AUDIT REPORT

CAO Audit of IFC
CAO Compliance

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CAO Audit of IFC Investment in Coastal Gujarat Power Limited, India

Office of the Compliance Advisor Ombudsman (CAO)
for the
International Finance Corporation (IFC)
Multilateral Investment Guarantee Agency (MIGA)
Members of the World Bank Group

About CAO

The CAO's mission is to serve as a fair, trusted, and effective
independent recourse mechanism
and to improve the environmental and social accountability of IFC and MIGA.

CAO (Office of the Compliance Advisor Ombudsman) is an independent post that reports directly to the President of the World Bank Group. CAO reviews complaints from communities affected by development projects undertaken by the two private sector lending arms of the World Bank Group, the International Finance Corporation (IFC) and the Multilateral Investment Guarantee Agency (MIGA).

For more information about CAO, please visit www.cao-ombudsman.org

Executive Summary

Coastal Gujarat Power Limited (CGPL), a subsidiary of Tata Power, has developed a 4,150 MW coal-fired power plant near the port town of Mundra in the Kutch district of Gujarat, India (the project). The plant is located approximately 3km from the Gulf of Kutch and uses seawater for cooling in a once through system. Total project cost is estimated at $4.14 billion, of which IFC is financing $450 million in the form of a straight senior loan.

CAO received a complaint regarding IFC's investment in CGPL from Machimar Adhikar Sangharsh Sangathan (MASS), the Association for the Struggle for Fishworkers' Rights, representing fisher people living in the vicinity of the project (the complainants) in June 2011. More specifically, the Complainants are identified as fisher people belonging to the minority Wagher community of Muslims. Also relevant is the migratory nature of their lifestyles, and their dependence on natural resources. As asserted in the complaint, the fisher people migrate from often distant home villages to the *bunder* (fishing harbors), where they live during a fishing season of eight to nine months per year. Two of these *bunders*, Tragadi and Kotadi, are situated on the coast between the plant's cooling water intake and outfall channels.

In summary, the MASS complaint relates to:

- the identification of the complainant fisher people as project-affected people
- the environmental impacts of the plant on the Complainants and its effects on their livelihoods
- alleged lack of compliance with national regulations in relation to the plant's once through cooling system
- aspects of the design of the power plant and assessment of alternatives, and
- the adequacy of IFC's supervision of environmental and social (E&S) aspects of the project.

This report presents the findings of the audit. At the outset, CAO would like to recognize that much diligent work has been done by IFC and CGPL in relation to E&S aspects of what is a large and complex project. CAO also recognizes the collaborative and transparent manner in which both IFC and CGPL staff have engaged with the CAO audit process, and the Tata Group's reputation as a national leader in relation to sustainable business. Further, CAO acknowledges detailed comments that the IFC team provided on the draft audit report in June 2013.

CAO notes that the project is situated in a complex and rapidly industrializing rural/semi-rural area of India, and that it is being undertaken within constraints placed on CGPL/Tata/IFC by the tendering process. In particular, the plant is situated approximately 2km from a newly constructed 4,620 MW coal-fired power plant (Adani Power) and major waterfront development (Mundra Port and Special Economic Zone).

The nature of a CAO audit process, means that this report focuses on the concerns raised by the complainants. It may not therefore reflect the views of other affected groups that have different experiences than the complainants. This context notwithstanding, CAO finds evidence that validates key aspects of the MASS complaint.

In particular, CAO finds that the Complainants, who are from a religious minority and occupy a socially marginal position given their migrant traditions, were not adequately considered as the E&S risks and impacts of the project were considered and addressed. IFC has contributed to this situation to the extent that its review of CGPL's E&S assessments was not commensurate with project risk as required by its Sustainability Policy. CAO also finds that IFC has failed to address E&S compliance issues during supervision.

CAO finds an absence of social baseline data in relation to the fisher people who reside seasonally on Tragadi and Kotadi *bunders*. CAO also finds that IFC failed to ensure that its client's E&S assessments adequately considered the risks and impacts of the project on these fisher people. Inadequate consideration of the impact of the project on these communities had flow-on effects in terms of the approach that was taken to consultation and disclosure (which was neither effective or timely). Absent a baseline study or impact assessment that considered the circumstances of these communities, CAO finds that IFC was not in a position to ensure the proper application of Performance Standard (PS) 5 (Land Acquisition)—this despite indications that households living on the *bunders* have been displaced by the project (both physically and economically). Further, in relation to the issues raised by the Complainants, CAO finds IFC paid inadequate attention to the requirement of PS6 (Biodiversity Conservation) that the client's E&S assessment document the project's impact on "ecosystem services" taking into account "the differing values attached to biodiversity by specific stakeholders" and its (para. 4).

CAO finds further shortcomings in IFC's review and supervision of the impacts of the project on the airshed and marine environment.

In relation to the airshed, CAO finds that IFC successfully used its influence at appraisal to ensure that IFC's overall plant emissions guidelines would be met. However, IFC has not ensured that its client correctly applied the World Bank's Thermal Power: Guidelines (1998) in that the project airshed has not been defined as a degraded airshed—a classification that brings with it a requirement that there will be no net increase in the total emissions of particulates or sulfur dioxide within the airshed.

In relation to the marine environment, CAO finds that IFC's process of E&S review was not appropriate to the nature and scale of the project or commensurate to risk as required by the Sustainability Policy. As a result, CAO finds that important opportunities were missed to: (a) request more detailed baseline information on the marine environment of the affected area; (b) incorporate deeper analysis of the potential marine (and associated social) impact of the project into design considerations and the client's E&S management system; and (c) develop a framework to support meaningful marine impact monitoring.

More specifically, CAO finds that IFC has not assured itself that the plant's seawater cooling system will comply with applicable IFC Environmental, Health and Safety (EHS) Guidelines. Projections that the thermal plume from CGPL's outfall channel will extend a distance of kilometers into the shallow waters of the gulf and surrounding estuaries suggest inadequate mixing/cooling, with significant risks of social and ecological impact. These risks are heightened by claims that the plume will intersect with components of the ecosystem which the Complainants assert are important to their livelihoods.

Further, the audit addresses the issue of cumulative impact and whether IFC policies and procedures provide adequate guidance to staff on how to manage E&S risks associated with projects in areas that are in the process of undergoing rapid industrial development. On this topic, CAO finds that IFC's E&S review paid inadequate attention to ensuring that the project's risks and impacts were "analyzed in the context of [its] area of influence," as required by PS 1, including "areas potentially impacted by cumulative impacts…from project-related developments that are realistically defined at the time the E&S assessment is undertaken." While recognizing that CGPL's leverage with regard to neighboring developments may be limited, in accordance with PS1, CAO finds that, IFC should have advised its client that third-party E&S risk emerging from the project's proximity and relationship with Mundra Port and Special Economic Zone needed to be better assessed, with mitigation measures developed commensurate to CGPL's level of influence. In these circumstances, CAO finds IFC staff may benefit from guidance that, in cases of doubt, its policies on third-party risk and cumulative impact should be interpreted in ways that further the institution's higher level commitments to do no harm principles and the avoidance of negative E&S impacts where possible.

Taken together, CAO finds that the above weaknesses in IFC's E&S review of CGPL did not support the formation of a robust view as to whether the project could be expected to meet the requirements of the Performance Standards over a reasonable period of time, the threshold question in terms of IFC's decision to invest. Weaknesses in IFC's E&S review process also meant that required opportunities to consider alternative project designs to avoid or minimize E&S impact were missed.

In relation to issues of supervision, CAO notes that IFC has documented regular reviews of CGPL's monitoring reports. In addition to conducting at least nine supervision visits since committing to the project, IFC is in regular communication with CGPL regarding E&S issues. This represents a commitment of resources beyond that required by its Environmental and Social Review Procedures (ESRPs). CAO also notes that CGPL was required to engage a Lenders E&S consultant to report on the status of the project's E&S compliance. Nevertheless, CAO finds that CGPL's E&S commitments are expressed in terms that are difficult to monitor.

CGPL has produced an Environmental Management Plan that addresses these concerns to some extent, however, CAO has concerns that a framework for managing E&S impact that can be audited and monitored has yet to be established: the lacking elements being a consolidated statement of the requirements against which performance is monitored, using verifiable data. Absent such a framework, CAO finds that IFC is not in a position to demonstrate either that its client's monitoring is commensurate to risk (as required by PS1) or that its supervision allows it to meet the stated purposes of supervision as set out in the ESRPs: namely, the development and retention of information needed to assess the status of E&S compliance. Confidence among the IFC team in the client's E&S capacity and commitment, combined with a view that the project is performing well from an E&S perspective, have meant that IFC has not treated the Complainants' concerns as compliance issues.

In accordance with the CAO Operational Guidelines, this audit will remain open and subject to CAO monitoring until CAO is assured that IFC has moved back into compliance with its E&S commitments.

Contents

Abbreviations

AMR	annual monitoring report
BCS	Broad Community Support
BSIA	Baseline Social Impact Assessment
BNHS	Bombay Natural History Society
CAO	Compliance Advisor Ombudsman
CEIA	Comprehensive EIA
CGPL	Coastal Gujarat Power Limited
CO	carbon monoxide
CRZ	Coastal Regulatory Zone
EHS	environmental, health and safety
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
E&S	environmental & social
ESAP	Environmental & Social Action Plan
ESIA	Environmental and Social Impact Assessment
ESRD	Environmental & Social Review Document
ESRPs	Environmental & Social Review Procedures
ESRS	Environmental & Social Review Summary
FPIC	free prior and informed consultation
GN	Guidance Note
GHG	greenhouse gasses
IFC	International Finance Corporation
MASS	Machimar Adhikar Sangharsh Sangathan (complainant NGO)
MEIA	Marine Environmental Impact Assessment
MIGA	Multilateral Investment Guarantee Agency
MMTA	million metric tons per annum
MoEF	Ministry of Environment and Fisheries (of India)
MPSEZ	Mundra Port and Special Economic Zone
mt	megatons
MW_e/MW_{th}	megawatts electrical (output) /megawatts thermal (input)
NAAQS	National Ambient Air Quality Standards (of India)
NGO	nongovernmental organization
NIO	National Institute of Oceanography
$NO_2/NO/NO_x$	nitrogen dioxide/nitric oxide/oxides of nitrogen
PM_{10}	particulate matter with a mean aerodynamic diameter of 10µm
PS	Performance Standard
RMEIA	Rapid Marine Environmental Impact Assessment
RPM	respirable particulate matter (taken to be equivalent to PM_{10})
SEIA	Supplemental Environmental Impact Assessment
SENES	Specialists in Energy, Nuclear, and Environmental Sciences (CGPL's E&S consultant)
SO_2/SO_x	sulfur dioxide/oxides of sulfur
tpd	tons per day (metric)
TOR	Terms of Reference
TSP	total suspended particulate
UMPP	Ultra Mega Power project
VOCs	volatile organic compound(s)

1. Overview of the CAO Compliance Audit Process

When CAO receives a complaint about an IFC or MIGA project, it first refers it to the CAO dispute resolution function, which works to respond to complaints through facilitated settlements, if appropriate. If the CAO dispute resolution function concludes that the parties are not willing or able to reach a facilitated solution, the case is transferred to the CAO compliance function to appraise the concerns raised in the complaint. A compliance appraisal may also be initiated by request from the President of the World Bank Group or senior management of IFC or MIGA.

