountability Mechanism Policy 2012. Our support organization, Bank Information Center, subsequently arranged a meeting between us (represented by Bharat Patel) and Mr. Crooks and Mr. Lubis via phone. The purpose of the meeting was to understand the updated OSPF and CRP functions and how each process works under the new policy. It was an initial presentation of the Tata project issues at the time and was an opportunity to clarify the AM guideline and requirements should a project complaint be lodged. The initial interactions of MASS and with the ADB operations team were also described, noting that we were aware of such procedural requirement before considering filing an official complaint.

Please describe any response the complainants may have received or actions taken by the Office of the Special Project Facilitator or the Compliance Review Panel.

4. Please include any other information that you consider relevant.

1. While the issues related to the Mundra Project is yet to be settled, the company is planning further expansion. Apart from this being threatening to the communities and a tactic to intimidate, if this is carried out without mitigating the damages which is already inflicted on the people, their livelihood and environment, we will be heading to an irreversible situation, if we are not there yet.

   http://articles.economictimes.indiatimes.com/2013-05-28/news/39580190_1_mundra-umpp-coastal-gujarat-power-ltd-cgpl

2. While ADB classifies this as an environment category A project, having "significant adverse environmental impacts that are irreversible, diverse, or unprecedented", the involuntary resettlement category is B, assuming that the issues related to displacement of people form their land or livelihood is not significant. With thousands of families dependent on the sea and fishing for their livelihood and the project having a direct negative impact on their livelihood, this classification is erroneous.

3. Four out of a total six assessment of the Project's environmental and social impacts, mentioned in the 'Report and Recommendation of the President to the Board of Directors', were conducted by the subsidiaries of the Tata company or the owner of the project, Tata Power Company itself. Not only did ADB miss to see the conflict of interest here but ignored the fact that the promoters of the company would conceal or understate the magnitude of negative impacts. ADB failed to do any independent assessment of those documents, according to our knowledge.

4. In the above mentioned document it says: "The project area is located on marginal and barren land that is not ecologically or culturally sensitive" (Pg. 13). Kutch Coast is one of the rare ecological zones in the world having rich bio-diversity. It comprises of mangroves, coral reefs, mudflats, seaweeds, Commercial Fishes and several rare marine species. The mangroves of Kutch are the second largest after the Sunderbans in the mainland of India.

   A prominent feature of the Kutch Coast is the vast intertidal zone comprising a network of creeks, estuaries and mudflats. The Kutch coast provides conducive environment for several sea based traditional occupations like fishing, salt making apart from land based occupations like agriculture, horticulture and animal husbandry.

   The Kutch coast is an ecologically sensitive zone as it supports vast areas of Mangroves, Corals, mudflats and the various components of the ecology are interlinked into a fragile ecosystem. The mangroves help the ecosystem by contributing to the oxygen Budget and in Soil Conservation. Mangroves and Corals are the nursing grounds for a variety of economically important fishes, exotic coral fishes and innumerable flora and fauna. The gulf also abounds in more than 210 species of algae. These algae in combination with corals and mangroves provide a conducive ecosystem for diverse flora and fauna. Gulf of Kutch is the only place left along the Indian coast after Gulf of Mannar where live corals occur. In 1982, parts of the Gulf area were declared as a Sanctuary and Marine National Park.

   Despite all these, to mention the project area as barren is bizarre.

5. Likewise, in the Social Safeguards (Pg 14) of the above mentioned document it says: *"Potential involuntary resettlement impacts were minimized by selecting a site that is uninhabited, of low and unreliable productivity, and requires minimal private land acquisition. The Project is categorized as B from the perspective of involuntary resettlement since the following impacts are expected: (i) loss of agricultural land owned by 76 families, (ii) loss of temporary structures (wells, cattle sheds), (iii) restricted access to produce such as fodder from forest and grazing land, (iv) loss of access to some of the public lands used for community activities (traditional mela [fair], cricket grounds) and (v) temporary loss of access to the coastline."*

   This is an area where thousands of fishworkers' families stay for nearly 8 months a year and do fishing and related activities. This was noted as "uninhabited". And the fishworkers were never considered as project affected, while they are the ones who are badly affected the most. Having not considered them in the Social Impact Assessment, the project and its mitigation plans are drawn on wrong premises and erroneous assessments.

6. The social and environmental monitoring agency, the SENES Consultants India Pvt Ltd did a very bad job. In a statement we issued on May 17, 2012 we said: *"The Annual Environmental & Social Performance Reports (April 2009-March 2010, April 2010-March 2011&July 2011-September 2011)prepared by SENES Consultants India Pvt Ltd to report on Coastal Gujarat Power Limited's (CGPL – Tata Mundra*

project) compliance with the Environmental and Social Performance requirements of International Finance Corporation (IFC) and Asian Development Bank (ADB) are plagued with lack of understanding of both the IFC/ADB policies and the issues, lapses in monitoring the violations, prescribing simple solutions to complex problems and taking a casual approach to these serious issues.

IFC and ADB invest a total of US$950 million for this US$ 4 billion project. These reports are a major source for IFC and ADB to assess the compliance of their policies by the company. The consultants were hired by the company.

The fact that most of the Report of April 2010 – March 2011 is a copy-paste job of the previous Report of April 2009 – March 2010 is hard to miss. That SENES got the Table of contents, and even the page numbers exactly the same in those two Reports, except in one or two, shows the great craftsmanship that they have in making such monitoring reports and exposes the fraudulent practice they are engaged in.

Cost of such fraudulent reports is the lives and livelihood of thousands of people who are dependent on natural resources, who are deprived of their livelihood without any process worth mentioning and encouragement for the company to continue violations of IFC/ADB policies and the law of the land."

ADB failed to independently verify the facts mentioned in the report.

D. Optional Information (*The following information is not mandatory, but would be helpful in processing your complaint)*

1. Have the complainants contacted the grievance redress mechanism of the project concerned?

✓**Yes** If YES, please provide the following: when, how, and with whom the contact was made.

Yes, we have met with the company a few times in the past.

Please describe any response the complainants may have received or any actions taken.

In 2011 we met the company representatives two times. They included Pradeep Ghosal, Public Relations Officer and Ravi Puranik, Head – Community Relations, Tata Power, We approached them on two issues – one, requesting a bridge over the channel, in lieu of taking their traditional routes in the project, to reduce the distance for fisherfolk and cattle herders to access the sea and grazing land. Two, to request to use closed cycle cooling system than open cycle. Since when the outlet channel spews water into the sea with temperature higher than the normal sea water it will adversely affect the aquatic wealth, drastically impacting the livelihood of thousands of fisherfolk. Both the requests

were turned down saying they are technically not feasibile.

Some members of the NGO Vivekanand Research training Institute were also in this meeting.

☐**No** If NO, why not?

2. What is the complainants' desired outcome from the ADB's Accountability Mechanism?

1. ADB uses its leverage to mitigate the impacts caused to the people and environment.
2. ADB stop the company from any further expansion of the project unless the damages already caused are mitigated.
3. ADB stop its funding to the project, until the social and environmental damages are satisfactorily mitigated.
4. ADB stop funding any more coal projects, considering the immense damages it cause and invest more on decentralized renewable projects.

3. Why do complainants believe that the alleged direct and material harm is the result of ADB's failure to follow its operational policies and procedures?

1. ADB failed to independently check the impact assessments made by the company and hence approved this project for financing on wrong assumption about impacts, which were heavily downplayed and exaggerated benefits.
2. ADB failed to put in place an independent and competent monitoring agency to monitor the impacts and recommend corrective measures.
3. ADB failed to monitor compliance of its social and environment safeguard policies.
4. ADB willfully ignored the impacts or failed to take any action even when it was alerted by an Independent Fact Finding team in July 2012 about the serious negative impacts from this project.

4. Please describe the operational policies and procedures that have not been complied with by ADB.

1. Environmental safeguards
2. Involuntary resettlement safeguards

5. Do the complainants have any other relevant matters or facts (with supporting documents) that the complainants would like to share with us?

Please refer to the following attached documents for more details of impacts:

1. Complaint to the Compliance Advisor Ombudsman (CAO)
2. Additional complaint to CAO
3. The Real Cost of Power: Report From The Independent Fact-Finding Team On The Social, Environmental, And Economic Impacts Of Tata Mundra Ultra Mega Power Project
4. Supplementary report of Fact Finding Team
5. Coal Kills: An Assessment of Death and Disease caused by India's Dirtiest Energy Source

Name of the person who completed this form: Bharat Patel

Signature: 

Date:July 12 2013

Please send the complaint to:

Complaint Receiving Officer (CRO)
Accountability Mechanism
ADB Headquarters
6 ADB Avenue
Mandaluyong City 1550
Philippines

Telephone number: +63-2-6324444 local 70309
E-mail: amcro@adb.org

Complaints may be submitted by mail, facsimile, e-mail, or hand delivery to any resident mission of ADB or to the CRO at ADB headquarters.

TERMS OF REFERENCE FOR THE COMPLIANCE REVIEW

CRP Request No. 2013/1 – Request for Compliance Review on the Loan 2419-IND: Mundra Ultra Mega Power Project

TERMS OF REFERENCE FOR COMPLIANCE REVIEW

I. INTRODUCTION

1. These Terms of Reference (TOR) were prepared by the Compliance Review Panel (CRP) for the compliance review of Loan 2419-IND: Mundra Ultra Mega Power Project in India following a request for compliance review (the Request) (Appendix) received by the CRP on 17 October 2013.

2. On 27 December 2013, the CRP determined the Request eligible and recommended to the ADB Board of Directors (Board) that they authorize a compliance review. The Board has authorized a compliance review on 17 January 2014.

3. Per paragraph 183 of the Accountability Mechanism policy[1] and paragraph 76 of Operations Manual (OM) Section L1 Operating Procedures, these TOR, which provide the scope, methodology, estimated review time frame, budget, CRP member(s), and other necessary information for the compliance review are submitted for clearance to the Board Compliance Review Committee (BCRC). Following clearance by BCRC, the CRP will provide the TOR to the Board and Management, and post them on the website, within 10 working days of the Board's authorization of the compliance review.

II. THE REQUEST FOR COMPLIANCE REVIEW

4. Brief particulars of the Request and the Project are summarized below:

Project Name	Loan 2419-IND: Mundra Ultra Mega Power Project
Country	India
Borrower	Coastal Gujarat Power Limited
Project approval date	17 April 2008
Project closing date	15 July 2014
Requesting parties	1) Bharat Patel, General Secretary of Machimar Adhikar Sangharsh Sangathan (MASS, the Association for the Struggle for Fishworkers' Rights) representing the affected persons, 2) Gajendrasinh Bhimaji Jadeja, and 3) Harun Salemamad Kara
Allegations	The complainants alleged that due to ADB's noncompliance with its operational policies and procedures, the project has caused the following direct and material harm to the affected persons: (i) failure to conduct free, prior, broad, and meaningful consultations with communities, which prevented adequate exercise of the basic right to information and participation; (ii) deeply flawed social and environmental impact assessments; (iii) significant and irreversible loss of livelihood of fisherfolk; (iv) inaccessibility of fishing grounds; (v) lack of employment of locals; (vi) impact on horticulture;

[1] ADB. 2012. *Accountability Mechanism Policy*. Manila.

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	(vii) impact on groundwater; (viii) labor issues and social unrest; (ix) destruction of mangroves; (x) absence of cumulative impact studies; (xi) ash contamination and health issues; and (xii) risk to children's health.
ADB operations department responsible	Private Sector Operations Department (PSOD)
Project safeguards categorization	Category A for environmental impact Category B for resettlement impact Category C for indigenous peoples' impact
Project Description	The project involves the construction, operation, and maintenance of a coal-fired power plant with a total production capacity of 4,000 megawatts (MW) on a build–own–operate basis near Tundawanda village, Mundra Taluka, Kutch district, in the Indian state of Gujarat. The power plant, with its five 800 MW units, is among the ultra-mega-power projects (UMPPs) planned by the Government of India to meet electricity supply needs in Gujarat, Maharashtra, Punjab, Haryana, and Rajasthan. The plant uses supercritical technology—it is one of the first private sector generators in India to do so—and is expected to be more environment friendly than conventional subcritical generating units. The $450 million loan to CGPL from the ordinary capital resources of the Asian Development Bank (ADB) is without government guarantee and is administered in ADB by the Private Sector Operations Department (PSOD). Of that amount, $200 million is syndicated to the Export–Import Bank of Korea (KEXIM) through a risk participation agreement. On 21 March 2013, the project was fully commissioned when the last unit reached commercial operation. Currently, the project serves 2% of India's power needs. It supports India's goal of "Power for All" by 2012. The project is located next to the Adani power plant, which at full capacity operates at 4,620 MW and was commissioned between 2009 and 2012.
Project Status	On 21 March 2013, the project was fully commissioned when the last unit reached commercial operation. Currently, the project serves 2% of India's power needs. Funds disbursed amount to $351.18 million, which is 78% of the total commitment of $450 million.
CRP member(s)	Ms. Arntraud Hartmann, will be the Lead Reviewer for this compliance review, with assistance from Mr. Lalanath De Silva, and the Chair, CRP upon appointment and assumption of office.
Contact person:	Mr. Nirmal Ganguly Advisor, OCRP Email: crp@adb.org Tel: (+63 2) 632 6764

5. In accordance with paragraph 14 (iii), page 7 of the *Compliance Review Panel's Report on Eligibility on the Compliance Review Request for Loan 2419-IND : Mundra Ultra Mega Power Project* approved by the Board with effect from 17 January 2014, Mr. Bharat Patel submitted an authorization letter to the CRP on 20 January 2014 with signature and thumb print from 52 members of Machimar Adhikar Sangharsh Sangathan (MASS, the Association for the Struggle for Fishworkers' Rights), 12 of whom are from Tragadi Bander. CRP has considered the said document and decided to treat Mr. Patel also as a complainant.

III. SCOPE OF THE COMPLIANCE REVIEW

6. The compliance review will investigate alleged violations by ADB of its operational policies and procedures in the Project that directly, materially and adversely harm project-affected persons in the course of the formulation, processing, or implementation of the Project. It will probe whether ADB has or has not complied with its operational policies and procedures (especially those relating to safeguards) in connection with the Project. It is not intended to investigate the borrower or the government. After carrying out a compliance review, the CRP will issue to the Board its findings and recommendations. The compliance review will be conducted in accordance with the 2012 Accountability Mechanism Policy.

7. Based on the allegations by the complainants of ADB's noncompliance with specific ADB operational policies and procedures and the CRP's findings in its eligibility review, the CRP will consider ADB's operational policies and procedures that were in effect at the time of Board approval of the loan regarding project formulation, processing and implementation. These include, among others, the following:

(i) Environment Policy (2002);
(ii) OM Section F1 (Environmental Considerations in ADB Operations) issued on 29 October 2003; and
(iii) OM Section C3 (Incorporation of Social Dimensions into ADB Operations) issued on April 2007.

IV. CONDUCT OF COMPLIANCE REVIEW AND METHODOLOGY

8. Throughout the compliance review process, the CRP will consult, as appropriate, all relevant parties concerned, including the complainants, the borrower, the Board member representing the country concerned, Management, and staff.

9. The compliance review will include the following:

(i) a review of relevant project files;
(ii) the conduct of site visits with prior consent of the Government of India;
(iii) consultation, including interviews, with:
- ADB Management, staff and consultants;
- complainants;
- other project affected persons;
- the borrower;
- officials from relevant government regulatory agencies; and
- the Board member representing the country concerned;

(iv) the engagement of consultants or technical experts, as appropriate, to assist the CRP in carrying out its work; and
(v) any other review or investigatory methods that the CRP considers appropriate in carrying out its work;
(vi) CRP has obtained information from the Compliance Advisor Ombudsman (CAO) of the International Finance Corporation (IFC) and Multilateral Investment Guarantee Agency (MIGA) with respect to a completed investigation on the same project. Efforts to obtain further information will be continued during the investigation phase. Information will also be obtained from other relevant institutions and agencies. These information will be duly taken into account.

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V. TIMEFRAME

10. The CRP plans to complete the compliance review process for this project within 10 months from clearance of this TOR by the BCRC. Below is the estimated timeframe of the review.

Step	Event	Timeframe
4	**Conducting compliance review** (Contingent on the issuance of mission concurrence by the government, site visit is planned by 3rd to 4th week of May.)	February-June 2014
5	**Compliance Review Panel's draft report.** CRP will issue its draft report with findings and recommendations to the Management, the borrower, and the complainants for comments, with copy to BCRC. (Comments/responses to CRP draft report are expected by 3 October 2014.)	31 July 2014 (comment period is 45 working days)
6	**CRP Final Report.** After considering the Management's, borrower's and complainants' comments, CRP finalizes its report and submits a Final Report to the Board, including the responses from the complainants, the borrower, and Management; and a matrix prepared by the CRP summarizing how it has responded to such responses.	24 October 2014 (within 14 working days from receipt of responses from Management, borrower and complainants)
7	**Board consideration of Compliance Review Panel's Report.**	within 21 calendar days from receipt of CRP Final Report by the Board

11. This timeline does not take into account any additional time required for translation; requested extensions for filing of responses; or other significant local political events that may delay the site visit. If the CRP deems it necessary to alter the above timeframe, the CRP will first seek BCRC's clearance of the revised timeframe.

V. BUDGET FOR THE COMPLIANCE REVIEW

12. Below is the proposed budget for the compliance review.

Budget Items		Amount
Business Travel	$	42,000.00
Professional Fees of CRP part-time members	$	155,000.00
Consultants	$	95,000.00
Translators/Editors of Reports	$	8,000.00
TOTAL	**$**	**300,000.00**

/S/ Arntraud Hartmann
Compliance Review Panel Member
31 January 2014

CRP Request No. 2013/1 – Request for Compliance Review on the Loan 2419-IND: Mundra Ultra Mega Power Project

REVISION TO THE TERMS OF REFERENCE FOR COMPLIANCE REVIEW

TIMEFRAME

Step	Event	Timeframe
4	**Conducting compliance review**	February-September 2014
5	**Compliance Review Panel's draft report.** CRP will issue its draft report with findings to the Management, the borrower, and the complainants for comments, with copy to BCRC. (Comments/responses to CRP draft report are expected by 22 January 2015.)	17 November 2014 (comment period is 45 working days)
6	**CRP Final Report.** After considering the Management's, borrower's and complainants' comments, CRP finalizes its report and submits a Final Report to the Board, including the responses from the complainants, the borrower, and Management; and a matrix prepared by the CRP summarizing how it has responded to such responses.	10 February 2015 (within 14 working days from receipt of responses from Management, borrower and complainants)
7	**Board consideration of Compliance Review Panel's Report.**	within 21 calendar days from receipt of CRP Final Report by the Board

CRP Request No. 2013/1 – Request for Compliance Review on the Loan 2419-IND: Mundra Ultra Mega Power Project

SECOND REVISION TO THE TERMS OF REFERENCE FOR COMPLIANCE REVIEW (17 NOVEMBER 2014)

TIMEFRAME

Step	Event	Timeframe
4	**Conducting compliance review**	February-September 2014
5	**Compliance Review Panel's draft report.** CRP will issue its draft report with findings to the Management, the borrower, and the complainants for comments, with copy to BCRC. (Comments/responses to CRP draft report are expected by **2 February 2015**.)	**24 November** (comment period is 45 working days)
6	**CRP Final Report.** After considering the Management's, borrower's and complainants' comments, CRP finalizes its report and submits a Final Report to the Board, including the responses from the complainants, the borrower, and Management; and a matrix prepared by the CRP summarizing how it has responded to such responses.	**20 February 2015** (within 14 working days from receipt of responses from Management, borrower and complainants)
7	**Board consideration of Compliance Review Panel's Report.**	within 21 calendar days from receipt of CRP Final Report by the Board

CRP Request No. 2013/1 – Request for Compliance Review on Loan 2419-IND: Mundra Ultra Mega Power Project

THIRD REVISION TO THE TERMS OF REFERENCE FOR COMPLIANCE REVIEW (19 FEBRUARY 2015)

TIMEFRAME

Step	Event	Timeframe
4	**Conducting compliance review**	February-September 2014
5	**Compliance Review Panel's draft report.** CRP will issue its draft report with findings to the Management, the borrower, and the complainants for comments, with copy to BCRC. (Comments/responses to CRP draft report are expected by **2 February 2015**.)	**24 November** (comment period is 45 working days)
6	**CRP Final Report.** After considering the Management's, borrower's and complainants' comments, CRP finalizes its report and submits a Final Report to the Board, including the responses from the complainants, the borrower, and Management; and a matrix prepared by the CRP summarizing how it has responded to such responses.	**9 March 2015** (within 25 working days from receipt of responses from Management, borrower and complainants, that is additional 11 working days, to adequately analyze and deal with the extensive comments received from the complainants, borrowers and the Management [the parties])
7	**Board consideration of Compliance Review Panel's Report.**	within 21 calendar days from receipt of CRP Final Report by the Board

PERSONS CONTACTED DURING THE COMPLIANCE REVIEW

The Compliance Review Panel (CRP) contacted the following persons within and outside the Asian Development Bank (ADB) in carrying out its investigation of the request for compliance review under the project. This list is not exhaustive as it does not include persons who requested their identities to be kept confidential.

ADB Staff
(including those present in various meetings with the CRP at the ADB headquarters and staff interviewed)

1. Ralf Starkloff, Senior Safeguards Specialist, India Resident Mission (INRM)
2. Girish Mahajan, Senior Environment Officer, INRM
3. Sujata Gupta, Director, Office of Cofinancing Operations
4. WooChong Um, Secretary, Office of the Secretary
5. Todd Freeland, Director General, Private Sector Operations Department (PSOD)
6. Michael Barrow, Deputy Director General, PSOD
7. Takeo Koike, Principal Investment Specialist, Infrastructure Finance Division 1, PSOD
8. Jocelyn Munsayac, Safeguards Specialist, Operations Coordination Division (PSOC), PSOD
9. Masami Tsuji, Principal Safeguards Specialist, PSOC
10. Seethapathy Chander, Special Senior Advisor (Infrastructure and Public-Private Partnership), Office of the Vice-President Knowledge Management and Sustainable Development, VPKM
11. Nessim J. Ahmad, Director, Environment and Safeguards Division (RSES), Regional and Sustainable Development Department (RSDD)
12. Vijay Joshi, Senior Environment Specialist, RSES
13. Bruno Carrasco, Director, Public Management, Financial Sector, and Trade Division (SAPF), South Asia Department
14. Cheolsu Kim, Lead Finance Specialist, SAPF

Former ADB Resettlement Consultant

Jayantha Perera

Government

Dr. Deepak Apte, Chief Operating Officer
Bombay Natural History Society

Dr. S.N. Gajbhiye, Chief Scientist and Scientist-in-charge
Dr. Soniya Sukumaran, Senior Scientist
National Institute of Oceanography (NIO), Mumbai

Dr. Veerendra Veer Singh, Principal Scientist and Scientist in Charge
Central Marine Fisheries Research Institute, Mumbai

Mr. Lakhwinder Singh, Addl. Principal Chief Conservator of Forests (Central)
Dr. A. Mehrotra, Senior Scientist
Ministry of Environment and Forests – Regional Office, Bhopal

Dr. T.P. Singh, Director
Bhaskaracharya Institute for Space Applications and Geo-Informatics, Gandhinagar

Mr. Bharat Pathak, Director and Additional Principal
Chief Conservator of Forests
GEER Foundation, Gandhinagar

Dr. Hardik Shah, Member Secretary
Gujarat Pollution Control Board (Head Office), Gandhinagar

P.K. Taneja, Addl. Chief Secretary
Forests and Environment Department, Government of Gujarat

Mr. P.L. Darbar, Commissioner of Fisheries
Office of the Commissioner of Fisheries, Gandhinagar

Dr. P.C. Malli, Deputy Director
Fisheries Commissioner's Office, Bhuj, Kutchh

Mr. K.A. Shah
Gujarat Pollution Control Board-Kutchh Regional Office

Mr. Biswanath Sinha, Joint Secretary
Ministry of Environment and Forests, Government of India, New Delhi

Mr. Tarun Bajaj, Joint Secretary (MI)
Ministry of Finance, Department of Economic Affairs, New Delhi

Ms. Sheyphali Sharan, Director
Ministry of Finance, Department of Economic Affairs, New Delhi

Borrower

Mr. Krishna Kumar Sharma, Executive Director & CEO
Coastal Gujarat Power Ltd. (CGPL)

Mr. Sharad Baijal, Head – O & M
CGPL

Mr. Prashant Kokil, Head – Corporate Environment/ Corporate Sustainability
CGPL

Mr. Somnath Basu, Chief Sustainability Officer
CGPL

Mr. Pradeep Kumar Ghosal, Chief Manager-CSR
CGPL

Nongovernment Organization

Ms. Reena Reebari, Member
Ujjas Mahila Sangathan (A women's community-based organization)

Ms. Muriyemben Keesam Men, Member
Ujjas Mahila Sangathan

Ms. Jeelhewi, Member
Ujjas Mahila Sangathan

Mr. Bimal Kalaradiya, Member
Ujjas Mahila Sangathan

Requesters' Representative and Complainants

Mr. Bharat Patel (Representative)
Mr. Harun Salemamad Kara (Complainant)
Mr. Gajendrasinh Bhimaji Jadeja (Complainant)

Project-affected people (names withheld)

RESPONSES RECEIVED FROM COMPLAINANTS ON THE DRAFT REPORT

From: Bharat patel [bharatp1977@gmail.com]
Sent: 02/01/2015 06:23 PM ZE5B
To: Dingding Tang; Lalanath de Silva <lalanathds@hotmail.com>; "arna@hartmann-berlin.net" <arna@hartmann-berlin.net>
Cc: Gajendrasinh jadeja <gajendrasinhjadeja544@gmail.com>; Nirmal Ganguly
Subject: Re: Compliance Review of Mundra Ultra Mega Power Project in India—Compliance Review Panel's Draft Report for Comments

To

Dingding TANG
Chair, Compliance Review Panel

Dear Dingding Tang,

Thank you very much for sharing the draft CRP report on Tata Mundra (CGPL).