CAO compliance auditing focuses on IFC and MIGA, and how IFC/MIGA assured itself/themselves of project performance. The purpose of a CAO audit is to ensure compliance with policies, standards, guidelines, procedures, and conditions for IFC/MIGA involvement, and thereby improve the social and environmental performance of investments and activities backed by IFC/MIGA. In many cases, in assessing the performance of the project and implementation of measures to meet relevant requirements, it is necessary to review the actions of the project sponsor and verify outcomes in the field.

A compliance audit must remain within the scope of the original complaint or request. It cannot go beyond the confines of the complaint, or request that other issues be addressed. In such cases, the complainant or requestor may consider submission of a new complaint or request.

CAO Compliance appraisals and audits consider how IFC/MIGA assured itself/themselves of compliance with national law, reflecting international legal commitments, along with other audit criteria. CAO has no authority with respect to judicial processes. CAO is neither a court of appeal nor a legal enforcement mechanism, nor is CAO a substitute for international court systems or court systems in host countries.

In cases where IFC/MIGA is/are found to be out of compliance, CAO will keep the audit open and monitor the situation until actions taken by IFC/MIGA assure CAO that IFC/MIGA will move back in to compliance. CAO will then close the audit.[1]

[1] This description of the CAO process is based on its Operational Guidelines (2007). Updated Operational Guidelines were released in March 2013, while this investigation was under way. The new Operational Guidelines are being applied to all compliance processes that commence after March 2013.

2. Background

As part of the government of India's Ultra Mega Power project (UMPP), Coastal Gujarat Power Limited (CGPL) is in the process of building a supercritical coal-fired power plant with a capacity of more than 4000 MW_e near the port town of Mundra in the Kutch district of Gujarat, India (the project).

CGPL is sponsored by Tata Power Company Limited (Tata Power), which acquired 100 percent of CGPL from the Power Finance Corporation of India on a build, own, and operate basis in April 2007. The plant was operating at about 80 percent (3300 MW_e) of installed capacity in February 2013 when the CAO audit team conducted its site visit. Full generating capacity was reached in March 2013.

The project is being developed in the context of India's larger energy strategy, which calls for a 160,000 MW_e increase in power generation capacity through 2017. CGPL is one of several large power projects that are being promoted under the Ultra Mega Power project. As a UMPP, the Power Finance Corporation (a government company) selected the project site, technology, and type of fuel to be used, as well as obtaining required initial approvals for the plant. The project was awarded to Tata Power through tariff-based competitive bidding in 2007. It is intended to generate electricity for sale to the utilities of five different states in regions of western and northern India through a long-term, 25-year, take-or-pay power purchase agreement.

Total project cost is estimated at $4.14 billion, of which IFC is financing $450 million in the form of a straight senior loan. The project was assigned IFC's environmental and social category A, signifying that it has potential significant adverse social and/or environmental impacts that are diverse, irreversible, or unprecedented.

In the context of the complaint, it is significant that the coastline around Mundra is undergoing rapid industrial transformation. In addition to the construction of the CGPL power plant, this involves the development of the Adani Group's Mundra Port and Special Economic Zone (MPSEZ), which includes significant expansion of existing port facilities and the construction of a 4620 MW_e coal-fired power plant (Adani Power).

3. The Complaint

CAO received a complaint regarding IFC's investment in CGPL from Machimar Adhikar Sangharsh Sangathan (MASS), the Association for the Struggle for Fishworkers' Rights, representing fisher people living in the vicinity of the project (the Complainants) in June 2011.[2] More specifically, the Complainants are identified as fisher people belonging to the minority Wagher community of Muslims, a group characterized by the government of India as a "socially and educationally backward caste."[3] Also relevant is their migratory lifestyle, which is dependent on natural resources. As asserted in the complaint, the fisher people traditionally migrate from often distant home villages to the *bunder* (fishing harbors), where they live during a fishing season of eight to nine months each year. The Muslim Wagher speak Kutchi and assert to maintain traditional cultural and social institutions and practices that are distinct from the Gujarat Hindu majority.[4]

MASS' concerns, as set out in its complaint dated June 11, 2011 (and in an additional complaint dated May 28, 2012), can be summarized as follows:

a) Failure to identify the Complainants as project-affected people during preparation of the project
b) Physical and economic displacement of fisher people from seasonal settlements and fish drying areas in the intertidal zone
c) Impact of coal ash and other airborne pollution on fish drying and public health
d) Alleged lack of compliance with national regulations in relation to the decision to construct a once through cooling system
e) Impacts on marine environment and long-term decline in fish stocks due to destruction of mangroves and construction/operation of the plant (especially the cooling system)
f) Failure to consider expansion of Mundra Port as an associated development or to consider the investment in the context of cumulative impacts of related developments
g) Impacts on additional livelihood groups (namely, graziers and salt pan workers) that were not adequately identified or mitigated
h) Social impacts of increases in the cost of power beyond that which was projected in the project documentation
i) Failure to consider technically and financially feasible design alternatives to minimize E&S impact
j) Adequacy of IFC's supervision of E&S aspects of the project.

[2] See www.cao-ombudsman.org/cases/case_detail.aspx?id=171 (under Complaint).
[3] See www.ncbc.nic.in/Pdf/gujarat.pdf
[4] CAO communication with the Complainants, May 2013. See also Singh (2002) p.1454ff.

4. Summary of CAO Appraisal and Audit Process

Following an initial assessment, the CAO Vice President referred the MASS complaint to CAO Compliance for compliance appraisal on February 1, 2012. In July 2012, CAO issued a compliance appraisal report. The appraisal concluded that a number of issues raised by the Complainants merited further inquiry.[5] Thus, in accordance with its Operational Guidelines, CAO issued a Terms of Reference (TOR) for an audit of IFC's social and environmental performance in relation to its investment in CGPL.[6]

As set out in the TOR, the issues to be addressed by this audit are as follows:

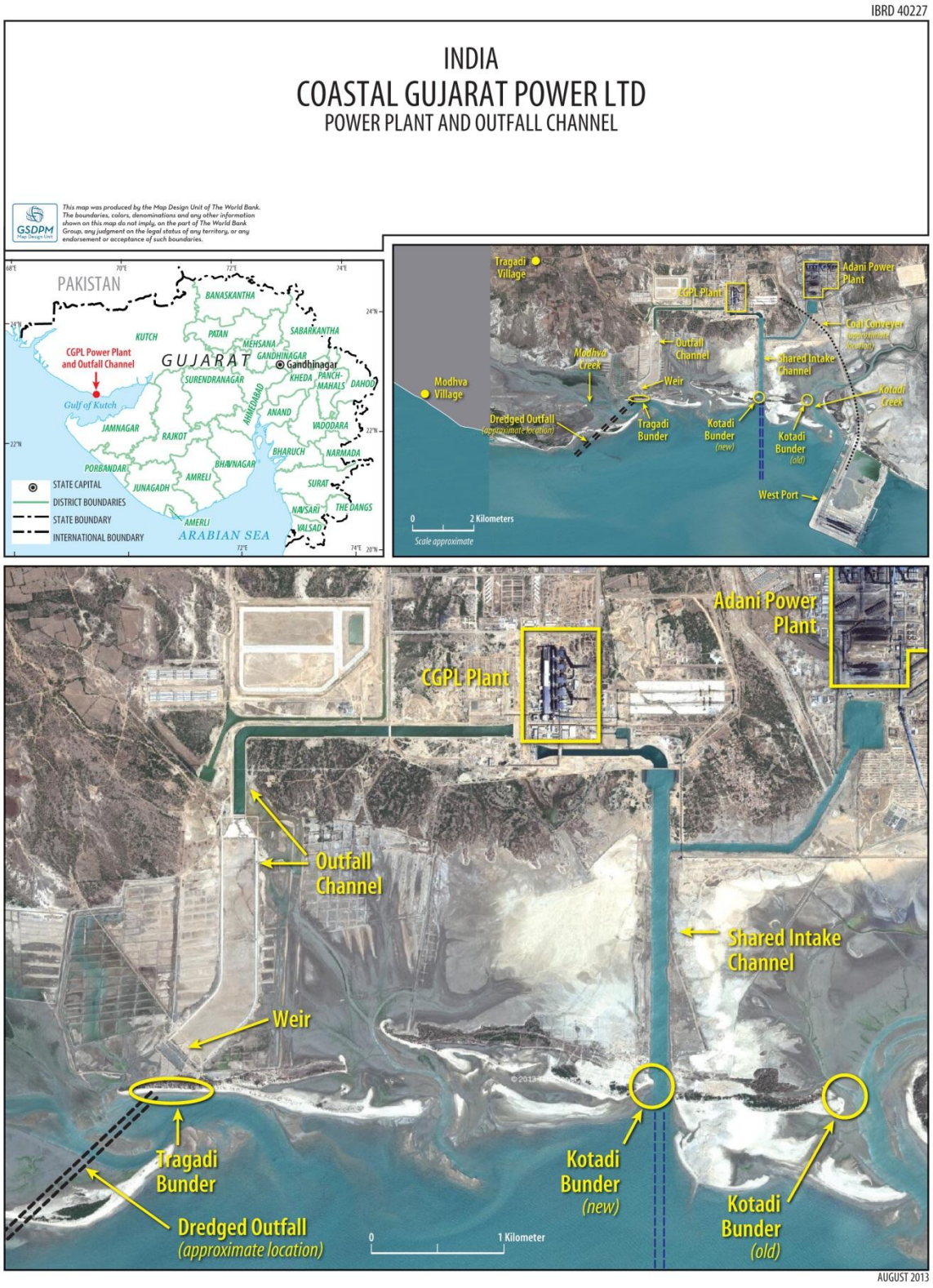
a) Whether IFC exercised due diligence in its Environmental and Social (E&S) review of the project
b) Whether IFC gave adequate consideration to the cumulative impacts of Adani Power and the construction of the Mundra West Port in its E&S review
c) Whether IFC's assessment of community support for the project was adequate
d) Whether Performance Standard 5 has been correctly applied with regard to the Complainants' seasonal fishing settlements and fish drying areas
e) Whether IFC provided CGPL with adequate guidance on the drafting of an Action Plan that met the requirements for specificity set out in Performance Standard 1
f) Whether IFC exercised due diligence in its review of CGPL's reporting on regulatory and lender E&S requirements
g) Whether IFC has been sufficiently proactive in engaging with the client to remedy E&S issues that have been identified in project supervision
h) Whether IFC policies and procedures provide adequate guidance to staff on how to manage E&S risks associated with projects in areas that are in the process of undergoing rapid industrial development, with environmental and social consequences to be defined.

The scope of this audit also includes developing an understanding of the immediate and underlying causes for any noncompliance identified by CAO.