We are happy to note that many of our concerns are confirmed by the CRP.

We appreciate the investigation that CRP has done on our complaint to bring the facts out. We are happy that the findings more or less in harmony with the audit report of Compliance Advisor Ombudsman (CAO) of International Finance Corporation, and thus reconfirms that the concerns we raised were legitimate and almost all of them still remain to be addressed, even after the plant is fully commissioned making it a fate accompli.

However, we would like to submit the following comments on the report.

1. Page 28 Para 67 (ii): The draft report concludes that an increase of 1.2% or 0.3% decrease in salinity does not have an adverse impact on marine life is based on data between Jan – March 2013, monitored and reported by CGPL. First, without any data of pre-plant scenario how can the data be compared? Second, we feel that a data of just 3 months is inadequate to draw a conclusion on its effect on marine life. And finally, having mentioned at many places in the

report about the misconduct of CGPL, faulty representation of facts and misguiding ADB and the affected communities about the negative impacts of the project, how can CRP take the data given by CGPL unquestioned to draw a conclusion about impacts?

2. **Page 30 Destruction of mangroves:** We are disappointed with the fact that CRP considers the intake channel as an associated facility and hence decided against looking into the violations associated with it. If the intake channel is an associated facility, why is the outfall channel not, and why did CRP decide to look into the issues pertaining to the construction and operation of outlet channel? Intake channel is an integral part of the project.

The argument that the intake channel is shared with Adani project does not hold for the reason that the Environmental Clearance (EC) accorded to the project by the Ministry of Environment and Forests in March 2007 was for both the intake and outlet channels. If the clearance taken by Adani project for the intake channel was enough for the CGPL, MoEF would have mentioned thus. Instead, the EC clearly mentions the requirement of 130 ha of forest land for the project, which are mangroves. Most of them are around the intake channel and some, around the outlet channel. Also, as CGPL uses the intake channel as a critical facility, their response that "they do not know whether screens and nets have been installed", and CRPs acceptance of this – is beyond credibility.

The CAO report acknowledges the violations by the intake channel in its report dated August 22, 2013. They did not consider the intake channel as an associated facility.

Hence the impacts on the fisherfolk in Kotadi bander have to be considered and they should be counted in the Table 2 on Page 17. Or else, as reported in the draft, after the SEIA stating that "there are no local fishing activities in the coastal waters fronting the project area" this will be yet another instance that their existence is ignored.

On Page 15 of your draft report you say, "As neither the findings of the RMEIA (2007) nor the MEIA (2009) were shared with fisherfolk, these people did not have an opportunity to provide their views on these findings, which could have influenced the design of the project." Further, in Page 26 you say, "There are concerns expressed by the complainants and by experts, who reviewed the RMEIA and MEIA, about the quality of analysis in the two marine impact assessments." Despite that, CRP is basing its conclusion about mangroves on the findings of RMEIA, where it is quoted as "Overall assessment indicates that the site proposed for the development largely falls under the category of supralittoral and saline banks devoid of mangroves. However, the area proposed for intake and discharge channels sustain sparse (plant density 0-4/100m2 average 1plant/100 m2 stunted (<0.6m) mangroves of monospecies (Avicennia marina)." (Page 31).

We request to consider the impacts of the intake channel and not exclude that from your compliance review.

3. **Page 32 Assessment of Harm:** We are wondering which data shows that there isn't reduction of fish. Can you please give the citation to that?

We were wondering whether this is what the CRP team heard from the fisherfolk when you did the site visit. Unfortunately this is not true with us. Our fish catch has declined drastically over the years and this year it is at its worst. That CGPL or ADB failed to do a baseline survey in the area likely to be affected by CGPL plant, before the project was designed or commissioned, cannot be held against us, and cannot be used to belittle the severe impacts on us.

The CAO and the Independent Fact Finding Team Report mention clearly the decline in the

catch.

If you hold that higher temperature in the water discharge have harmed the fisher-folk (Page 50), if not for the decline in the fish catch what other harm are you mentioning there.

You mention that "the exact impacts on Pagadiya fishing in the area of the outfall channel cannot be determined…" The fact is, there is almost no more Pagadiya fishing happening near the outfall channel due to the loss of inter-tidal zone, and this should have been considered a near 100% impact.

4. The draft report failed to question why cumulative impact of only the air-shed was carried out (Page 46) while the impacts of the power plants in the vicinity of CGPL can be on ground water, horticulture, health, salt pans and many more.

5. The fact you rightly mention in Page 45 about a new environmental consultant appointed by CGPL (CEG Test House) presenting a significantly better situation of air quality than the previous monitoring results point to a larger issue of ADB having no independent monitoring of the impacts and what the project executioner, CGPL, whose sole aim is to ensure that the project is running and making maximum profits, provide as data is taken at its face-value. These include air quality, health, fish catch, salinity or alike. CRP draws conclusions on some aspects based on CGPL reports, which is undesirable.

Unless ADB has an independent monitoring mechanism, which involves consulting the project affected communities, such compliance review can only bring a tip of the iceberg out, while a major chunk of the violations will go undocumented and unreported.

6. Page 47 Groundwater impacts: The draft report holds that the MoEF clearance specify that no groundwater can be used for the construction and CGPL argues that they strictly adhered to this condition. Making it look so simplistic and sounding ludicrous, CGPL says that if the farmers who can pump groundwater from wells have supplied drinking water to labourers at the construction site, it is not with their knowledge and consent.

The fact is that, the desalination plant became operational sometime in 2011. The construction at the plant site started in 2008. If only desalinated water could have been used for construction and if the construction started 3 years before the desalination plant started, the natural question is where did the water come from for the construction purpose? The draft report failed to ask this question, which would have established that CGPL did use groundwater for construction.

7. The findings in the draft report raise the question of accountability of the ADB staff who in some cases did not review the documents, misled the Board during approval process and in most cases failed in their duty to influence the company to abide by the policies and make course correction. Will this be another instance where the violations are listed and nobody held accountable?

8. At many places the draft report says that the opportunity is lost now, or the failure cannot be corrected now, or the fish-workers ought to have been heard. What now? Just a post facto review of the project? Or can the CRP stand up to the rights of the affected communities to recommend suspension of lending to CGPL or any such stern measures until the company acts on all the violations listed in the report, all studies are completed and mitigation plans are readied? The company should not be allowed to get away citing some CSR activities disconnected with the findings of this report.

9. We request the CRP to keep the monitoring open until a time that it is fully satisfied about

the compliance of ADB policies.

Looking forward for the final report, incorporating the comments above.

Thanking you.

Sincerely,

Bharat Patel
Gajendrasinh Jadeja
Harun Salemamad Kara

On 24 November 2014 at 14:14, <dtang@adb.org> wrote:
>
> Dear Mr. Patel, Jadeja, and Kara,
>
> The Compliance Review Panel completed its draft report on its findings regarding the IND: Mundra Ultra Mega Power Project. In accordance with the Accountability Mechanism Policy (Operations Manual section L1/Operational Procedures, para. 78), the draft report is now issued to the complainants, and by separate communication, to the ADB Management and borrower, for comments within 45 working days. Please provide your comments on or before 2 February 2015.
> Since we do not have the e-mail address of Mr. Kara, please inform him about the contents of the attached draft report.
>
> We are currently arranging for the translation of the draft report into Gujarati and we will send it to you once available.
>
> Thank you.
>
> Regards,
>
> Dingding TANG
> Chair, Compliance Review Panel
> Concurrently Head,
> Office of the Compliance Review Panel
> Asian Development Bank
> Tel: (+632) 632-5275
> Fax: (+632) 636-2088
> Email: dtang@adb.org
> www.compliance.adb.org
>
>
>

Responses from the Borrower on the Draft Report (pages 81 to 103) have been removed in accordance with Appendix 9, para. 3(vi) of the Accountability Mechanism Policy 2012.

RESPONSES FROM ADB MANAGEMENT ON THE DRAFT REPORT

1. The Compliance Review Panel ("**CRP**") has requested comments on its draft report dated 24 November 2014 on the Mundra Ultra Mega Power Project in India (Loan Number 2419) (the "**Project**").

2. Pursuant to paragraph 185 of the Accountability Mechanism Policy 2012 ("**AM Policy**"), Management provides comments to the draft report comprising (i) this note, which summarizes Management's response to the CRP's findings in the draft report; and (ii) Appendix 1, which sets out a more detailed response to the CRP's observations and findings.

3. Management accepts that ADB should have done more to be compliant with its policies in relation to consultations with relevant stakeholders, including the identification of pagadiya[1] fisherfolk as potentially affected persons. It also agrees that the summary environmental impact assessment ("**SEIA**") should have specifically recorded a justification for the Project to adopt the Indian (rather than the Pollution Prevention and Abatement Handbook[2] ["**PPAH**"]) standard for the cooling water discharge. However, we emphasize that appropriate actions to carry out consultations and mitigate any impacts on pagadiya fisherfolk, have been and continue to be proactively taken. We disagree with a number of the findings and observations made by the CRP in relation to the identification of, and consultations with, fisherfolk which are noted below and in Appendix 1. Management requests the CRP to reconsider such findings and observations, and revise appropriately the relevant paragraphs of its draft report.

4. Management disagrees with the CRP's findings in the draft report in relation to access restrictions to fishing grounds and ambient air quality. Our comments are set out below and in Appendix 1. Management requests the CRP to reconsider its findings and observations and revise appropriately the relevant paragraphs of its draft report.

5. Management acknowledges that the CRP found ADB compliant with its policies and procedures in relation to coal dust and fly ash pollution; groundwater impacts and labor issues and human stress. Management has no comment on these findings other than to draw the CRP's attention to a number of observations in relation to coal dust and fly ash which are noted in Appendix 1.[3] Management requests the CRP to reconsider its observations and revise appropriately the relevant paragraphs of its draft report.

6. Under paragraph 186 of the AM Policy, the CRP is required to ascertain whether, in relation to each finding of noncompliance, the alleged direct and material harm exists and, if so (and only if so), whether ADB's noncompliance caused such direct and material harm.

7. Management would like to take this opportunity to raise its concerns: firstly, regarding the numerous findings by the CRP of 'harm' and 'likely' future harm (rather than the existence of direct and material harm); and secondly, concerning the validity of all of the CRP's conclusions regarding ADB's noncompliance in those instances where the CRP has not made any finding of direct and material harm.

A. Failure to adequately disclose information and conduct consultations

[1] Pagadiya fisherfolk are those who fish by foot, using nets in the intertidal zone.
[2] World Bank. 1998. *"Pollution Prevention and Abatement Handbook 1998".* Washington, DC.
[3] In particular, paragraph 98 of the draft report records that ADB found the borrower's coal dust mitigation measures to be insufficient. Management is pleased to record that all of the issues required by ADB to be implemented by the borrower have been and are being satisfactorily addressed.