This audit was conducted on the basis of a review of relevant documentation and interviews with stakeholders. Persons interviewed included IFC management and staff responsible for the project, representatives of the Complainants, and management and staff of CGPL and NGOs connected with the complaint. As provided for in its Operational Guidelines, CAO engaged technical experts with relevant backgrounds and industry experience to ensure the quality of this audit.

In February 2013, the audit team visited the CGPL plant and surrounding area: in particular, the village of Tragadi and the seasonal settlements (*bunder*) near the CGPL plant where the Complainants reside. The *bunder* were referred to by people present as Tragadi *bunder* and new Kotadi *bunder* (see map below).[7]

[5] Three issues in particular raised by the complaint—g, h, and i above—were not included in the audit TOR. See appendix A to this report for reasons as set out in CAO appraisal report.
[6] See www.cao-ombudsman.org/cases/case_detail.aspx?id=171 (under Audit Report).
[7] Old Kotadi bunder was explained by interviewees to be located on the eastern side of the joint CGPL/Adani power cooling water intake channel.



Map 1: Project Site

5. Project Timeline

Table 1 presents a project timeline from 2007 to 2013.

Date	Milestone, events, and documents
2007	
January	Rapid Marine Environmental Impact Assessment (EIA)
March	CGPL MoEF Environment Clearance
April	CGPL Corrigendum to Environment Clearance dropping reference to closed cooling system CGPL shell company transferred to Tata Power
August	Comprehensive Environmental Impact Assessment Adani Power Phase 1 (2 x 330 MW) MoEF Environment Clearance
October	IFC appraisal visit IFC first Broad Community Support (BCS) visit
November	Basic Social Impact Assessment Environmental and Social Action Plan (ESAP) Supplementary Environmental Impact Assessment (SEIA), including cumulative air quality assessment Environmental and Social Review Summary (ESRS) IFC CGPL decision meeting
December	Adani Power Phase 2 (1980 MW) Terms of Reference approval for EIA by MoEF
2008	
January	Stakeholder Engagement Framework Compensation Management Framework IFC second BCS visit
March	IFC third BCS visit IFC BCS memo sign off
April	Mundra Port and Special Economic Zone (MPSEZ) Integrated Waterfront Development project (including West Port, North Port, South Port, and East Port), EIA TOR approval by MoEF
April	IFC Board approval CGPL commitment date
September	IFC supervision visit 1
December	IFC first disbursement
2009	
January	MPSEZ Waterfront Development project –MoEF CRZ and Environment Clearance Addendum to MPSEZ Waterfront Development project–MoEF CRZ and Environment Clearance to include the description of West Port and South Port (including the common intake channel) in the CRZ and Environment Clearance of January 12, 2009
February	Marine Impact Assessment by NIO IFC supervision visit 2
July	IFC supervision visit 3
November	IFC supervision visit 4

Date	Milestone, events, and documents
2010	
March	Coastal biodiversity assessment benchmarking report (Bombay Natural History Society, BNHS) CGPL amendment to CRZ clearance for new outfall location and including coal conveyor
May	IFC supervision visit 5
December	IFC supervision visit 6
2011	
January	IFC first interaction with MASS and civil society organizations (CSOs) on CGPL, including Bank Information Center (BIC), Delhi Forum, and the National Alliance of People's Movement (NAPM)
April	CGPL amendment to environment clearance (increase from 4000 to 4150 MW, change from rail to conveyor for coal transport, and other minor changes)
June	Complaint: submitted by MASS to the CAO
November	Stakeholder Engagement and Benefit Sharing Study (also referred to as Survey of Tragadi Village)
	Needs Assessment Survey of Modhva Village
	IFC supervision visit 7
2012	
March	CGPL Unit 10, commercial operation date
April	IFC supervision visit 8
May	Additional complaint submitted by MASS
July	CGPL Unit 20, commercial operation date
September	IFC supervision visit 9, including meeting with MASS
December	CGPL Unit 30, commercial operation date
2013	
January	CGPL Unit 40, commercial operation date
February	CAO audit panel visit to Mundra
March	CGPL Unit 50, commercial operation date

Table 1. Summary of Key Milestones, Events, and Documents, 2007–13

6. Discussion and Findings by Issue

This report is structured in line with CAO's audit TOR. Appendix A contains an excerpt from the CAO compliance appraisal report in relation to aspects of the complaint not included in the audit TOR. Appendix B summarizes the relationship between the complaint and the audit TOR, and extracts key compliance findings.

Each section below outlines relevant concerns as raised by the complaint, identifies applicable IFC policies and standards, discusses project performance, and reaches findings on compliance.

Issue A. Whether the IFC exercised due diligence in its Environmental and Social (E&S) review of the project

As part of its due diligence, IFC is required to conduct an E&S review of a potential project that is "appropriate to the nature and scale of the project and commensurate with (its) risks and impacts" (Sustainability Policy, 2006, para. 13). IFC bases its review on a client's E&S Assessment, and an assessment of the commitment and capacity of the client (para. 15). In cases where the client's assessment does not meet the requirements of Performance Standard 1 (PS1), IFC requires the client to undertake an additional Assessment or, where appropriate, commission an Assessment by external experts (para. 15).

PS1 (2006) includes as one of its objectives the identification of E&S impacts of a project in its area of influence. Once identified, an IFC client is committed to "avoid, or where avoidance is not possible, minimize, mitigate, or compensate for adverse impacts" (para. 1). To achieve these objectives, an IFC client is required to conduct an Assessment based on "current information (…) including appropriate social and environmental baseline data" (para. 4). The assessment is also required to be "adequate, accurate and objective" (para. 7).

On the basis of its E&S review, IFC may finance a new business activity if it can "be expected to meet the Performance Standards over a reasonable period of time" (para. 17).

At the outset, IFC recognized that the construction of CGPL's Mundra UMPP warranted a Category A classification, meaning that the project had "potential significant adverse social or environmental impacts that were diverse, irreversible or unprecedented" (Sustainability Policy, para. 18). Issues that justified this classification were specified and included the "adequacy of the selection of cooling system, large volume of seawater intake and impacts on marine environment/fishery, cumulative air quality impacts of the project and the Adani project (Phase I and II), adequacy of air pollution control measures, land influx management, livelihood restoration, GHG [greenhouse gas] emissions and climate change adaptation" (IFC, PDS Approval, March 2008). In this context, "improper mitigation or insufficient community engagement" were identified as possibly triggering "opposition from project-affected communities or unacceptable environmental impacts" (*ibid.*)

Having identified the project as one that could have significant adverse impacts, IFC conducted an evaluation of Broad Community Support (BCS) with identified communities in early 2008 (see further discussion under Issue A2).

Before IFC approved the investment (commitment date, April 24, 2008), its E&S review encompassed environmental and social impact assessment documentation available at the time, including:

- Rapid Marine Environmental Impact Assessment (RMEIA)
- Comprehensive Environmental Impact Assessment (CEIA)
- Basic Social Impact Assessment (BSIA)
- Supplementary Environmental Impact Assessment (SEIA), including cumulative Air Quality Assessment

In the course of the review process, IFC identified gaps that would need to be addressed to ensure that the project could be carried out in accordance with the Performance Standards. Measures to close these gaps were defined, agreed with CGPL and documented in the two-page Environmental and Social Action Plan (ESAP) (November 2007), which was incorporated into IFC's loan agreement with CGPL.

IFC's decision to invest in CGPL was further supported by an assessment of the E&S record and commitment of CGPL's parent company, Tata. As explained by IFC, Tata has a long track record of partnership with IFC and is widely considered to be a leader in relation to sustainable business in India.

The adequacy of IFC's E&S due diligence, however, requires detailed analysis in relation to several key areas. These include: (a) identification of fisher people as project-affected people; (b) disclosure and consultation requirements; (c) marine impact; and (d) emissions to air. These issues are dealt with in turn in subsections A1–A4.[8]

Issue A1. Identification of fisher people as project-affected people

The complaint asserts that the interests of fisher people were not adequately considered in the E&S assessment processes that accompanied project preparation. The Complainants argue that the project's various E&S impact assessments overlook some fishing communities, particularly those living in the seasonal settlements on the coast directly in front of the plant, and underestimate the importance of traditional hand and gill net fishing (known as *pagadiya* fishing) in nearby intertidal areas.

In addition to the general requirements set out above, PS1 provides that an E&S assessment "will consider all relevant E&S impacts of the project…and those who will be affected by such risks and impacts" (para. 4). Risks and impacts are to be "analyzed in the context of the project's area of influence" (para. 5). As part of the assessment, the client is also required to "identify individuals and groups that may be differentially affected by the project because of their disadvantaged or vulnerable status" (para. 12). Where such groups or individuals are indentified IFC guidance suggests that gathering baseline data and undertaking assessment on a disaggregated basis is of particular importance (Guidance Note 1, para 16 and 24). Further, the E&S assessment is required to "take into account the differing values attached to biodiversity by specific stakeholders, as well as identify impacts on ecosystem services" (PS6, para. 4).

[8] To avoid repetition, the subsections below respond to key areas of the complaint focusing on IFC's due diligence pre disbursement, but extending into supervision as necessary. More general questions in relation to supervision are addressed under Issues E, F, and G.

The project file documents a range of consultations with villagers and elected officials starting in 2006. The focus of consultations before the commitment of IFC funds in April 2008 was on three project-affected villages (Tunda, Mota Kandagara, and Nana Bhadiya) as defined in the BSIA (2007), on the basis that these villages would lose land to the project. Early consultations including some representatives of fishing communities are also documented, although these consultations were significantly less intensive. It is noted, however, that where such consultations are documented, fisher people raised concerns about the impact of the project on their livelihoods.[9]

Fisher people are also identified in the BSIA (2007) as "Project Affected Community Resource Users," being persons or households "whose livelihood […] may be impacted due to project operations" (p.7)—though neither particular fishing communities nor specific impacts are identified. Corresponding mitigation measures are described generally as follows: "The project activities and community development plan will identify appropriate livelihood options for them and facilitate their transition" (p.38).

Subsequently, CGPL produced a Stakeholder Engagement Framework (January 2008), a Household Survey and Needs Assessment (May 2008), and a Summary of Major CSR (Corporate Social Responsibility) Initiatives (August 2008). These documents also focus on the project affected villages as defined in the BSIA, with little or no analysis of the impact of the project on fisher people.

A relative lack of focus on the interests of fisher people at this stage of the project is explained by IFC on the basis of: (i) findings in the Rapid Marine Environmental Impact Assessment (RMEIA, 2007) that marine impacts of the project would be limited with appropriate mitigation measures; (ii) a similar finding in a 2006 Socio-economic Assessment Study which formed part of the CEIA; and (iii) agreement reached with CGPL that they would conduct appropriate assessment and mitigation of impacts associated with the outfall channel, as and when its location was determined (ESAP, 2007 para 3).

During the audit process, IFC advised CAO that the impacts of the project on the fishing communities using the *bunders* were limited to the increased access distances (due to the outfall channel route and design) and that these impacts had been successfully mitigated with the provision of a bridge over the outfall channel, a boat service further down the channel (below the weir), and the construction of an improved road linking Tragadi *bunder* to Tragadi village.