8. Management acknowledges that, although multiple consultations took place in 2007, ADB should have required consultations to take place with a broader range of fisherfolk both prior to finalization of the environmental impact assessments ("**EIAs**") and, subsequently, in relation to the potential impacts of the construction and operation of the outflow channel. Management further acknowledges that the consultations that did take place could have been better documented, recording (a) the issues raised during the consultations and (b) the disclosure of the findings of the various EIAs.

9. Management does not agree with the CRP's statement "*As fisherfolk in the area have not been considered as people affected by the project, they have not been adequately consulted, potential impacts have not been identified, no baseline data has been collected and no monitoring system has been established which would allow to assess impacts, especially a potential decline on fish catch*."[4] We note:

(i) Fisherfolk (as a broad group) were identified as relevant stakeholders and were adequately consulted in relation to access to fishing grounds.[5] However, the Marine EIAs did not identify the small subset of pagadiya fisherfolk who may potentially be affected by the construction and operation of the outflow channel.

(ii) Potential impacts for fisherfolk were identified in the Marine EIAs. Impacts were identified (for boat and pagadiya fisherfolk) during the construction phase, (and for boat fisherfolk only) during the operations phase. However, the Marine EIAs did not consider the potential impacts for pagadiya fisherfolk during the operations phase.

(iii) Baseline data on fish yield and other relevant biological indicators potentially relating to boat fisherfolk were collected and were documented in the Marine EIAs.[6] That data is now being used along with monitoring studies[7] to assess post construction impacts. However, the Marine EIAs did not include baseline data on fish catch for pagadiya fisherfolk.

10. The CRP finds that *"insufficient consultations and failure to identify fisherfolk as project-affected people, led to direct and material harm."*[8] However, the CRP does not identify what that direct and material harm is.[9] Management requests the CRP to delete or clarify its finding in relation to direct and material harm.

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[4] See paragraph 133 of the draft report.

[5] ADB recognized (under ADB's Involuntary Resettlement Policy) the migrant fishing settlement at the old Kotdi bander as affected by the original location of the intake channel. Mitigation measures were put in place in the short resettlement plan to ensure that the livelihoods of such fisherfolk were not affected by restricted access. ADB recognized fisherfolk as affected persons in relation to restricted access to fish drying areas (which provide access to fishing grounds), and ensured that impacts on them and mitigation measures for identified impacts on them would be implemented.

[6] Baseline data on marine biological productivity was set out in the rapid marine environmental impact assessment ("**RMEIA**") (see section 4) to assess the potential impact on fisheries. Available long term data on fish catch yield in relation to boat fisherfolk for Mundra is set out on page 56 of the RMEIA while Table 4.5.34 provides information on fish catch yield off Mundra in January 2006. In short, the RMEIA provides detailed information on commercial fishing practices in the region as well as commercial fish catch yield at and around the Project site. This information is directly related to fish catch yield of fisherfolk residing in the Project area.

[7] The borrower has commissioned a number of studies including a comprehensive model validation study by National Institute of Oceanography.

[8] See paragraph 52 of the draft report.

[9] The CRP makes certain observations in its draft report in relation to the noncompliance which are addressed in paragraph 4 of Appendix 1.

11. Management agrees that there is sufficient anecdotal evidence that the livelihoods of pagadiya fisherfolk may have been adversely affected by the construction and operation of the outflow channel.[10] However, Management draws the CRP's attention to the proactive position taken by ADB to require the borrower to take mitigation measures, including livelihood assistance for pagadiya fisherfolk. Since October 2013, ADB has been discussing a livelihood restoration program for pagadiya fisherfolk at Tragadi bander with the borrower; and ADB has required the borrower to incorporate a number of initiatives in such program, including engaging pagadiyas in experimental aquaculture; procuring technical institutes to help develop a sustainable aquaculture program; providing pagadiyas with fishing instruments; and providing education assistance to their children.[11] Management accepts that if the pagadiya fisherfolk had been adequately identified and consulted at an earlier stage, this could have resulted in appropriate livelihood assistance being put in place earlier. However, as mentioned above, corrective action has been required by ADB and is being taken by the borrower.

12. Management disagrees with the CRP's finding that noncompliance has led to direct and material harm to boat fisherfolk. The Marine EIAs support the view that boat fisherfolk are not adversely affected by either the construction or the operation of the outflow channel.[12] Indeed, Management considers that the boat fisherfolk have benefitted from the Project as a result of the numerous livelihood assistance programs and other benefits provided by the borrower.[13] Our view is supported by a large influx of boat fisherfolk in the banders[14] near to the Project.[15]

B. Loss of livelihood of fisherfolk

1. Thermal pollution from water discharged from the outfall channel

13. When determining appropriate environmental standards for ADB projects, ADB is required either to follow the emission standards set out in PPAH or alternative standards recommended in the borrower's EIA, in which case the EIA is required to provide a justification for the standards chosen for the Project.[16] Paragraph 62 of ADB's Environmental Policy notes that this flexibility is required to best reflect national legislation and local conditions.

14. In this case (consistent with the flexibility provided by ADB's Environmental Policy), ADB allowed the borrower to adopt Indian standards for thermal water discharge. The Indian standard permits discharge of effluent cooling water at 7°C above ambient at the receiving body. Management considers that this decision is justifiable, for the reasons explained in paragraph 15 below. However, Management acknowledges that ADB did not comply with the

[10] ADB's due diligence in October 2013 records that pagadiya fisherfolk fishing in the shoreline fronting the Project used to catch 10–20 kg of fish per day, but now they only get about 4–8 kg per day.
[11] See paragraph 18 of Appendix 1 for further details.
[12] This issue is discussed below in relation to heading B (thermal discharge).
[13] These include the establishment of a fishermen information center at Tragadi bander to link fisherfolks to various government assistance schemes, financial support to Fishmarc for livelihood programs; provision of solar boat light system for fishing boats, and implementation of other social programs such provision of water tanker and water tanks with daily supplies of fresh drinking water; a medical camp; mobile sanitation facilities; and education assistance. Many of these were detailed in Appendix 2 (on page 3) of Management's Response to the complaint dated 26 November 2013.
[14] A bander is a seasonal fishing settlement where people stay from Sep to late Apr/early May.
[15] Data from studies carried out by Aakar and Fishmarc show that fishing families in Tragadi bander have increased year on year: 30 in 2008-2009; 35 in 2010; 58 in 2012-2013; and 86 in 2013-2014. Meanwhile, at the new Kotdi bander, the number of fishing families has also increased from 50 as stated in the Baseline SIA (2007) to about 80-90 during the 2012-2013 fishing season.
[16] Paragraph 62 of ADB's Environment Policy (2002).

requirement to record a justification in the SEIA for the project's adoption of the Indian standard (as required by paragraph 62 of ADB's Environmental Policy (2002)).

15. A careful review of the Marine EIAs supports ADB's decision to allow the borrower to adopt the Indian standards for thermal water discharge. The Marine EIAs provide evidence supporting the following: (i) the coastline fronting the Project (into which the cooling water from the outflow channel is discharged) has low biological productivity in comparison to the remainder of the Gulf of Kutch;[17] (ii) any impact on local marine productivity affecting the coastal marine ecosystems caused by the elevated water temperature and the resulting change in marine community structure, is expected to be localized;[18] (iii) the area of elevated water temperature is limited to a small area, which is about 0.05% of the overall Gulf area;[19] and (iv) boat fisherfolk are not affected by (iii) since they fish outside the area of elevated water temperature.[20] Management reiterates that ADB's noncompliance was strictly related to the lack of recorded justification for the adoption of the Indian standards for the Project in the SEIA. ADB's decision to allow the borrower to adopt Indian standards for thermal water discharge did not demonstrate a lack of due diligence.

16. Management does not consider that there is any evidence that noncompliance in relation to the Project's thermal water discharge caused any direct and material harm and notes that the CRP does not make a finding of direct and material harm caused by ADB's noncompliance,. Indeed, the CRP notes: *"there is no evidence to conclude whether fish catch for people in the surroundings of the Tata Mundra plant has increased, decreased or remained the same*."

17. Given the absence of evidence of direct and material harm, it is not clear how the CRP is able under the AM Policy to (i) find that ADB's noncompliance 'harms' fisherfolk; (ii) make *"an assumption that people fishing by boat are likely harmed";*[21] or (iii) state: *"This presumption of likely harm [in relation to boat fisherfolk] will prevail until adequate monitoring data is available in the future which allows it to be displaced by a proper assessment of the impacts*." Management notes that there are no provisions in the AM policy that admit of a "presumption" of "likely harm" which can be "displaced" by subsequent findings.

2. Chemical pollution

18. PPAH requires the Project's water quality standards to be met without dilution. Management considers that the Project meets this requirement, and disagrees with the CRP's finding that *"ADB did not exercise sufficient due diligence in assessing whether water quality standards were achieved through dilution."*

19. Management notes that the PPAH standard applies for all power plants, whether they adopt a "closed cycle" or a "once through" cooling system. The PPAH requirement that the effluent levels be met "without dilution" would prohibit (in a project which has a closed cycle

[17] While it is correct (as the CRP notes in paragraph 7 of its draft report) that the Gulf of Kutch is often described as an 'ecological miracle' because of its shallow waters, intertidal zones, stretch of mangrove forests and corals, the coastal area fronting the Project site has comparatively low ecological productivity and environmental sensitivity. See paragraph 15 of Appendix for further analysis of the evidence supporting this view.

[18] See RMEIA p101.

[19] The modelling carried out by HR Wallingford predicts that the area of elevated water discharge is limited to at most 4–5 km^2 during low tide and even less during the high tide. From a broader Gulf of Kutch ecosystem perspective potentially negative impacts on this total area of marine environment (of less than 10 km^2) are not significant.

[20] The only fisherfolk who fish at the shoreline in front of the Project are the pagadiya fisherfolk – not boat fisherfolk. For evidence in support of this, see paragraph 6 of Appendix 1.

[21] See paragraph 138 of the draft report.

system) any extraction of water into the power plant in order to dilute the effluent prior to its discharge. In the case of the Project, which has a "once through" cooling system, there is no extraction of water into the plant to dilute the effluent. The discharge point for the Project (where contaminants are measured) is the point below the outfall weir where the effluents from the Project enter the sea. At this point, there is no breach of the PPAH water quality standards.[22]

20. The CRP makes no finding of direct and material harm arising from noncompliance with ADB's policies in relation to water quality standards. Management does not consider that the issue of direct and material harm arises since the Project does not use dilution in order to achieve water quality standards. In any event, there is no evidence of any direct and material harm arising from chemical contaminants in the Project's effluent.[23]

C. Access restrictions to fishing grounds

21. Management disagrees with the CRP's finding that *"ADB staff has not done due diligence in identifying those people who have been affected by constrained access to their traditional fishing sites as a result of closing in the premises of the Tata Mundra plant site."* At the time of ADB's due diligence in 2007 and early 2008, it was identified that access to the old Kotdi bander would be constrained. This issue was the subject of consultation and adequate measures were taken.[24] Access to Tragadi bander was not expected to be constrained by the Project based on the original alignment of the outfall channel.

22. Management notes that access restriction to Tragadi bander arose with the revised alignment of the outfall channel in 2009. Access to Tragadi bander remained unrestricted during construction of the project. ADB appreciated that pagadiya fisherfolk from Modhva and Tragadi villages (who typically walk to Tragadi bander) would suffer from the longer access road and therefore these residents were duly compensated by the borrower pursuant to arrangements which the CRP notes are fully satisfactory.

23. Management does not consider that any households are adversely affected by access restrictions (other than those mentioned in the preceding paragraph), and therefore we do not agree with the CRP's finding[25] that a systematic assessment was required to ensure compliance.

24. The CRP makes no finding of direct and material harm caused by ADB noncompliance. It finds that ADB's noncompliance in relation to access restrictions resulted in 'harm', although it states that the CRP is not in a position to assess the extent of harm as the necessary surveys and baseline data have never been established.

25. Management does not consider that the issue of direct and material harm caused by ADB's noncompliance arises since ADB carried out sufficient due diligence in identifying persons affected by restricted access and ensuring they were adequately compensated. In any

[22] It is important to note that a more stringent standard than PPAH applies, for effluent standards at relevant wastewater streams within a power plant, became applicable when IFC Guidelines for Thermal Power plants were developed (19 December 2008). While such Guidelines would now apply (under paragraph 33 of ADB's Safeguard Policy Statement (2009)), these Guidelines did not apply under paragraph 62 of ADB's Environment Policy (2002).