CGPL has also provided livelihood support to the fishing communities in Modhva and Tragadi villages. CAO was advised that this livelihood support has taken the form of:

- grants (payments) to 162 fisher people in Tragadi village, as well as contributions to village-level infrastructure and social programs, and

[9] For example, minutes of a public consultation in September 2006 reference two questions raised in relation to fisheries. These concerns are answered by a representative of CGPL, who "denied that their proposed project will affect fishing activity," as the discharge will not be polluted and will not exceed 32^{o}C. In addition, the BISA (2007) annexes minutes of one two-hour meeting at Kotadi *bunder* (a settlement of 50 families at the time), involving seven villagers. At this meeting, fisher people raise concerns about the effect of effluent from the plant on the fish catch. Issues of access to the *bunder* and concerns about the effect of increased light (at night) were also raised.

- in Modhva village, fishing nets to 317 fisher people, two fiber boats, and two sets of solar lights.

Additional social programs targeted at fisher people are detailed in the CGPL publication, Samvad—A Dialogue with Our Stakeholders,[10] and include the installation of solar lights in Modhva village; support for the development of Village Development Advisory Committees, which coordinate community development activities; and the installation of a reverse osmosis water treatment plant in Tragadi village.

In addition, it is understood that CGPL is supporting households that reside on a seasonal basis on Tragadi *bunder* through the provision of fresh water. CAO was advised during the visit with CGPL that efforts will be made to carry out further community development activities on the Tragadi *bunder*, such as improving access to water by extending the delivery of the water currently being supplied to additional points within the communities.

Also of relevance, CAO was advised during a visit to Tragadi village that the majority of the Tragadi village fishing community travel to Jakhau to market their fish—a town some 90km northwest of Tragadi village, where there is better infrastructure for the sale and marketing of fresh fish. Although not elaborated in the documents reviewed, this account of the fishing trade in Tragadi village supports the assertion that the potential impact of the project on the fisher people of Tragadi village would be limited, as they conduct their fishing activities predominantly outside the CGPL area of influence.

On the other hand, CAO was advised by representatives of the Complainants that seasonal fishing communities residing on Tragadi *bunder* and Kotadi *bunder* are predominantly comprised of families that travel from more distant villages (further afield than Tragadi or Modhva villages) and reside on the *bunders* most of the year (typically, for eight months). CAO met several people during the visit to the *bunders* who claimed to have been using the site since before 2005.

CAO was advised by IFC that Modhva and Tragadi villages are considered to be within CGPL's area of influence and that the fishing communities from these villages and the seasonally resident communities at Tragadi Bunder are recognized as affected communities.[11] IFC also provided CAO with a map dated April 2011 indicating the project's area of influence, though this is not referenced in any of the E&S assessments reviewed. In a recently published statement of "Myths and Realities" regarding the project, CGPL states that its influence zone covers an area of 10km radius from the plant. This statement describes "Tragadi bunder, the Intake and the Outfall channel" as falling with the influence zone.[12]

CAO notes that the E&S assessment documentation, including the Stakeholder Engagement and Benefit Sharing Study (focusing on Tragadi village), and the Needs Assessment of Modhva village (both published in 2011), lack an assessment of the **impact** of the project on the fishing communities of these villages. Further, CAO notes

[10] www.tatapower.com/cgpl-mundra/pdf/dialogue-stakeholders.pdf
[11] IFC (2012) Response to CAO Compliance Appraisal Questions and Responses, Tata Ultra Mega # 25797.
[12] CGPL, Mundra UMPP: Myths versus Realities http://www.tatapower.com/cgpl-mundra/myths-realities.aspx

that these reports contain no baseline data with regard to the households living seasonally on Tragadi *bunder* or Kotadi *bunder*.

Findings*:*

CAO finds that IFC's review of its client's E&S assessments was not "commensurate with…risk" in relation to fisher people seasonally resident on Tragadi and Kotadi *bunders* as required by the Sustainability Policy (para. 13). In particular, CAO finds that IFC paid insufficient attention to the requirements of the Performance Standards that the client prepare an "adequate, accurate and objective" (PS1, para. 7) assessment of "all relevant E&S risks and impacts of the project" (PS1, para. 4) based on "appropriate social baseline data" (PS1, para. 4). CAO finds this to be of particular concern in relation to the complainant communities given that they are statutorily recognized as educationally and socially disadvantaged and acknowledged by IFC to be vulnerable.[13] Further, in relation to the issues raised by the Complainants, CAO finds IFC has overlooked the requirement of PS6 that the client's E&S assessment "take into account the differing values attached to biodiversity by specific stakeholders" (PS6, para. 4). These issues are compounded by the absence in the E&S assessments of a clear articulation of "the project's area of influence" (PS1, para. 5). In these circumstances, CAO finds that IFC should have required that its client commission additional E&S assessment in order to ensure compliance (Sustainability Policy, para. 15).

Without this baseline or assessment, CAO finds that neither IFC nor its client is in a strong position to refute or respond to claims regarding the impact that the project is having or will have on these households. Given-(a) the nature and scale of the project, (b) the proximity of the cooling water intake/outfall channels to the seasonal fishing settlements (on the *bunders*), (c) the content of the ESIA material available to IFC, and (d) documented concerns raised by fisher people regarding the impacts of the project since 2006-CAO is not persuaded of IFC's position that the risk of adverse impact to these households was so slight as not to require objective assessment.

CAO notes IFC's view that key project impacts have been identified by CGPL "in consultation with the fishing communities."[14] While accepting the importance of consultation as a valid part of a risk and impact assessment methodology, CAO does not accept that this approach meets the PS1 requirement of an "adequate, accurate and objective evaluation and presentation of the issues prepared by qualified and experienced persons" (para. 7), particularly in the context where issues of impact are being actively contested by project affected people.

CAO also notes IFC's understanding that "the seasonally resident community was reluctant to engage in a study of the type undertaken for Tradagi and Modhva…" and that "CGPL is actively engaged with MASS (…) to address their concerns [and] undertake a survey."[15] While a baseline survey and impact assessment at this stage would be positive remedial measures, CAO notes that PS1 provides for "thorough assessment of potential social and environmental impacts and risks from the early stages of project development" (para. 1). As is evidenced in relation to CGPL, CAO finds that engaging with these issues late in the project cycle makes rigorous E&S

[13] IFC (June 2013), IFC Comments on CAO Audit Report –Tata Ultra Mega #25797
[14] Ibid.
[15] Ibid.

assessment difficult. It also undermines IFC's commitment to the avoidance of negative impacts where possible (Sustainability Policy, para. 8) and the examination of "technically and financially feasible alternatives" (PS1, para. 9) to the sources of adverse impacts.

Issue A2. Disclosure and consultation requirements

The Complainants raise concerns regarding the quality of CGPL's community consultation activities. They state that the consultations that did occur did not reach the majority of affected fisher people and disclosure of information was insufficient.

The IFC Sustainability Policy (2006) notes that effective community engagement is central to the successful management of E&S risks. As such, the Performance Standards require IFC clients to engage with affected communities through disclosure of information, consultation, and informed participation, in a manner commensurate with the risks to and impacts on the affected communities. Specific obligations are set out in PS1 in relation to communities that "may be subject to adverse risks or adverse impacts" and "projects with significant adverse impacts on affected communities":

> If **affected communities may be subject to risks or adverse impacts** from a project, the client will undertake a process of consultation in a manner that provides the affected communities with opportunities to express their views on project risks, impacts, and mitigation measures, and allows the client to consider and respond to them. Effective consultation: (i) should be based on the prior disclosure of relevant and adequate information, including draft documents and plans; (ii) should begin early in the Social and Environmental Assessment process; (iii) will focus on the social and environmental risks and adverse impacts, and the proposed measures and actions to address these; and (iv) will be carried out on an ongoing basis as risks and impacts arise. The consultation process will be undertaken in a manner that is inclusive and culturally appropriate. The client will tailor its consultation process to the language preferences of the affected communities, their decision-making process, and the needs of disadvantaged or vulnerable groups. (para. 21, emphasis added)
>
> For projects with **significant adverse impacts on affected communities**, the consultation process will ensure their free, prior and informed consultation and facilitate their informed participation. Informed participation involves organized and iterative consultation, leading to the client's incorporating into their decision-making process the views of the affected communities on matters that affect them directly, such as proposed mitigation measures, the sharing of development benefits and opportunities, and implementation issues. (para. 22, emphasis added)

IFC's duty in relation to the above is (in every case) to "determine how the client has met or will meet its disclosure and consultation obligations, as outlined in the IFC PS" (Environmental and Social Review Procedures [ESRP] 2007, para 3.2.12), and in particular for projects with significant impacts on affected communities through its own investigation, to "assure itself that the client's community engagement is one that involves free, prior, and informed consultation (FPIC) and enables the informed participation of the affected communities, leading to broad community support (BCS) for the project within the affected communities" (Sustainability Policy 2006, para. 20). Further requirements in relation to IFC's review of Broad Community Support (BCS) are set out in the ESRP. Of particular relevance, IFC should ensure that the BCS process

identifies “all project-affected communities, their disaggregation (numbers, locations) in terms of different levels of vulnerability to adverse project impacts and risks, and an analysis of the effect of adverse project impacts and risks on each group.” For the purposes of ascertaining BCS, affected communities are defined as “those within the project’s area of influence, who will most likely feel the direct impacts of the project” (ESRP 2007, para. 3.5.1).

As this project was expected to have significant impacts on affected communities, IFC undertook its own investigations to verify that CGPL’s process of free, prior, and informed consultation (FPIC) had led to broad community support for the project. The assessment of BCS was based on three visits to communities (October 2007, January 2008, and March 2008) and was reported in an IFC memo dated March 13, 2008.[16] Neither the villagers of Tragadi or Modhva nor the seasonal residents of the *bunders* were included in IFC’s verification of FPIC or BCS. As explained by IFC, there were two reasons for this: (a) because before the finalization of the design of the intake and outlet channels, Tragadi and Modhva villages were not considered to be project affected villages; and (b) because fisheries were not expected to be significantly impacted by the project. In addition, as set out above (footnote 9), IFC notes that some fisher people participated in consultations around the initial ESIA process in 2006. IFC also asserts that their concerns were taken into account by “requiring CGPL to undertake an assessment of impacts once the location of the outfall channel was finalized.”[17]

Commencing in April 2009 (after the completion of the 2009 MEIA and regulatory approval of the revised location of the cooling channels), a series of more intensive engagements between CGPL and fishing communities are reported.[18] Though three of these are stated to have included MASS, it is noted that the reported engagements with fishing communities focus on the households of Tragadi, and Modhva villages (rather than those on the *bunders*). These consultations led CGPL to provide the grants and support the development activities described in the previous section.

Findings*:*

CAO finds issues related to disclosure and consultation mirror those outlined above in relation to the identification of fisher people as project affected people. In short, IFC engaged with this project based on the view that it will have no or negligible negative impact on the communities living seasonally on the *bunders*. Thus IFC’s verification of FPIC/BCS focused on the “project affected villages” as identified in the BSIA: that is, those villages losing land to the main project site. As a result, IFC did not pay adequate attention to verifying whether pre-project consultation requirements were met in relation to groups (including fisher people) that had been identified in the E&S assessment process as project affected community resource users resident outside these villages.