[23] However, Management agrees with the CRP that it would be a good practice not to dispose iron bearing sludge into the cooling water channel before the discharge point, and notes that ADB has advised the borrower to take necessary corrective measures. The borrower has agreed to disconnect the sludge line from the reverse osmosis reject line, and to connect it to the fly ash pond, to eradicate any disposal of sludge into the sea.

[24] See footnote 5 above.

[25] See paragraph 139 of the draft report.

event, since the Project started operations, fish traders and boat fisherfolk alike have benefited from the new access road.[26] Far from causing direct and material harm, the Management considers that the Project has brought improvements in terms of access to both boat fisherfolk and fish traders, which outweigh the 3.8 km increase in length of the new motorable road.

E. Ambient Air Quality

26. The PPAH requires that if a project is proposed to be established in a degraded airshed of moderate quality, offset measures should be agreed by the borrower, and monitored and enforced by the local or national agency responsible for granting and supervising environmental permits. The CRP finds that the Project was established in a degraded airshed of moderate quality. The CRP finds "*As ADB did not recognize that the plant would be constructed in an airshed of moderate quality, ADB[27] did not discuss with Indian authorities any options for offset measures. This constitutes noncompliance with ADB policies*."

27. The CRP reached its finding of a degraded airshed of moderate quality because the annual[28] ambient air quality standard specified in the PPAH was not complied with. The PPAH specifies[29] that the ambient air quality standards set out in Annex C of PPAH (which were utilized by the CRP in reaching its finding of a degraded airshed) only apply where there are no national ambient air quality standards. Since India has adopted ambient air quality standards, The PPAH requires the Indian national ambient air quality standards to apply to the Project. In other words, the PPAH ambient air quality standard in this case was the Indian ambient air quality standard.

28. Management disagrees with the CRP's finding that the Project was established in a degraded airshed since there is evidence that the Project complied with PPAH (i.e., the Indian) standards for ambient air quality.[30] We consider that the objective of PPAH is to prevent any material deterioration in the ambient air quality, in particular for the pollutant of concern in the relevant airshed. In this case, the pollutant of concern, as identified through baseline air quality monitoring, was PM_{10} (respirable particulate matter less than or equal to 10 microns) since observed levels were close to the prescribed limit. As modelled, the suspended particulate

[26] In 2013, four fish traders started operating at Tragadi bander, some of whom set up semi-permanent structures (including freezers), bringing the market closer to boat fisherfolk. No fish traders had set up operations at Tragadi bander prior to the existence of the new motorable access road. Thus fish traders have benefited, as have boat fisherfolk, who no longer need to travel in and out of Tragadi bander in order to sell their catch to the market. Any boat fisherfolk who do wish to commute regularly outside of Tragadi bander now benefit from improved ability to take public transport as a result of the new motorable access road. Increased travel time (if any) and any additional transportation costs are minimal (amounting to an extra rickshaw cost of Rs8/person).

[27] Paragraph 117 of the draft Report. We assume the CRP intends to refer to ADB advising the borrower to have offset discussions with the relevant authorities since, as a lender, ADB would not enter into discussions on offset measures with regulatory authorities.

[28] While the draft Report states (in paras 112 and 141) that noncompliance is in relation to the 24 hour PM_{10}, it is apparent from Table 3 that the CRP findings are that noncompliance is in relation to annual PM_{10} average air quality standards.

[29] See page 424 of PPAH.

[30] The correct comparator for determination of whether the airshed is degraded or not is the 24 hour average data in situations (as here) where annual air quality data for the entire year is not available. In this case, the Project met the applicable 24 hour average standard for ambient air quality and therefore the Project was not established in a degraded airshed. (ADB acknowledges that the SEIA was incorrect in not making it clear that the applicable PPAH standard for ambient air quality was the Indian standard, and it was also incorrect, in Appendix 2 of the SEIA, to reference two different sets of values (PPAH and Indian standards), stating both sets of values were met.)

When comparing the data on ambient air quality reported in the CEIA with the Indian national air quality standards, it is clear that none of the observed values exceeded the 24 hour average PM_{10} national standard (100ug/m^3). This is evidence that the airshed did not meet the PPAH definition of a moderately degraded airshed.

matter ("**SPM**") (and thus PM_{10}) emissions contributed by the Project in the airshed would be miniscule,[31] and therefore, we consider that this objective is met.

29. The CRP finds that ADB's noncompliance is 'likely' to lead to harm and that health impacts can be 'presumed' on the basis of "*the accumulated effects of local polluters*" The CRP makes no finding of direct and material harm caused by ADB's noncompliance, and would be unable to do so in light of footnote 46 of the AM Policy.[32]

30. It is not possible to conclude that any noncompliance with PPAH has led to any direct and material harm in relation to the ambient air quality for the following reasons.

(1) The ambient levels in relation to sulfur dioxides and nitrogen oxides as modelled in the comprehensive EIA ("**CEIA**") were predicted to remain about 50% of the applicable standard.

(2) The ambient levels in relation to SPM level as modelled in the CEIA were predicted to be within the applicable standard.[33]

(3) Actual observations on the Project's emissions over the period demonstrate compliance with the applicable standards.

Conclusion

31. Management considers that the necessary conditions for CRP to make findings of noncompliance by ADB which has caused direct and material harm (under paragraph 186 of the AM Policy), which necessitate remedial action (under paragraph 190 of the AM Policy), have not been fulfilled, for the reasons elaborated in this note, as well as Appendix 1.

32. Notwithstanding the above, we acknowledge that there have been certain shortcomings as summarized in paragraph 3 above. However, these shortcomings have not led to any direct and material harm, and have been and are being rectified by a responsible sponsor (commended by the CRP for its community engagement and corporate social responsibility services).

33. ADB is committed to continue working proactively with the borrower to implement the identified mitigating actions, particularly those to safeguard the livelihoods of the pagadiya fisherfolk. Taking into account lessons learnt in this process, ADB remains committed to monitor and address any issues that may arise in the future on this large and complex Project.

[31] SPM emissions are modelled to be a maximum of 2.1ug/m^3 (see footnote 33).
[32] Footnote 46 of the AM Policy states that if the CRP finds that the alleged direct and material adverse effect is not totally or partially caused by ADB's noncompliance, its report should state this fact, without analyzing the direct and material effect itself or its causes.
[33] Since PM_{10} is about 70% of SPM in the Project airshed, by induction, the predicted PM_{10} levels also meet the 24 hourly standard.

	Summary of certain sections of the CRP's Draft Report	Management's Response
A.	**Failure to Adequately Disclose Information and Conduct Consultations**	
	Insufficient Consultations with Relevant Stakeholders	
1	[Para 7] The project is located only 1.5 km away from the coast of the Gulf of Kutch which has often been described as an 'ecological miracle' because of its shallow waters, intertidal zones, stretch of mangrove forests and corals.	While this statement is correct with respect to the Project's location and the ecological importance of the Gulf of Kutch, paragraph 7 of the CRP draft Report should put the description of the location of the Project in context. The identification of the Project location took into account the Gulf's ecological importance, and it is relevant to note that: (i) the Gulf of Kutch is a very large area, comprising an area of 7,300 km^2, including a national marine ecological sanctuary of 162.89 km^2 and a national park of 457.98 km^2; (ii) the coastline fronting the Project is on the northern coast of the Gulf of Kutch, located about 25km from the national marine ecological sanctuary and national park (which are adjacent to each other on the southern coast); (iii) Mundra region is not designated as an ecological protected area. It does not sustain coral growth in the intertidal or sub tidal area as found on the southern coast. Turtles and marine mammals were not reported as being sighted in the project area; (iv) the coastline fronting the Project (into which the cooling water from the outflow channel is discharged) has low fish productivity in comparison to the remainder of the Gulf of Kutch;[1] and (v) the area of elevated temperature above the ambient arising from the Project's discharge of cooling water is less than 10 km^2 or 0.1% of the overall area of the Gulf.
2	[Para 19] The CRP states it limits its review to the Mundra Ultra Mega Power Project (Loan 2419). ADB also funded the	The CRP correctly states that its remit is limited to a compliance review of Loan 2419. Since the CRP's remit is

[1] See paragraph 15 of Management's Response.

	Summary of certain sections of the CRP's Draft Report	Management's Response
	Project under on lending from a financial intermediary. All findings regarding noncompliance and related harm under Loan 2419 would also be applicable to such on lending which does not need to be assessed, evaluated or decided upon separately.	restricted to Loan 2419, the findings opposite cannot be supported under the AM Policy. The CRP should reconsider the inclusion of paragraph 19 (and accordingly, paragraph 3), and revise the Abbreviations section of the draft report accordingly.
3	[Footnote 21] and [Para 35] "*Public stakeholder consultations were held and views expressed by the project-affected people are incorporated in the final EIA*." It is incorrect to state that views of project affected persons were sought on the final EIA and it is further incorrect to state that the views of relevant project affected people were sought on the final EIA. The statement in the Report and Recommendation of the President to the Board of Directors [presents] a much more inclusive and engaged consultation process than actually took place.	At the time of its Board approval, ADB considered that, as a result of public stakeholder consultations held during 2006–2007, views expressed by project affected people (considered primarily to be those affected by land acquisition) had been incorporated in the EIAs. The statement in the RRP correctly reflected ADB's view at that time of the consultations.
	Fisherfolk Not Considered as Project-Affected People and Not Adequately Consulted	
4	[Para 37] As neither the findings of the RMEIA (2007) nor the MEIA (2009) were shared with fisherfolk, these people did not have an opportunity to provide their views on these findings, which could have influenced the design of the project.	The reference in the draft Report to the views of fisherfolk influencing the design of the Project requires clarification. If the statement opposite refers to the consultation process, Management has acknowledged that if the pagadiya fisherfolk had been adequately identified and consulted at an earlier stage, this could have resulted in appropriate livelihood assistance being put in place earlier. If this statement opposite refers to the technical design of the power plant, the statement needs to be put in context. The RMEIA includes cooling water modelling which analyzes in detail the impact of the discharge of the effluent from the once through cooling system on the marine environment and

	Summary of certain sections of the CRP's Draft Report	Management's Response
		fisheries. These impacts were not considered so significant as to merit adoption of the alternative technical design, a closed cycle cooling system.
5	[Para 40] The RMEIA did not assess impacts on fishing communities. The study narrowly focused on marine impacts. It pointed out that the "increase in water temperature may not be lethal to organisms but proliferation of resistive organisms may change the community structure of the localized zone". This means even minor changes can lead to significant impacts in localized areas. It is not clear to the CRP why, based on the RMEIA, ADB staff took the decision that the only possible impact on fisherfolk was access restrictions.	The RMEIA considered the marine biological impacts, including impacts on fisheries, in some detail. For example, it provided baseline data on fish yield as well as fishing practices; it considered the impact of loss of biota in the intake channel and the elevation of sea water temperature from the cooling water discharge and its impact on marine ecosystems; and it concluded that impacts from the elevated temperature would be limited to the localized zone.[2] It is not correct to state that the RMEIA did not assess impacts on fishing communities and was 'narrow' in focusing on marine impacts. The RMEIA recognizes that there will be certain localized impacts on the marine ecosystem in the vicinity of the intake and outflow channels. . The RMEIA did not elaborate on these localized impacts in terms of fish yield or catch in Modhva and Kotdi creeks and other areas adjacent to the coast where pagadiya fisherfolk could fish. However, from an ecosystem perspective, these impacts were considered minor.
6	[Para 43] All of the Tragadi *bander* people fished at the coastal site in front of the plant and reportedly some people from the villages regularly came to this coastal site. One thus can surely state that it was 'not a negligible group of people' who regularly fished at the coastal site in front of the Project since it included all of the Tragadi bander people and some people from the villages who reportedly regularly fished at the coastal site in	The only fisherfolk who fish at the shoreline in front of the Project are the pagadiya fisherfolk. CGPL and Aakar's observations in 2014 confirm that approximately 10 pagadiya fisherfolk (who mostly come from Tragadi and Modhva villages) regularly fish at the shoreline in front of the Project.[3] None of the boat fisherfolk at Tragadi

[2] See RMEIA p101.