To the extent that consultations were organized with a focus on fishing communities, CAO notes that these occurred after key decisions in relation to the design of the cooling system had been made. IFC agrees that the “location of the outfall and intake channel

[16] IFC (March 13, 2008), INDIA–Tata Ultra Mega (25797), Broad Community Support (BCS) Review Memo.
[17] IFC Comments on CAO Audit Report (2013).
[18] Interactive Karma India (2011), CGPL Stakeholder Engagement and Benefit Sharing Study, p.35ff.

was finalized before intensive consultation with the fishing community commenced."[19] CAO also notes that IFC makes no assertions as to the adequacy of consultation with the community at Kotadi *bunder* beyond the initial (2006) meeting described in footnote 9. In these circumstances, CAO thus finds that IFC failed to assure itself that directly affected fishing communities were engaged in "effective consultation" as defined in PS1 (para. 21). In particular, CAO notes inadequate attention to PS1 requirements that consultation should be "based on the prior disclosure of relevant and adequate information, including draft documents and plans" and "should begin early in the Social and Environmental Assessment process" (para. 21).

In relation to these findings, CAO notes IFC's view that "while the process could have been better, the outcome is consistent with the PSs."[20] CAO disagrees, finding rather that a lack of effective consultation with fishing communities early in the project cycle process resulted in missed opportunities to assess, avoid and reduce adverse potential adverse impacts of the project in accordance with the objectives of PS1. CAO also finds that shortcomings in the consultation and disclosure process described above hindered efforts to "build and maintain over time a constructive relationship" with project affected communities, which as articulated in PS1 is the "purpose of community engagement" (para. 19).

Issue A3. Marine Impact

The Complainants raise concerns that the operation of CGPL's once through seawater cooling system will cause harm to the marine environment. Specifically, it is alleged that construction of the outfall channel will affect 200–250 hectares of mangrove forest, and that both Kotadi and Modhva Creeks were dredged and denuded of vegetation. This is seen as an irreparable loss to the local ecology, which has badly impacted the availability of fish and high-value lobsters (*Panulirus spp*.)

Further, the Complainants assert that the diversion of the Bhadiya river combined with the introduction of significant volumes of heated seawater from CGPL's outfall channel will negatively impact a productive estuarine area. The Complainants identify specific marine environmental resources that they consider to be impacted by the project. Within the projected thermal plume of the CGPL outfall channel, these include mangroves (which are held to be important for the life cycle of commercially important species of fish), lobster breeding grounds, sea turtle nesting areas, and *pagadiya* (foot) fishing areas (see map below).

The Complainants also highlight the finding in the Rapid Marine Environmental Impact Assessment (RMEIA, 2007, p.55) and repeated in the IFC's ESRS that "no large scale commercial fishing operations prevail in these shallow creeks except for minor shore based hand net and gill net operations," which is seen as an indication that the importance of shore-based fishing activities—a significant means of livelihoods for coastal families—is being underestimated. A decline in fish and lobster catches over the three-year period (2009/10–2011/12) is asserted.[21] This decline predates the commissioning of the first CGPL unit and thus is primarily attributed to the construction

[19] IFC Comments on CAO Audit Report (2013).
[20] Ibid.
[21] The Real Cost of Power (2012), available at www.bicusa.org/en/Article.12658.aspx.

phase of MPSEZ and CGPL. It is, however, seen as indicative of problems that will be exacerbated once CGPL comes on line. Additional specific concerns include indications of chemical contamination in the outfall channel, and the risk to fish seedlings in the intake channel.

CAO has thus reviewed IFC's approach to the assessment of the marine impacts of the project. Key issues here include the adequacy of IFC's review of the marine EIAs and the application of IFC guidelines in relation to thermal discharge.

IFC's review of the marine impacts of the project was primarily based on the two marine impact assessments conducted by the National Institute of Oceanography (NIO) for CGPL: the Rapid Marine Environmental Impact Assessment (RMEIA) (2007) and the Marine Environmental Impact Assessment (MEIA) (2009). As explained by IFC, the marine EIAs and the associated mitigation measures implemented by CGPL, as well as actual operational monitoring data, all indicate that there should be no material adverse impact on fisheries attributable to the project. In reaching this conclusion, IFC refers to findings in the MEIA that:

> (a) the inter-tidal zone in particular experiences the temperature and salinity ranges predicted by the model during normal course; (b) the potentially impacted area is devoid of mangroves; (c) the impacted area does not support reef building corals; (d) while limited degradation may occur in the vicinity of the discharge channel, biological characteristics of the surrounding areas will not be adversely affected; (e) predicted increase in temperature is not expected to result in mortality of marine organisms; and (f) increase in temperature is not expected adversely affect the biota at effluent release site.[22]

In relation to thermal discharge, IFC Environmental, Health and Safety (EHS) Guidelines (2007) require that:

> Temperature of wastewater prior to discharge does not result in an increase greater than 3°C of ambient temperature at the edge of a scientifically established mixing zone which takes into account ambient water quality, receiving water use and assimilative capacity among other considerations.[23]

CAO notes IFC's view that these EHS Guidelines "are to be treated as good practice *guidelines* [original emphasis]".[24] In the context of this project, however, CAO also notes that the EHS Guidelines have been incorporated into IFC's legal agreement as covenanted "Environmental and Social Requirements" and thus are binding on the client.[25]

The mixing zone is usually defined by drawing an area on a map within which the impact from elevated temperature of the seawater would not cause lethality or significant impact to breeding and feeding habits of organisms or significant risk to human health or the environment due to the elevated temperature or residual levels of water treatment

[22] IFC Tata Ultra Mega # 25797, CAO Compliance Appraisal Questions and Responses (June 9, 2012).
[23] IFC (2007) General EHS Guidelines.
[24] IFC (June 2013) IFC Comments on CAO Audit Report – Tata Ultra Mega #25797.
[25] Common Terms Schedule to CGPL Loan Agreement (2008) pp.14 & 91f.

chemicals.[26] This is done through a modeling study. It is common for a mixing zone to extend a few meters to a few hundred meters from the outfall location and be defined by examination of a variety of effluent and tidal scenarios.

Though the MEIA finds that the changes in water quality caused by the CGPL cooling system are likely to be within the range of temperature and salinity variations otherwise found in the intertidal area, the MEIA also concludes that the increases in temperature have the potential to affect the "community structure of the localized zone" (p.87) and result in "limited degradation in an area around the discharge channel" (p.65). The MEIA does not describe a mixing zone.

IFC's 2008 ESRS states that the "…cooling water discharge is expected to meet the IFC's thermal discharge guidelines…3^{o}C at the edge of the mixing zone," but that further modeling was required before finalizing the intake and outlet locations.

Extensive work, including computer modeling, was undertaken to determine the design and location of the seawater outfall (including littoral drift, outfall design and location, cooling channel performance, sedimentation and thermal dispersion, and hot water recirculation). The modeling work was undertaken by HR Wallingford, a company with an international reputation in environmental hydraulics. Work focused on the technical design of the inlet and outfall; it was not concerned with determining the impact to the marine environment. This was subsequently addressed in the MEIA.

The subsequent MEIA (2009) states that near ambient conditions would be attained at the distance of 3 km from the outfall channel alignment (p.58). However, as indicated by the HR Wallingford modeling, considerable heating of the intertidal area in Modhva Creek and in the shallow waters off Tragadi *bunder* is to be expected. The HR Wallingford modeling also indicates that temperatures of at least 3^{o}C above ambient could be expected to extend up to 4km from the outlet channel and cover areas totaling 8km^{2}, depending on tide patterns.[27]

The most recent CGPL monitoring data (grab/spot samples taken in from January to March 2013)[28] indicate excess temperature (outlet temperature minus inlet temperature) averaging 4.7^{o}C (with a range of 1.4^{o}C to 6.7^{o}C) at the weir (that marks the end of the concrete canal section of the outfall channel and the start of the intertidal region), and excess temperatures averaging 2.9^{o}C and 3.2^{o}C at sampling locations 1 and 2 (near the end of the outfall channel).[29]

These readings are within the ranges modeled by HR Wallingford. More broadly, this monitoring data suggests that water quality near the outfall channel is otherwise not significantly altered as compared to samples taken near the intake channel, while counts of benthos, phytoplankton, and zooplankton suggest some attractive properties of the warmer waters around the outfall.

[26] IFC (2008) EHS Guidelines for Thermal Power Plants, p.25.
[27] CAO calculations based on HR Wallingford modeling (see maps below)
[28] Ashwamedh Engineers, CGPL Environmental Samples Analysis Report (March 2013).
[29] CAO notes that the majority of these samples were taken with four out of five of CGPL's planned units operating. Sampling location 1 is located near the end of the outfall channel. Sampling location 2 is approximately 700m further out to sea.

Nevertheless, CAO has concerns as to the adequacy of IFC's review of its client's marine impact assessment process. Based on the requirements of PS6[30] and good international industry practice in the conduct of these types of assessments, areas in relation to which IFC might have been expected to query CGPL's MEIAs and/or request further information include:

- the adequacy of the faunal assessment and whether this properly considered benthic biodiversity or habitat distribution;[31]
- absence of detailed mapping of natural habitats such as mangroves in the impact area (particularly Modhva Creek), identification of marine biotopes, their distribution and species diversity on a local scale;
- the adequacy of consideration given to conservation issues, in particular turtle nesting in the project area, which was reported as recently as 2006;[32]
- the focus in the MEIAs on lethality as the primary significant impact on marine fauna, and the lack of consideration of the cumulative nonlethal effects of submarine noise, light, heat, and other aquatic disturbance from the project and associated facilities;[33]
- lack of analysis of the relationship between project's marine impact and its impact on ecosystem services—in particular its impact on households that live seasonally on Tragadi and Kotadi *bunders* and derive a significant part of their livelihoods from in-shore fishing, as the Complainants assert to do;[34] and

[30] PS6 (Biodiversity Conservation and Sustainable Natural Resource Management) requires that the client will "assess the significance of project impacts in all levels of biodiversity as an integral part of the E&S assessment process" taking into account "differing values attached to biodiversity by specific stakeholders" as well as "impacts on ecosystem services" (para. 4).

[31] Total abundance and biomass may be inappropriate as indicators in isolation, as these parameters may mask community-level changes that occur as hardier opportunistic species frequently proliferate at the expense of other animals near a source of pollution or disturbance. Thus a community experiencing significant pollution related stress may display high faunal biomass and abundance.

[32] See discussion of BHNS (2010) below. Species identified include the vulnerable olive ridley (*Lepidochelys olivacea*) and the endangered green turtle (*Chelonia mydas*). While the MEIA states no turtles were sighted off the coast during the study period, queries should have been made as to the adequacy of this methodology for establishing their absence. Consideration of the possibility of dugong (*Dugon dugon*) in the project area is similarly absent, despite recent reports of this vulnerable species in the Gulf of Kutch.