[3] In 2014, ADB required CGPL to carry out a study to identify who frequently practices pagadiya fishing at Tragadi bander. Aakar was tasked to carry out this study. Socio-economic data and information on frequency of pagadiya fishing were collected by CGPL and Aakar from May to October 2014. The study has identified (i) 27 pagadiyas from Tragadi, Modhva, Salaya and Sadau villages who practice pagadiya fishing during the off-fishing season months of May to August; and (ii)10 pagadiyas who practice pagadiya fishing at Tragadi bander during the fishing season. ADB understands that the 10 pagadiyas from Tragadi

Summary of certain sections of the CRP's Draft Report		Management's Response
	front of the plant.	bander practice pagadiya fishing near Tragadi bander and thus near the Project.[4] Boat fisherfolk do not fish at the shoreline in front of the Project. ADB understands that this is because the coastal flats directly fronting the Project are too shallow to be used as fishing grounds for boat fisherfolk. Interviews by ADB missions from 2012-2014 and studies carried out by Aakar and AKRSP confirm that boat fishing by Modhva fisherfolks occurs 10 to 15 km out into the sea,[5] and that fisherfolk from Tragadi bander go from 5 to 7 km (sometimes up to 10 km) out into the sea.[6] The water depths at these distances vary – between 10 to 30 m, which are appropriate depths for fish catch. With respect to Modhva boat fisherfolk, ADB understands that the boat launching area is about 5 km eastwards from the Project site, thus the boat fisherfolk (who fish at about 10–15 km straight into the sea from the coast) fish at a minimum of 11–12 km from the Project site (being the diagonal distance from the Project). Boat fisherfolk in Tragadi village interviewed by ADB in 2013

and Modhva villages are mainly dependent on pagadiya fishing at Tragadi bander while the rest are more dependent on boat fishing and may have other income sources.

[4] Aakar. 2014 "Value Chain Analysis in the Marine Capture-Fishery Subsector Relevant to the Livelihood of Fisherfolks at Tragadi Bunder" The report states (p. 17) "As of February 2014, Tragadi bander had 73 traditional fishing families settling and engaged in seasonal marine capture fishing using motorized boats. There are no "pagadiyas" barefoot fisherfolk;" Note that these boat fisherfolk may practice pagadiya fishing elsewhere outside of the boat fishing season, when they return to their villages.

[5] Aga Khan Rural Support Program (India). 2013 "*A Report on Value Chain Analysis – Fisheries, Modhva Village, Kutch"* . The report states (p. 11) *"When fishing season in August month, they are used to take 20-25 liters of diesel which is sufficient for one day fishing. Fishing grounds is 10-15 kilometers away from Modhva. Boat owner takes 100 to 125 numbers of gill nets. Depth of fishing grounds is 10-15 meters deep. They spread their gill nets in open sea."*

[6] Aakar. 2014 "*Value Chain Analysis in the Marine Capture-Fishery Subsector Relevant to the Livelihood of Fisherfolks at Tragadi Bunder*". The report states (page 19) "*Marine fish available in the ocean is the biggest natural resource available to these fisherfolk. Typical water depth at 5-6 km distance could be 25 to 30 meters depending on the location, and would be appropriate for catch.*" (p. 20) *"Fisherfolk at this hamlet take motorized boats usually 5 to 7 km (sometime even up to 10 km) into the sea. The boats do not offer protection or preservation for the fresh fish catch."*

	Summary of certain sections of the CRP's Draft Report	Management's Response
		said that they migrate to Jakhau Port located 80 km away from the Project site in order to fish.
7	[Para 47] The RMEIA states that local people are engaged in fishing activities in the surroundings of the plant. The RMEIA primarily refers to the padagiyas and even shows pictures of them. The RMEIA further refers to some limited fishing in traditional fishing boats.	The RMEIA shows pagadiya fishing off the old Kotdi Bander, not Tragadi bander. ADB had ensured that access restrictions impacting pagadiyas fisherfolk fishing off the old Kotdi Bander would be adequately addressed. See paragraph 20 of this Appendix.
8	[Para 50] ADB staff only advised CGPL in 2013 to conduct more systematic consultations and to collect data at Tragadi bander.	In August 2011, ADB staff advised the borrower to closely monitor developments on fisherfolk issues (and inform ADB of its actions and plans to rectify any environmental and social harm experienced) and ensure meaningful engagement with its various stakeholders. ADB advised the borrower in August 2012 to continue efforts to engage MASS (representing the boat fisherfolk at Tragadi bander) and to establish constructive communications with them to the extent possible.
9	[Para 51] In 2007, ADB staff did travel to Modwa village but the presence of Tragadi *bander* was not noted. The plant is located so near to the coastal site that it invites questions, why in this particular area there should be no fishing. A more careful reading of the environmental and socioeconomic reports and more active reflections of reviewers' comments might have led to a more nuanced view about the presence of fisherfolk in the vicinity of the plant and potential impacts on them by the plant.	During a mission to the Project site in November 2007, ADB asked to be taken to the nearest fishing community and was taken to Modhva village. Modvha is a permanent fishing village which had about 300 households and was accessible by road. Tragadi bander was a seasonal fishing community with, at that time, only about 30[7] households, and not accessible by road. During that November 2007 mission, ADB asked the fisherfolk fish in Modhva village where they fished and was told that they fished more than 4 km straight into the sea fronting the coast, thus at least 6 km[8] from the Project site (being the diagonal distance from the Project).

[7] Fishmarc & Kutch Nav Nirman Abhiyan. 2010. *"Kutch Coast –People, Environment and & Livelihoods."*

[8] In 2007, the fisherfolk indicated that they fish 4 km out into the sea whereas in 2013 they mentioned a distance of 10 km. This could be because of solar lights (provided by the borrower) which enabled fisherfolk to spend longer time at sea and fish at a farther distance.

	Summary of certain sections of the CRP's Draft Report	Management's Response
B.	**Loss of Livelihood of Fisherfolk**	
	Thermal pollution from water discharged from the outfall channel	
10	[Para 58] Project records indicate that the SEIA was drafted with a very strong direct involvement of ADB. In spite of ADB involvement, the SEIA does not mention the PPAH standard of 3 degrees. The SEIA in its Table 12 only mentions the Indian standards.	Table 12 of the SEIA (which addresses temperature of effluent cooling water) mentions the Indian standard for temperature elevation of effluent water that needs to be adhered to (i.e. 7°C above ambient). This was the alternative standard adopted by the Project. There is no equivalent standard in PPAH. (The PPAH standard applies in terms of ambient water temperature to be achieved after the thermal discharge is mixed with the sea, which is not the same as the Indian standard for temperature elevation of effluent water).
11	[Para 62] The RMEIA reveals that fish eggs and larvae were fairly common among zooplankton, albeit small in number. It also shows that the relative occurrence of the fish larvae was more than fish eggs. There was a significantly greater density of fish eggs and larvae in the creeks than in the Gulf. But the outfall channel was expected to alter creeks, which housed more fish eggs and larvae.	See paragraph 15 of this Appendix.
12	[Para 63] Documents reviewed do not show any written comments by ADB staff on the RMEIA. ADB staff and consultants reviewed the CEIA but not on the RMEIA. Reviewers involved in the review process for the SEIA asked for a copy of the RMEIA but ADB staff only seemed to have obtained a copy of the RMEIA in late October 2007.There is no evidence that any ADB staff or consultant qualified in marine science had been asked to look at the RMEIA.	ADB's environmental consultant has confirmed that he reviewed the RMEIA prior to finalization of the SEIA.
	Assessment of Harm	
13	[Para 78] Complainants argue that there has been a drastic reduction in fish and that it is probably caused by the influences discussed above. The CRP considered whether there was evidence of a reduction in fish catch. Data on fish catch for a larger area does not show a reduction in fish.	During the ADB missions in April 2013, October 2013 and April 2014, seasonal boat fisherfolk in Tragadi bander informed ADB that their fish catch is better at Tragadi bander compared with other banders, and, there was no clear evidence that the boat fisherfolks' fish catch declined after the Project had

Summary of certain sections of the CRP's Draft Report	Management's Response
The data shows that on these landing sites fish yields in 2013-14 have significantly increased compared to 2008-2013. Reasons given for these increases are a larger fishing fleet, increased productivity in fishing as more efficient technology is used, increases in fishing frequency, and migration of fishes to the area. [Footnote 72] Noticeable in the data set is a decline of some fish which in the past had been important. The composition of fish type caught appears to be changing. This might point to a migration of fish and shift or reflect impacts of temperature raises resulting from global warming. For example, the fish yields of pomfret have declined significantly. Noteworthy is also the significant decline of jumbo prawns and lobster, while catch of medium size shrimps and prawns has increased. But the data is not site specific to the coastal area in front of the Tata Mundra plant and thus does not provide an answer to the question whether fisher who fish in front of the Tata Mundra plant are suffering from reduction in fish catch. The landing sites for which data are available are at some distance and thus do not reflect the fish yield at the site close to the plant. Each landing center covers between 3 and 10 km of the surrounding area. This is a rather vast area and average numbers in fish catch could conceal significant variations in catch at different sites. Fish caught in the vicinity of the Tata Mundra plant is estimated to amount to only 0.05% of total fish caught in the adjacent landing centers. This quantity is so insignificant that it cannot influence the overall data set.	started operations in 2012. Complex dynamics are at play, making it impossible to ascertain the reasons for any reduction or change in the boat fisherfolks' fish catch. Significant industrial development in the Gulf of Kutch close to the Project site (including the Adani power plant and West Port) has resulted in fisherfolk relocating their fishing grounds. Fisherfolk informed ADB that they had relocated their fishing grounds not just because of the construction of West Port, but also because they had to avoid their nets being caught by the ships navigating the coastal waters by West Port. In view of this and other natural factors, any fisheries survey carried out following the operation of the Project could not attribute any reduction or change in fish yield or catch to any one source.

	Summary of certain sections of the CRP's Draft Report	Management's Response
14	[Para 79] The RMEIA provides skeleton data of a one-time experimental fishing exercise, without specifying the date and place. These one-time data points are not useful and no conclusion can be drawn from them.	As a result of NIO's extensive experience of carrying out research in the Gulf of Kutch, the RMEIA includes a wealth of primary data. The RMEIA is an environmental assessment, not a piece of scientific research. It is commendable that, in light of NIO's experience in the Gulf, it was able to provide primary data for a period of several years in the RMEIA and not just a one-time study. This gives the document authority. It should be clear to the CRP's experts that the data provided e.g. on fish catch rate, comes from NIO's own research in the Gulf.
15	[Para 82] The RMEIA argues that the construction of the outfall channel and the discharge of water at a temperature up to 7°C above ambient temperature will have no significant impact on the marine environment. But data provided in the Rapid Marine EIA point to the fact that there could be impact on fish typically caught by *Pagadiyas*. The RMEIA stated that fish eggs occurred in 67% samples and fish larvae occurred in 75% of zooplankton samples. Large quantities of fish eggs and larvae were primarily in the creek region rather than in the Gulf. It is very likely that the impact on the Modwa creek influences those species which use the creek as nursery grounds. This could explain the significant decline in prawns and crabs observed.	This is noted in paragraph 9(ii) of Management's Response. While creeks in the region generally have significantly higher density of fish egg and larvae than the Gulf, in January 2006 fish egg abundance in Kotdi creek (the creek expected at the time of the RMEIA to be impacted by elevated thermal discharge) was only comparable to that in the Gulf. This is apparent from the summary of the combined fish egg and larvae data in Table 4.5.16 (on page 49 of the RMEIA)[9] and indicates that Kotdi creek is less important to fish recruitment when compared to other creeks in the region. Modhva creek adjoins Kotdi creek and has similar features as Kotdi creek, therefore one may conclude that Modhva creek likewise has low fish egg and larvae numbers. Neither Modhva nor Kotdi creeks have (nor did either creek have, prior to construction of the Project) typical features of good spawning grounds i.e. neither creek contains mangroves and sufficient depth to retain water during the low tide.

[9] The egg and larvae lifecycle stages are so close in time it is appropriate to combine this data.