[33] This is a potentially significant issue due to the seasonal migration of *Harpodon nehereus* (Bombay duck) close inshore, where it is the main target of the coastal fixed net fishery. There is a possibility that noise might affect this migration, particularly as pelagic predators are often "hearing specialists" and thus vulnerable to acoustic impacts. Non-lethal impacts may also be important in relation to *Acetes indicus* which the MEIA describes as a "common economically important species of shrimps" harvested in "calm muddy intertidal zones or waters shallower than 5 m" (p.49) in the project area. These potential impacts are not addressed in the MEIA.

[34] To paraphrase anthropologist James Scott, a tendency for the project to "see like a state" is observed, with the result here that key elements of biodiversity and human interaction with the environment receive inadequate attention in the marine impact assessment—in particular, the "vast, complex, and negotiated social uses" of the coastline and inshore mud flats, which underpin the Complainants livelihoods (1998, p.13).

- more generally, the consistency of approach taken in the MEIAs with the objectives of PS6, and accepted EIA methods.

Before approval of the investment, IFC reviewed the RMEIA (2007). This appears to have been done internally by IFC E&S staff (without specific expertise in marine science) and documented in the IFC E&S Review Document. The E&S Review Document (ESRD) recites the key findings from the RMEIA, and documents identified mitigation measures as well as CGPL's agreement to carry out additional modeling through reputed independent expert organization with the following objectives:

> …(a) the activity does not affect the flow regime (of the creeks /gulf); (b) to determine the intake and outfall locations; (c) to determine the mode for drawl (sic.) of water; (d) hydraulic and thermal regime is not affected; and (e) sensitive areas such as mangroves, corals and aquatic flora and fauna are not affected.

Documentation of an IFC review of the MEIA (2009) is not available; however, IFC sent this study to a consultant with a background in marine sciences for review. This consultant responded by e-mail, which is set out in full below:

> I have reviewed the Marine Environmental Impact Assessment for the Discharge Channel of the Tata Ultra Mega Power project.
>
> While the significance of the impacts has not been well quantified and consultation appears to be limited to data collection, any impacts appear to be fairly local to the outfall. Standard mitigation measures are recommended to minimize adverse impacts.
>
> The environmental management plan recommends monitoring once the outfall becomes operational. The report recommends that any operational changes can be made if required, once the monitoring has been undertaken. There is detailed baseline data in the Report against which the impacts can be measured. [*e-mail dated January 12, 2010*]

In addition to the RMEIA and the MEIA, CAO notes the publication in 2010 of a Coastal Biodiversity Assessment carried out by the Bombay Natural History Society (BNHS) and commissioned by CGPL. The objectives of this study were to benchmark the biodiversity resources so that future impacts of the establishment of the UMPP could be assessed accurately. The contents of this study differ significantly from those reached in the MEIAs and reviewed by IFC as part of its due diligence. In particular, CAO notes the following:

- "Such large scale power units" are described as altering "not only the genetic resources of the marine biodiversity but also alter the regular livelihood practices of the coastal population such as fishing" (p.1).
- The intertidal mangrove zone is described as forming "one of the important habitats as it harbors several species and provides suitable conditions required for their breeding and feeding" (p.8). The study identifies two "important sites forming this zone in the entire study area." The mangrove population is observed to be stunted and having a high density of saplings.
- A significant area of sparse mangrove and a smaller "dense mangrove patch" are identified in Modhva Creek approximately 1km to the west of the outlet channel

weir (p.9).[35] The assessment further finds that warm water from the outfall channel may "affect the saplings of mangrove as well as the biota sustaining this habitat."

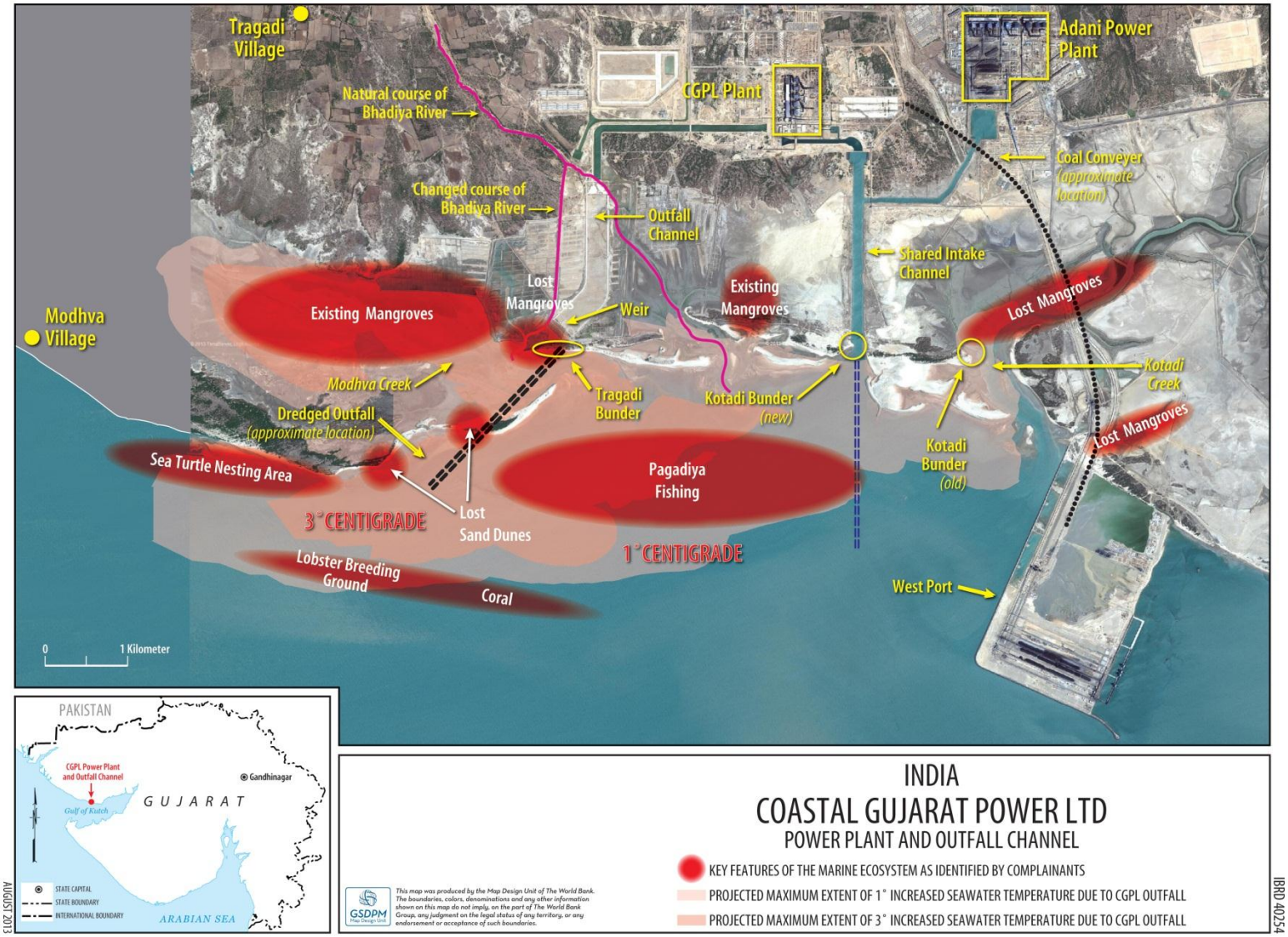
- The assessment notes seasonal variations in the species richness as well as the density of Mollusca, with the highest species richness encountered when water temperatures were lowest, and the lowest richness in summer. In these circumstances, the study finds that the release of warm seawater "can affect the population of major invertebrates including the mollusca" (p.15).
- As mentioned, the assessment also notes reports of vulnerable Olive Ridley Turtle (*Lepidochelys olivacea*) and the endangered green turtle (*Chelonia mydas*), with 43 nests having been identified within the impact area of the outfall channel in a 2006 study.

Although work on the BHNS study commenced in July 2008 (before the completion of the MEIA February 2009), there is no indication that the MEIA process was coordinated with the BHNS study. Further, though mentioned in supervision reports, CAO finds no indication that IFC has engaged in detailed discussions with the client around its response to the findings of the BNHS study (see further discussion under Issues E–G below).

A positive result of the 2010 BNHS study was a subsequent sea turtle modeling project that CGPL commissioned BNHS to carry out. A report on this project was delivered in August 2011. As explained to CAO by IFC, this study confirms that "sporadic nesting of turtles have been reported along the Modhva-Mandvi coast" and that "that the probable turtle nesting sites are away from the thermal plume." The study, however, also includes the following less encouraging findigs: (a) that "higher than the normal sea water, from the out fall channel of CGPL can have impact on the sand dunes at the study site" (p.20) causing algal blooms with unknown impact on sea turtle nesting; and (b) that that the "mixing plume of hot water may cause thermal stress prompting deviation of sea turtle movement from normal route traversed to reach sea shore for nesting." (Ibid.). CAO also notes that a map included in the BNHS study under the title "Map 4 (provided by CGPL). Worst Case Scenario for Thermal dispersion from the outfall channel" (p.21)-and relied upon by BNHS in the preparation of their study-significantly underestimates the maximum extent of thermal dispersion of the CGPL outfall plant as modeled by HR Wallingford. Finally, CAO notes that the BNHS study site lies to the West and further away from the outfall channel than the area identified by the complainants as a sea turtle nesting area.

[35] A significant expanse of mangrove is also identified in this area in the Comprehensive Environmental Impact Assessment (CEIA) (2007, p.44). In this context CAO notes the MoEF requirement for clearance of the project that: "Mangroves in the area will not be destroyed in any manner" [http://www.tatapower.com/cgpl-mundra/pdf/CGPL-25-4-2007.pdf]

Map 2: Features of marine eco-system identified by the complainants superimposed on maximum extent of CGPL thermal plume at 1 and 3 degrees Centigrade as projected by HR Wallingford.



Findings:

IFC's documentation of the CGPL project acknowledges that it had "potentially significant social and environmental risks if not well managed and mitigated," including "the adequacy of the selection of cooling system, large volume of seawater intake and impacts on marine environment/fishery" [PDS Approval (March 2008)]. Taking into account the nature of the project and IFC's identification of these risks, CAO finds that the IFC's E&S review regarding marine impact did not meet the due diligence requirements set out in the Sustainability Policy. In particular, CAO finds that IFC's E&S review was not "appropriate to the nature and scale of the project" or "commensurate with… risk" (para. 13).

As a result, CAO finds that important opportunities were missed to: (a) request more detailed baseline information about the marine environment of the affected area; (b) incorporate appropriate analysis of the potential marine (and associated social) impact of the project into design considerations and the client's E&S management system; and (c) develop a framework to support adequate marine impact monitoring (specifically, monitoring that goes beyond gross changes to marine ecological receptors). These concerns regarding IFC's due diligence give rise to further issues in relation to the application of PS6—in particular, the requirements to take into account "differing values attached to biodiversity by specific stakeholders" as well as "impacts on ecosystem services" (para. 4).