	Summary of certain sections of the CRP's Draft Report	Management's Response
		In January 2006, creeks such as Navinal and Bocha had the typical features of good spawning grounds and also a significantly higher abundance of fish eggs and larvae than the Gulf.[10] The greater importance that these creeks played in terms of fish recruitment is also supported by the fact that the landing ports of Navinal and Jarpara, which are in the vicinity of Navinal creek and Bocha creek respectively, both had above average fish catch per boat in 2002-2003, whilst the fish catch per boat at Mundra landing port in the vicinity of Kotdi creek was slightly below average.
	The RMEIA report also reveals that decapod larvae was one of the two most dominant groups, the other being the copepods in the zooplankton sample in the study area. The high density of decapod lavae in the creeks is an indication that the creeks served as nursery grounds for the decapod prawns. It is also likely that Modwa creek has been harboring *Acetis indicus*, an economically important species of shrimps which is mostly located in waters shallower than 5 m. With the impact of the Modwa creek through dredging and changed circulation and velocity of outflow water, it is likely that this species has been impacted.	Slightly lower zooplankton biomass (as well as low fish egg and larvae numbers) in Kotdi creek in comparison to other creeks as well as the Gulf of Kutch is apparent from data on zooplankton biomass set out in table 4.5.11 of the RMEIA (and summarized on page 45 of the RMEIA). As noted above, the geographic location and features of Modhva and Kotdi creeks are similar, and therefore one may conclude that Modhva creek likewise has slightly lower zooplankton biomass.
16	[Para 83] There could be impacts from the residual chlorine. The return coolant will contain some residual chlorine used as biocide in the circulation system to prevent biofouling. The release of biocides and other chemicals, mainly chloride used to control biofouling on heat exchanger surfaces pose a potential danger to coastal marine organisms because of their toxicity. Though they are known to effectively control biofouling, they can easily kill non target organisms because of	There is no free residual chlorine observed beyond 800m from the outlet of the condensers, which is well within the plant boundary. Therefore, there cannot be negative impacts on fish resources or a decrease in fish in the immediate surroundings of the outfall channel as a result of impacts from the residual chlorine.

[10] Navinal and Bocha are deeper creeks which retain water during low tide. In 2005, Navinal had a 100 m wide belt of mangroves; and Bocha had 7 hectares of dense mangroves and 68 hectares of sparse mangroves. By 2011 the mangroves in both creeks were destroyed due to the development of Mundra Port and associated industrial development.

	Summary of certain sections of the CRP's Draft Report	Management's Response
	their toxicity. This could lead to negative impacts on fish resources and may lead to the decrease in fish in the immediate surroundings of the outfall channel.	
17	[Para 84] Even if the increased temperature from the outfall channel does not kill the fish, heating of water to more than their tolerance range can increase the physiological stresses to some species and interfere with the natural life processes such as growth rates, respiration, reproduction, and distribution. A temperature rise of 4°C to 5°C above ambient water temperature may not be lethal to the organisms but proliferation of resistive organisms may change the community structure of the biota. It may particularly impact the fish population in the immediate vicinity of the outfall channel. The original species could be reduced or wiped out and/or replaced by species which may or may not be as economically as important to fisherfolk as the earlier ones.	The RMEIA notes that the elevated water temperature may impact the community structure of the marine biota in the immediate vicinity of the outfall channel. The RMEIA does not consider the impacts to the padagiyas who fish on the shoreline fronting the Project.
18	[Para 85] The exact impacts on *Pagadiya* fishing in the area of the outfall channel cannot be determined, but impacts are very likely. It is the lack of any systematic monitoring data on fish which makes it difficult to establish the evidence. And it is the inadequacy of due diligence on the part of ADB which prevented this evidence to be established. The CRP finds that harm has been done to *Pagadiya* fisherfolk.	The RMEIA does not address impacts on pagadiyas arising from the operation of the outflow channel; anecdotal evidence exists of a decline in fish catch of the pagadiyas. Given the variables involved in measuring fish catch[11] (rather than fish yield),[12] and the small and variable number of pagadiyas, scientific evidence of a change in their fish catch would be difficult to establish. Therefore, ADB has required the maximum fish catch reported by pagadiyas in 2010 (before the construction of the outflow channel) to be used in calculating the level of rehabilitation assistance for their livelihood restoration. ADB has taken the following steps to address this issue:

[11] Fish catch being the total amount of fish collected by the pagadiyas from the nets when the tide goes out.
[12] Fish yield is the catch of fish over time (e.g. per hour) which is not possible to measure for pagadiyas – the only possible measurement is of fish catch.

Summary of certain sections of the CRP's Draft Report		Management's Response
		(i) In October 2013, ADB was informed that pagadiyas who regularly practice pagadiya fishing in the area close to the outfall channel observed a decline of about 60% in fish catch.[13] ADB requested the borrower to undertake a social assessment to assist the process of developing assistance programs for pagadiyas. (ii) In March 2014, ADB reiterated its request to the borrower to study the impacts of the operation of the outfall channel on pagadiya fisherfolk and to submit a livelihood restoration plan for pagadiyas if the study showed that they were being adversely affected. (iii) In July 2014, ADB requested the borrower to conduct a systematic study on how the Project has impacted on livelihoods of pagadiya fishermen in Tragadi bander regularly practicing pagadiya fishing in the outfall channel area, and to submit a report to ADB. ADB required the study to include information such as identification of pagadiyas, frequency of pagadiya fishing, fish catch and income and livelihood sources. ADB informed the borrower that if (taking into account this information) pagadiya fisherfolk were adversely affected by the project, the borrower would need to prepare, in consultation with ADB, a robust income restoration and improvement program with an adequate budget and timeframe for implementation. (iv) Based on the studies carried out by the borrower, in October 2014, ADB proposed that the borrower develop a livelihood action plan for pagadiya fisherfolk at Tragadi bander, requiring a draft livelihood program to be developed in consultation with pagadiya fisherfolk and technical institutes such as the Central Marine Fisheries Research Institute

[13] ADB's due diligence records that such pagadiya fisherfolk used to catch 10–20 kg of fish per day, but now they only get about 4–8 kg per day.

	Summary of certain sections of the CRP's Draft Report	Management's Response
		(CMFRI), and submitted to ADB by February 2015. As noted above, ADB required the maximum fish catch reported by pagadiyas in 2010 (before the construction of the outflow channel) to be used in calculating the level of rehabilitation assistance for their livelihood restoration. (v) In November 2014, ADB required CGPL to incorporate a number of initiatives in the livelihood program, including engaging pagadiyas in experimental aquaculture; procuring CMFRI to provide technical support and assist in developing a sustainable aquaculture program; providing pagadiyas with fishing instruments; and providing education assistance to their children. (vi) ADB has required CGPL to continue its observations of pagadiyas up to the end of the fishing season in 2015. If more fisherfolk are identified as regularly practicing pagadiya fishing in the outfall channel area, they will also be included in the livelihood program.
19	[Para 87] and [footnote 80] When there is a noncompliance of a fundamental step the CRP ought to exercise its judgment using a precautionary approach. Footnote 80 cites Principle 15 of the Rio Declaration (1992) and the Caribbean Environment Programme, UNEP.	The Rio Declaration principle states that a lack of full scientific certainty shall not be used as a reason for countries to postpone cost effective measures to prevent "threats of serious or irreversible damage". The UNEP document quoted by the CRP "*Relevance and Application of the Principle of Precautionary Action to the Caribbean Environment Programme*" is a 1993 policy discussion paper specific to the application of a precautionary approach by States and Territories within the Wider Caribbean region. Neither the Rio Declaration nor the UNEP policy document are referenced or applied in any ADB policies or procedures.
C.	**Access Restrictions to Fishing Grounds**	

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20	[Para 90.] At the time when social and economic assessments were conducted, access concerns to fishing grounds were not identified. Marine environmental impact assessments were not shared with them (see para. 34) and they thus did not have knowledge on where the outfall channels would be located. As fisherfolk were not identified and consulted as affected people, their access restrictions also were not taken into account. Fisherfolk had no early input into the design of the project. Access issues were only recognized when in 2010 inhabitants of the Tragadi village staged a protest, once they realized that a channel was constructed and that this channel would disconnect them from the coastal area where a number of people from their village fished. The CGPL acted quickly, entered into a dialogue with the villagers, constructed the bridge and provided additional support. The Modwa village was provided with two boats so that the village fisher people could access their traditional fishing grounds crossing the outfall channel. In addition, for the Modwa and Tragadi villages, CGPL made compensation payment to each household in the amount of Rs100,000 and introduced programs to improve living conditions for the village population. Importantly, a livelihood support fund has been created which supports development activities in both villages. Measures undertaken by CGPL – with the active support of ADB staff – are fully satisfactory and appreciated by the two communities.	At the time the social and economic assessments were conducted, access concerns to fishing grounds were identified. The design of the Project at that time envisaged that the location of the inflow channel would restrict access to fisherfolk at Kotdi creek. The borrower informed fisherfolk that access would be assured by providing a bridge over Kotdi creek. The above is reflected in the Resettlement Plan prepared by the borrower and agreed with ADB (September 2008) which requires (para 54): *"Access to the coastline will be ensured by providing a culvert over the intake channel connecting to Kotdi Creek. The culvert will be completed before any interruption by the construction of the intake channel."* The same approach was applied with respect to the outfall channel. Further, the Resettlement Plan requires that any unanticipated consequence of the Project will be documented and mitigated based on the spirit of the principles agreed in the policy framework of the Resettlement Plan. Thus it was anticipated that if any unexpected access issues arose, there was a preexisting framework to address any such issues. Since no access restrictions for fisherfolk arose in relation to the original alignment of the outfall channel, there was no need for any equivalent provisions in the Resettlement Plan to address other instances of restricted access. Therefore, access restrictions for fisherfolk were taken into account prior to 2010 when the inhabitants for Tragadi village staged a protest. The CRP correctly notes that the borrower acted quickly in 2010 to address the concerns of the fisherfolk. ADB was

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		proactive in seeking a resolution to this issue by instructing the borrower in March 2010 to consult with fisherfolk and address their concerns. The borrower's quick actions followed, in April 2010. During project construction, access to Tragadi bander (using the road inside Tragadi village) was not restricted since the road remained open up to September 2011 (the new road was completed in April 2011); access through the Project main gate and internal road was provided at the beginning of the 2010 fishing season to seasonal boat fisherfolk who stayed in Tragadi bander (together with assistance to transport their belongings) while the new access road and bridge over the outflow channel were being constructed.
D.	**Coal Dust and Fly Ash Pollution and its Impacts**	
21	[Para 99] A dust study recently undertaken also points to the evidence of coal and ash pollution. In May 2014, CGPL's new environmental consultant (CEG Test House) monitored dust at the Wand village, in addition to three other villages and two *banders*. The results assessed the total dust fallout rate (expresses as g/m_2/month) broken down into the soluble and insoluble fractions, and composition of the fallout dust (in terms of ash, coal, and silica). The results for the Wand village indicate that the ash fraction of the fallout dust was 86.29%, the total dust fraction was 13.7%, and the silica fraction was 0.71%. These findings show that the pollution experienced at the Wand village and other villages, where residents complain about pollution, does not only stem from CGPL's coal handling facility as the ash content of 86.3% is by far the most significant component. It is urgent, that the sources of ash pollution be identified and mitigated.	The dust analysis report quoted by the CRP is a one-off study. ADB received this report in November 2014 and since then has indicated that the positions of air quality monitoring stations mentioned in the text do not match with the latitude and longitude and has sought clarification from the borrower. This information is important to interpret the data provided in the report. The data provided in the dust study needs to be interpreted taking into account meteorological data and prevailing environmental conditions, status of plant operations and presence of other large sources of air pollution in the airshed at the time of monitoring. The data on very low silica in the 'dust fall' needs further clarification. ADB will be discussing these technical aspects of the report with the borrower to interpret the observations better and, if necessary, undertake further investigations to establish the source of this pollution.