More specifically, CAO finds that IFC did not adequately assure itself that the thermal plume from the seawater outfall would comply with the relevant 3°C criterion at the edge of the mixing zone (IFC General EHS Guidelines 2007, p.25). No mixing zone was defined in the marine EIAs or subsequently; thus compliance cannot be demonstrated. Projections that the thermal plume from CGPL's outfall channel will extend a distance of kilometers into the shallow waters of the gulf and surrounding estuaries suggest inadequate mixing/cooling, with significant risks of ecological impact. These risks are heightened by claims that the plume will intersect with components of the ecosystem which the Complainants assert are important to their livelihoods.

CAO notes IFC's view that the "level of information provided in the RMEIA, CEIA and MEIA by TCE[36] and NIO[37] was considered to be sufficient for taking an informed decision and all three assessment documents prepared by expert organizations provided categorical assurance that no significant adverse impact on the marine environment and livelihood of fishing communities may be expected on account of the project."[38] CAO also notes IFC's view that "in evaluating the RMEIA and the opinion provided therein, IFC did recognize that NIO's opinion is a product of more than 17 years of studies in the Gulf of Kutch involving more than 30 studies that includes 7 studies off the Mundra coast."[39]

These views require a response on three points. First, none of the cited assessments engage with the livelihoods of the Complainant fishing communities in any detail or meet

[36] TCE Consulting Engineers Ltd (a member of the Tata Group) conducted the CEIA (2007).
[37] The National Institute of Oceanography conducted the RMEIA (2007) and the MEIA (2009).
[38] IFC Comments on CAO Audit Report (2013).
[39] Ibid.

the stakeholder engagement requirements of PS6 (para. 4). While it is acknowledged that "drifts and other local nets are commonly used by local fishermen community (sic.)" (MEIA, p.64), the livelihoods of these communities are not further documented in the MEIA. The findings of the RMEIA and the MEIA focus rather on larger scale commercial fishing operations which are conducted further off shore. The result is a conclusion that the impact of the project on fisheries is likely to be "minor and non-consequential" (p.87) while at the same time predicting that the marine ecology of the inshore area local to the plant (where the Complainants assert to fish) will be negatively affected during construction and operation (pp.59-60 & 86-87). Statements in the Socio-Economic Assessment appended to the CEIA (2007) that "the livelihood of fishermen will not be affected" (p.41) are similarly: (a) not supported by analysis of the livelihoods of the Complainant fishing communities; and (b) premised on the assumption that "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" (Ibid.).

Second, CAO notes concerns regarding the organizations that conducted the impact assessments that IFC relied on. Tata Consulting Engineers' (TCE), author of the CEIA, is a part of the Tata Group, as is Tata Power, which owns CGPL. This weakens the case that the CEIA was an external expert assessment for the purposes of PS1 (para. 7). While acknowledging NIO's experience in the conduct of marine EIAs for major infrastructure projects in India, including those for the MPSEZ adjacent to CGPL, CAO also notes civil society concerns regarding the rigor of NIO's marine impact work in the Mundra region and elsewhere.[40]

Third, CAO finds that IFC's position reflective of a tendency to accept the findings of its client's impact assessments without undertaking a review commensurate with what IFC had acknowledged were significant risks to the marine environmental emerging from the project. A thorough review, CAO finds, would have raised questions as to evidentiary and methodological basis for the more categorical findings in the various marine impact assessments, both in relation to the project's marine impacts and its impacts on the livelihoods of the complainants. Such a review, CAO finds, would also have raised questions as to the baseline and proposed framework for monitoring of the marine environment and their adequacy for determining E&S impact.

Issue A4. Emissions to Air

The Complainants assert that their fish drying activities are affected by coal ash/dust, which diminishes the marketability of the product. They note coal ash/dust on rooftops and on the bodies of villagers when they sleep outside at night. The Complainants have concerns that high wind may lead to ash blowing off ash ponds, and that these problems

[40] Regarding a MEIA for the POSCO Port near Paradeep in Orissa, see Environmental Law Alliance Worldwide, Evaluation of the Rapid Marine Environmental Impact Assessment (RMEIA) for Setting Up of a Captive Minor Port at Jatadharmohan Creek near Paradeep in Orissa (April 2007); and Centre for Science and Environment, Analysis Report of EIA Report of Posco Captive Port (undated). Regarding MEIAs for MPSEZ see: Manshi Asher , How Mundra became India's Rotterdam (December 2008); and Fishmarc. 2010. Kutch Coast–People, Environment & Livelihoods.

will increase as more CGPL units come on line. The Complainants also raise concerns about possible exposure to increased radioactivity due to presence of coal ash.

Pollution from Indian coal-fired power plants, especially fine particulate matter (PM_{10}) and oxides of nitrogen (NO_x) and oxides of sulfur (SO_x), was recently the subject of a report by a nongovernmental organization (NGO) that was submitted to CAO by the Complainants.[41] The report has estimated the dispersion of pollutants from large power plants around India (including the CGPL and the Adani plant) and mapped the results onto populations in order to estimate the likely effects on mortality and morbidity. The report alleges significant health costs arising from pollution-related premature deaths, respiratory effects, and restricted working days, including 100–120 premature deaths per year in the area around the CGPL and Adani Power plants in Gujarat.[42] A more recent report submitted by the Complainants to CAO claims that the villages in the area of the CGPL and Adani power plants have seen an increase of roughly 20% in children's respiratory diseases over the past two years.[43]

While CAO has not made specific findings based findings on these calculations, it is undoubtedly the case that increased exposure to pollutants from coal-fired power stations results in higher incidences of respiratory conditions, which in turn can lead to premature death. These effects tend to be more significant in poorer populations, where exposure is greater (because they spend more time outside) and whose health may be weaker due to dietary stress.

Relevant to the issue of air quality, PS3 provides that where "host country regulations differ from the levels and measures presented in the EHS Guidelines, clients will achieve whichever is more stringent." Though exceptions are possible "in view of project specific purposes." In such cases the client is required to "provide full and detailed justification for any proposed alternatives" (para. 8). As set out in IFC's Environmental & Social Review Summary (ESRS), however, CGPL was expected to meet emissions standards as set out in the World Bank Group's Thermal Power: Guidelines for New Plants (Pollution Prevention and Abatement Handbook) (1998) and General Environmental Health and Safety (EHS) Guidelines (2007) without noting any exceptions. This is confirmed in the IFC loan agreement, which establishes both these sets of Guidelines as covenanted "Environmental and Social Requirements," again without providing for exceptions.

Project emissions were modeled as part of the Comprehensive Environmental Impact Assessment (CEIA) (2007). An analysis of cumulative impacts of the project and phase one of the neighboring Adani Power plant on air quality was included in the Supplementary Environmental Impact Assessment (SEIA) (2007).[44] Ambient air quality concentrations (from March 2006 to Feb 2007) around the proposed project site and its

[41] Conservation Action Trust (2013), Coal Kills: An Assessment of Death and Disease Caused by India's Dirtiest Energy Source, available at cat.org.in/files/reports/Coal%20Kills%20-%20An%20Assessment%20of%20Death%20and%20Disease%20caused%20by%20India's%20Dirtiest%20Energy%20Source.pdf

[42] The report identifies the majority of the affected pollution as being in eastern India and around Delhi—not Gujarat, which carries the lowest public health burden of the seven regions analyzed.

[43] The Increasing Human Cost of Coal Power Supplementary Report to the 'Real Cost of Power' (July 2013).

[44] For detailed discussion of issues related to cumulative impact assessment, see Issue H.

surrounding villages were described as “good,” and resultant pollution levels are predicted to be within the National Ambient Air Quality Standards (NAAQS) of India (SEIA, p.9). Ash/dust control measures include: construction of 275m high stacks as designed; transport of coal in an enclosed conveyor belt (largely) at ground level; a closed system for fly ash handling, transport, and storage; slurry transport and storage of bottom ash in an ash pond; provision of dust collection/suppression; additional plans to set up physical barriers (boards) along the length of the coal conveyor; construction of a of 9m high wind barrier at the coal yard; use of dust suppressants and installation of an ESP (Electrostatic Precipitator) “designed to ensure that particulate matter emissions are limited to 50 mg/Nm^{3}” (SEIA, p.8).

Considerations in relation to emissions of oxides of sulfur were a focus of the IFC’s E&S review. Oxides of sulfur (SO_x) emissions are directly related to the sulfur content of fuel. Most of the sulfur in the fuel (coal) ends up being emitted from the stacks. Some of it will end up in the ash. IFC was able to guide CGPL into selecting coal of a lower sulfur content (0.6 percent sulfur) than was originally proposed (1 percent), in order to meet the IFC guidelines on emissions of sulfur dioxide (SO_2) and total emissions of sulfur from the plant (500 tons per day). Lower sulfur coal is generally more expensive, so CGPL has designed the plant layout to allow for post-combustion sulfur removal technology (such as flue gas desulfurization, FGD) to be added if required (that is, if higher sulfur coal becomes economically preferred and sulfur must be removed from the stack gases prior to release). Appropriate combustion technology was selected to reduce the emissions of oxides of nitrogen (NO_x, mainly nitric oxide, NO, and nitrogen dioxide, NO_2). The above represents good practice.

The CEIA (2007) compared the measured (2006/07) concentrations of SO_2, PM_{10} (particulate matter with a mean aerodynamic diameter of 10µm), and NO_2 to Indian NAAQSs and also estimated the resulting concentrations once CGPL was in full operation. Results are presented as contour plots of concentrations and as tables of results for eight village locations around the plant. Seasonal and annual results are reported. These results were updated in SEIA (2007) with the assumptions on sulfur content of the coal to be used reduced from 1 percent to 0.6 percent. Nevertheless, there are villages where the incremental pollution resulting from CGPL is considerably greater than the existing pollutant concentrations. Desalpar is estimated to experience an increase in 24-hour mean SO_2 concentrations from 15.4µg/m^3 to 42.1µg/m^3 (SEIA, table 2a). While all resulting concentrations are reported to be below the relevant NAAQS, the magnitude of the projected impacts is significant.

Incremental impacts resulting from CGPL PM_{10} emissions are small compared to those estimated from SO_2 and NO_x emissions. These impacts are concerned only with emissions from the stacks and do not account for emissions from ground-based coal and ash handling operations. Relevant to the MASS complaint, CAO notes that the plot of Incremental 24 hour Maximum Ground Level Concentration of SO_2 (SEIA, figure 2a) shows an area of significant projected incremental impact on the airshed to the south and southwest of CGPL over Tragadi and Kotadi *bunders*, which is not specifically analyzed in the report.

CAO notes that high PM concentrations have been evident at and around the site for some time. The CEIA (paras. 33–41) documents ambient air quality measured at eight monitoring stations within 10 kilometers of the plant. Samples (24 hour means) were

taken from March 2006 to February 2007. Ambient concentration of respirable particulate matter (RPM) (equivalent to PM_{10}) as an average of all eight monitoring stations for this period was reported as 67.9 µg/m^3.

This measure, while below the NAAQS 24 hour standard of 100 µg/m^3, exceeded the NAAQS annual average standard for RPM in rural and residential areas of 60µg/m^3.