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22	[Para 99] Ash pollution could originate from the Tata Mundra plant, the Adani Power Plant, or –most likely– both. Ash pollution from the Project may occur either from the stacks as fly ash or from the ash ponds as windblown fugitive emissions of dry ash deposits.	It is relevant to note the following when assessing whether it is credible that emissions of ash from the Project cause harmful ash pollution in the airshed. The Project's stack emissions in terms of particulates (fly ash) are below 50 mg/m^3 (the design emission standards of the Project, as specified in the SEIA). These emissions are most unlikely to give rise to any perceptible ash deposition at Vandh village, as is evident from the air quality modelling undertaken for SPM at the time of the environmental assessment and recorded in the SEIA. The Project has highly efficient stack emission controls which are in operation on a 24 hours x 7 days basis. Current monitoring reports indicate achievement of particulate emissions well below applicable standards and regulations. The Project's ash ponds are located approximately 3 km from Vandh village. The entire structure of the power plant is between the fly ash ponds and Vandh village, acting as a substantial barrier. In addition, the barrier constructed to minimize coal dust impacts on the village would act as a further barrier to fugitive ground level fly ash emissions. It is therefore unlikely that ground level fugitive emissions of fly ash from these ash ponds could reach Vandh village. CRP incorrectly captions the image of 'coal stackyard' as 'ash piles' under para 99.
23	[Para 101] Fly ash and coal dust pollution has significant health impacts. These health impacts could not as yet be verified by surveys. Since the project has only been in full operation since 2013, health impacts typically cannot be observed after such a short period of time. One cannot take the absence of evidence as evidence. Given the persistent	ADB shares CRP's concerns about human health impacts on Vandh and consequently has required that CGPL minimise coal dust impacts through a range of measures including the installation of a pipe conveyor for coal transport. Further, ADB has required the borrower to undertake a survey to establish baseline health conditions in Vandh village with a view to

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	level of ash and coal dust pollution, health impacts are likely to occur in the future. Thus the CRP concludes that harm is likely to occur.	examining any future health impacts. Notwithstanding the levels of fly ash pollution, it does not follow that the Project is likely to cause health impacts in the short or long term given given the other sources of pollution in the airshed and the Project's state of the art fly ash controls. ADB does not take the absence of evidence as evidence of no harm. ADB's actions demonstrate a recognition that there is a need to ensure that impacts to the Vandh village are minimized and the borrower shares that recognition.
24	[Para 104] ADB showed less concern in following up on alleged ash contamination of drying fish, salt and green – fodder. An internal document on the project monitoring mission 24-26 April 2013 gives attention to coal dust pollution of the Wand village but summarily states: "*No other village, salt pans or fish drying areas are likely to be impacted due to coal dust due to plant operations due to considerable distance of these facilities from the coal storage area."* (para. 7). This finding is in contrast with a statement in the an internal document dated 28 August 2012 (para.23) which states: "*It is also pointed out that coastal areas are very windy for most of the year and as result there is a high probability that such winds would raise and spread dumped ash from ash ponds*."	CRP should take note of the distinction between coal dust pollution and fly ash pollution. Both statements made by ADB are correct. The first statement is made in relation to coal dust. No village (other than Vandh village), salt pans or fish drying areas were likely to be impacted due to coal dust because of the distance of the sources of coal dust pollution (i.e. from stackyard) to any of these areas. Such distance is above 2 km. The coal dust, which is much heavier than fly ash, once airborne cannot be transported over such distance. This is further supported by the new MOEF guidelines for coal handling which specify a distance from the coal storage yard to the nearest residential area to be above 500m. The second statement is made in relation to fly ash which is light and may easily become airborne and be transported. The two statements therefore are not contradictory.
25	[Para 105] Further studies are needed to determine the presence and, if so, the amounts of heavy metals in these	For the reasons explained above, it is considered that the Project is most unlikely to impact fish, animal fodder or salt

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	deposits and the risks they pose to customers. Possible deposits would also need to be studied on salt pans and fodder around the project area. ADB staff should discuss and monitor these efforts according to para. 67 of the Environment Policy (2002).	pans in terms of coal dust and fly ash deposition in any significant manner. There are no unanticipated impacts under para 67 of ADB's Environment Policy (2002).
E.	**Ambient Air Quality**	
26	[Para 108] Prior to plant construction some ambient air parameters were not in compliance with the standards specified in the PPAH. According to data from the Comprehensive EIA, annual average air quality concentrations of RPM (i.e. PM-10) and SPM (i.e. TSP) were above the PPAH standards (see Table 3).	Table 3 of the draft Report should be revised since (as explained in paragraph 27 of Management's Response): (i) the PPAH values should be identical to the national (NAAQ values) and not those set out in Table C of PPAH Guidelines, and (ii) the monitoring and NAAQ values for annual average PM_{10} should not be reported against, as annual air quality data for the entire year is not available. The SEIA incorrectly reports the annual average based on three, not four, seasons.
27	[Para 108] However, during the public hearing on 16 September 2006, the representative of CGPL stated that ambient air quality was well within the stipulated NAAQS. Based on data reviewed, this statement was incorrect.	In view of the explanation provided in paragraph 28 of the Management's Response, and above, the CRP's interpretation is incorrect.
28	[Para 108] Since the Tata Mundra plant became operative, the air quality deteriorated further. The 24-hour average Indian NAAQS for PM-10 standard is violated at seven nearby villages. (See Table 4.)	The CRP's statement is factually correct. However, it does not follow that this deterioration is attributable to the Project. Based on a growing recognition of health impacts of $PM_{2.5}$ and $PM_{2.5}$ being the pollutant of concern among suspended particulates, the government of India introduced ambient air quality standards for $PM_{2.5}$ in 2009. It is noteworthy that the measured ambient $PM_{2.5}$ levels within the Project airshed have

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		been observed during project operation to be well within the Indian national air quality standard.[14] CRP should therefore reconsider its views on health impacts due to the Project's emissions.
29	[Para 109] ADB, in its Environmental Safeguards Review Mission Report, dated 11-12 October 2009, recognizes that PM-10 and SPM exceeded PPAH standards, but attributed this to emissions from vehicles and dust generated during construction of the plant. The dust analyses undertaken by CGPL shows that dust contains a very significant amount of ash and some coal, whereas the silica fraction is minute. Thus sand dust is only a very minor contributor to the pollution and ash and coal are significant contributors for PM-10 standard violations.	The CRP's statement opposite does not take into account the fact that ADB's statement was made at the time of construction whereas the dust analysis report undertook air quality monitoring in May 2014 during operations. No inference should be taken by the CRP on contributors for PM_{10} standard violations based on the dust study report which is a one-off study which requires technical validation (see paragraph 21 above).
30	[Para 113] During the January 2013-March 2013 period, the ambient air quality monitoring was conducted at seven villages around the Tata Mundra plant. The ambient air quality monitoring data at these seven villages revealed that the 24-hour average PM-10 (RPM) concentrations ranged between 123 ug/m3 and 134 ug/m^3, not complying with India's NAAQS of 100 ug/m3 at any of these villages. The ambient air quality monitoring conducted during this period, also indicated the NAAQS 24-hour average PM-10 standard was not being complied at CGPL's main gate (106 ug/m3) and was just below the standard at CGPL's hostel and labor colony (98 ug/m3).	There is no evidence that the Project is the cause of the Indian standards being exceeded, since the modelled incremental increase in ambient concentrations of SPM from the Project was 2.1 ug/m^3, and the Project is meeting its design emission criteria. Furthermore, see paragraph 28 above in relation to ambient $PM_{2.5}$ levels in the Project airshed which comply with Indian national standards.
31	[Para 113] The monitoring report did not include any assessment with respect to ADB's 24-hour average PM-10 PPAH standards. It would have been essential that ADB	The monitoring report for January – March 2013 under Table 1, item 18, states that the village level ambient air quality monitoring data reveals compliance to NAAQ standards except

[14] Quarterly Environment & Social Performance Report – Tata Ultra Mega Coal Fired Power Plant, Mundra Period: April to June 2014 Submitted to: Coastal Gujarat Power Ltd (CGPL) Prepared by: SENES Consultants India Pvt Ltd.

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	supervision missions reminded CGPL to also provide compliance assessments of the monitoring data with respect to the PPAH and for the 24-hour average PM-10.	for PM_{10}. The PPAH values should be identical to the national (NAAQ values) and not those set out in Table C of PPAH Guidelines so separate assessment is not required.
32	[Para 114] Ambient air quality monitoring was conducted in December 2013-January 2014 and May-June 2014 by CGPL's consultant (Ashwamedh Engineers and Consultants) at three locations within the Tata Mundra plant site (CGPL hostel, labor colony and main gate) and seven nearby villages (Tragadi, Moti Khakar, Mota Kandagara, Nana Bhadiya, Wand, Tunda, and Siracha). The monitoring data indicate noncompliance with India's NAAQS for the 24-hour average PM-10 of 100 ug/m_3 at the main gate and all seven villages. However, monitoring results for PM-2.5 were in compliance with the NAAQS of 60 ug/m^3. Compliance assessment was not conducted with respect to ADB's 24-hour average requirement of 150 ug/m^3. The monitoring report did not include any assessment with respect to ADB's international requirements.	See above explanation as to why (i) the monitoring reports do not need to assess results against the PPAH requirement of 150ug/m^3; and (ii) no assessment with respect to 'international' requirements is required.
33	[Para 115] The May 2014 ambient air quality monitoring at three CGPL sites (namely, at the main gate, labor colony, and field hostel), two banders (Tragadi and Kotdi banders), and seven villages (Mandavi, Wand, Bhadreshwar, Tragadi, Motikhakhar, Nana Bhadia, and Mota Kandagra villages) by CGPL's new environment consultant (CEG Test House) discloses that, except for the data measured at the main gate of the Tata Mundra plant, all monitoring data was in compliance with the 24-hour average Indian NAAQS for PM-10 of 100 ug/m3 and also with the ADB requirement of 150 ug/m3.	CEG Test House And Research Centre Pvt. Ltd., Jaipur (accredited by National Accreditation Board for Testing and Calibration Laboratories) has been commissioned by the borrower to conduct environmental monitoring for the Project. Eighteen locations were selected for ambient air quality monitoring. Monitoring of ambient air quality at each location was done for one single 24 hour period, over a four day period in May 2014. As such, the report presents single data points; a snapshot of conditions. ADB would not rely upon a single monitoring event to form a view on ambient air quality in the area, nor would that

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	[It is noteworthy that the monitored PM-10 values were much lower than those reported by CGPL's previous consultant (Ashwamedh Engineers and Consultants). In addition, the data showed **c**ompliance with the 24-hour average India's NAAQS for PM-2.5 of 60 ug/m3. The CRP mission could not obtain an explanation why the environmental data generated by the new consultant differed so significantly and present a significantly better situation of air quality than previous monitoring results.	be sufficient for ADB to investigate the difference between the two consultants' monitoring results. The report is useful in that it plots a trend that suggests a correlation between proximity to the coal conveyor and particulate levels, which further supports the decision to install a pipe conveyor system to replace the existing conveyor system. ADB is seeking further clarification regarding this report.
34	[Para 118] The ADB Report and Recommendation of the President to the Board of Directors states: "The EIA confirms that (i) the emissions will meet national standards in India as well as the World Bank's emission guidelines for new power plants, and (ii) the ambient air quality will not exceed these standards even if emission from all planned future power plants in the vicinity are considered." This statement is not only incorrect; it also projects the impression that a comprehensive cumulative impact assessment including all planned future power plants in the vicinity of the Tata Mundra plant has been undertaken. The cumulative impact assessment presented in the SEIA only takes account of 660 MW power generation capacity of the Adani plant. The Adani plant now operates with a power capacity generation of 4,620 MW.	Statement (i) opposite is correct.[15] The SEIA, in Table 13, sets out the expected emissions of the power plant, the World Bank norms and the national standards. The Project's expected emissions are below the national as well as the World Bank norms.[16] In relation to statement (ii), it is relevant to note the context in which the statement was made. At the time of the RRP: (1) the only 'planned' project in the vicinity (apart from the Project) was Adani's power plant, (2) private sector participation in the power sector was in an early stage of growth, and it was far from certain whether it would attract the required investment; (3) while the government of India had plans to carry out 7 ultra mega power plants in India, Adani's power plant was not earmarked as an ultra mega power plant.[17] In ADB's view, at the time of the RRP the only 'planned' project in the vicinity of the Project was Adani's power project of 660 MW which had a reasonable certainty of proceeding, given that it had obtained environmental clearance.

[15] ADB acknowledges that certain of the Indian standards are incorrectly stated in Table 13, but the statement is true in relation to the correct values
[16] See preceding footnote.
[17] The uncertainty of private sector involvement in this sector is demonstrated by the fact that, of the 7 ultra mega power plants planned by the government of India, only 2 have become operational in 2015 (the Project and Sasan power plant)

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35	[Para 119] Since 2013, ADB staff became cognizant of the noncompliance situation in respect to PM-10 standards. ADB has since discussed with CGPL the need to improve monitoring. CGPL emphasized to the CRP that ADB staff takes a strong interest on air quality monitoring and possibilities for air quality improvements during its supervision missions.	ADB has discussed improvements with CGPL to improve air quality monitoring, including undertaking monitoring of $PM_{2.5}$.
36	[Para 120] The Tata Mundra plant violates PM-10 standards.	Recent monitoring reports[18] record (in the Table of Flue Gas Emissions) that the Project is complying with its design emission standards for PM_{10}.

[18] Quarterly Environment & Social Performance Report(s) – Tata Ultra Mega Coal Fired Power Plant, Mundra; for October to December 2013, January to March 2014 and April to June 2014.