The March 2006 to February 2007 average RPM concentrations at all eight stations reported in the CEIA (67.9 µg/m^3) also exceeded the annual average PM_{10} 50µg/m^3 concentration that constitutes the threshold for a degraded airshed under the World Bank Thermal Power Guidelines (1998). Similarly, average ambient concentrations of total suspended particulate (TSP) matter reported in the CEIA (110.5 µg/m^3) exceeded the Thermal Power Guidelines (1998) annual average threshold for a degraded airshed of 80 µg/m^3. Further, the SEIA (2008) reports an "annual average baseline SPM concentration" (table (1f)), in the range of 105.2–115.4 µg/m^3. Again these measurements exceed the Thermal Power Guidelines (1998) annual average threshold for a degraded airshed.

Annual E&S monitoring reports (AMRs) submitted by CGPL to IFC commencing in May 2009 note that both SPM (TSP) and RPM (PM_{10}) levels in ambient air have consistently been above national and IFC standards, again indicating that the project airshed should be considered degraded according to the Thermal Power Guidelines (1998).[45]

CGPL is monitoring ambient concentrations of various pollutants in and around the plant. Concentrations of fine particles (PM_{10}) and sulfur dioxide (SO_2) are being measured by several methods, including wet chemical and online electronic analyzers. CAO did not investigate the quality of the data or the equipment, but superficially it appeared well maintained and operated. In addition, a display board of ambient (including PM_{10}, NO_x, SO_2, ozone) and stack (PM_{10}, SO_2, NO_x) concentrations is present at one of the entrance gates and is visible to the general public. The display of these data to the public represents good practice, although CAO noted that the data did not change over a period of a few hours and so may not represent live hourly data.

CAO visited an ambient air monitoring station near the onsite residential camp/canteen around 3km from the main power station. Monitoring is undertaken by a third-party laboratory and the equipment is sealed and locked. A contract has been let for the equipment to be managed and serviced by the third party. This again represents good practice.

At the time the baseline was established (2006/07), ambient concentrations of SO_2 were reported at the eight villages in the range 14–17µg/m^3 (maximum 24-hour mean). Recent results (Ashwamedh Eng & Consultants, 2012) report concentrations at around 50 percent of these values. Results for NO_2 show a similar trend. CAO finds this reported decrease difficult to reconcile with the level of industrial development in the area since 2006/07. In these circumstances, it would be good practice to have CGPL's ambient air monitoring independently verified. In addition, given concerns from the residents of the *bunder* regarding air quality, it would also be good practice to conduct regular air monitoring for both ambient particle concentrations and deposited dust on or

[45] AMR 2009, p.8; AMR 2010, p.6; AMR 2011, p.6; AMR 2012, p.6.

near the *bunder* and report back on this publically. In the light of any monitoring or modeling, it may also be appropriate to consider all the various dust control measures on site (for PM_{10}, RPM, SPM, TSP) and amend the EMP to ensure that impacts on the *bunder* are minimized.

Following the Thermal Power Guidelines (1998), plants greater than 500 MW_e in degraded airsheds, are required to apply offset provisions to ensure that there is no net increase in the total emissions of particulates or sulfur dioxide within the airshed (p. 417).

Current indications are that CGPL stack emissions are within standards and that the company is undertaking agreed measures to limit fugitive emissions from conveyor belts, coal piles, and ash ponds.[46] On the other hand, ambient PM_{10} concentrations would appear to have increased significantly since the CEIA was conducted, with recent data from CGPL showing ambient PM_{10} of between 132µg/m^3 and 149µg/m^3 in February–March 2013, significantly exceeding the 24 hour NAAQS standard of 100µg/m^3.[47] Longer term data is similarly trending well above the NAAQS and Thermal Power Guidelines (1998) annual average standards.[48] This cannot necessarily be attributed to operations at CGPL and may be related to neighboring developments, weather, or variability in the strength of natural sources, but again indicates that the project is operating in a degraded airshed.

CGPL has implemented some measures to control the egress of dust from the site, includes measures for coal handling (a 9m high wind break has been installed to the west of the coal conveyor delivery site) and from ash handling (movement of ash to ash ponds in sealed pipes; the ponds are kept wet to prevent windblow). The ash ponds are a temporary solution to storing the ash. CGPL has included infrastructure onsite to enable ash to be used offsite for other purposes (including as a building/fill material by third parties) with a goal of reaching 100 percent utilization within four years. As noted in recent monitoring reports, however, there have been challenges in findings users for CGPL fly ash, and current utilization stands at 4 percent.

IFC guidance provides that "…where ash residues are expected to contain potentially significant levels of heavy metals, radioactivity, or other potentially hazardous materials, they should be tested at the start of plant operations…" (EHS Guidelines for Thermal Power Plants, 2008, p.19). While these guidelines post date the IFC investment in CGPL, CAO finds that it would nevertheless be good practice for IFC to recommend to CGPL that ash residues be tested for heavy metals and radioactivity, with results of monitoring disseminated to project-affected communities.

CGPL currently has some coal sourcing issues, which may require the issue of air emissions to be revisited to ensure compliance can be maintained. The potential addition of additional generating capacity at CGPL will also have an impact on emissions compliance. The IFC team is aware of these issues and can be expected to address them as part of project supervision. The Quarterly ESPR (SENES, December 2012) states that coal of around 0.9–1.0 percent sulfur was being used by CGPL. In addition, the report also notes that CGPL is planning to add a further two 830MW coal-fired units.

[46] SENES, Quarterly E&S Performance Report (Oct–Dec 2012).
[47] Ashwamedh Engineers, CGPL Environmental Samples Analysis Report (March 2013).
[48] CGPL, Half Year Compliance Report (April 2013).

Findings:

CAO finds that IFC successfully used its influence at appraisal to ensure that IFC's overall plant emissions guidelines were met. However, CAO also finds that IFC has failed to ensure that its client has correctly applied the requirements of the Thermal Power Guidelines (1998), in an airshed that should be classified as degraded.

In making this finding, CAO notes IFC's view that it preferred to apply the General EHS Guidelines of 2007 that were "already in vogue" at the time of appraisal, rather than the 1998 Thermal Power Guidelines.[49] CAO further notes IFC's view that the available evidence at appraisal suggested that NAAQS for particulate matter were being met.[50]

The basis for the latter argument is that available data did not allow the calculation of an annual average, which according to NAAQS requirements should calculated on the basis of "104 measurements in a year taken twice a week…." Absent such data, IFC argues that the correct comparator for determination was the higher NAAQS 24 hour average standard.

CAO notes some confusion in relation to how the CEIA measured ambient air quality. In the methodology section, the CEIA reports that ambient air samples were collected twice a week over 52 weeks from March 2006 to February 2007 (p. 52). At other points in the report, however, reference is made to data from three seasons between March 2006 to February 2007. Similar confusion exists in ADB's 2007 Environmental Assessment Report for the project, which states that "samples were collected twice a week over the 52 weeks from March 2006 to February," at the same time as noting that the monsoon season was not considered for the purposes of the EIA (p. 22).

While agreeing that an annual average cannot be calculated according to the NAAQS method using three-season data, CAO would have similar concerns with regard to the sufficiency of data for calculating the 24 hour mean, as this required 24 hour monitored values to be complied with "98% of the time in a year" with exceedance being allowed 2% of the time, but "not on two consecutive days" (CEIA, Appendix 5).

At best then, it could be argued that it was unclear to IFC at appraisal whether ambient concentrations of particulate matter exceeded NAAQS standards (though the three-season average was trending approximately 13% above the annual average standard). In any case, CAO finds this point to be moot as: (a) both the CEIA and SEIA data indicated that the airshed was degraded according to the applicable Thermal Power Guidelines (1998); and (b) CGPL's E&S consultant has reported since at least May 2009 that both NAAQS and IFC ambient air standards are being exceeded.

CAO finds that the loan agreement requires CGPL to meet both the World Bank's Thermal Power Guidelines (1998) and the General EHS Guidelines (2007). This is consistent with IFC representations to its Board that IFC would add value to this project by requiring adherence to its own air emission "guideline limits" (p.15) and Performance Standards, which are held out as being "more stringent than Government of India requirements" (p. v). CAO thus restates its finding that IFC failed to correctly apply the requirements of the Thermal Power Guidelines (1998), which place no net increase requirements for particulates and SO_2 on large thermal power plants in degraded

[49] IFC Comments on CAO Audit Report (2013).
[50] Ibid.

airsheds. In addition to being noncompliant, CAO finds that IFC's approach to the issue of air quality represents a minimalist interpretation of its standards, which is at odds with a stated rationale for its involvement in the project as presented to the Board: namely, improved E&S performance through compliance with standards that are more stringent than national requirements.

Finally, CAO notes that changes in the quality of coal being used may, when the plant is at full capacity, cause an exceedance of the IFC guideline of 500 tons (metric) of sulfur dioxide per day (EHS Thermal Power Guidelines, 1998). The proposed addition of 830MW units would require the use of coal of considerably lower sulfur content for the limit of IFC 500tpd (tons per day) to be met.[51]

Issue B. Whether IFC gave adequate consideration to the cumulative impacts of Adani Power and the construction of the Mundra West Port in its E&S review

Covered together with Issue H below.

Issue C. Whether IFC's assessment of community support for the project was adequate

See discussion of Issue A.2 above.

Issue D. Whether Performance Standard 5 has been correctly applied with regard to the Complainants' seasonal fishing settlements and fish drying areas

The Complainants assert that the seasonal settlements on Tragadi and Kotadi *bunders* were overlooked when CGPL considered issues of land acquisition. Specific concerns relate to the construction of fences and channels that increase the length of the return trip from the village to the fishing settlement and loss of access to fish drying areas.

IFC PS5 on land acquisition and involuntary resettlement applies to both physical and economic displacement and extends to all persons who occupy or use land, even if they have no recognizable legal right or claim to the land that is being acquired. The key test under the applicable version of PS5 (2006) is whether people living in the project area are required to move (physical displacement) (para. 16) and/or suffer a loss of income or livelihood (economic displacement) (para. 20) because of land acquisition by the project. On the other hand, if adverse economic, social, or environmental impacts arise from project activities other than land acquisition, PS5 indicates that these should be dealt with under PS1 (para. 6).

IFC guidance on the application of PS5 provides that "those who suffer negative social and economic impacts as a result of the acquisition of land or land use rights" may include "seasonal resource users such as herders or fishing families" (GN5, para. G3). It also provides that IFC "clients should identify and consult with all persons and communities that will be displaced by land acquisition to obtain adequate information about land titles, claims and use" (para. G4).

[51] 500 tons per day (tpd) of SO_2 is roughly equivalent to 25 kilo tons (metric) (kT) of 1% S coal per day (or 9MMTA), assuming 100 percent of the sulfur in coal is emitted as SO_2.

Beyond questions of applicability, CAO notes that PS5 requires an IFC client to consider feasible alternative project designs to avoid or minimize displacement (para. 7), and provide compensation and other assistance to displaced persons to help improve or at least restore their livelihoods (para. 8). PS5 also contains detailed provisions for resettlement planning and implementation. These include a requirement for informed consultation prior to displacement (para. 9) with the objective of avoiding or at least minimizing involuntary resettlement by exploring alternative project designs. Where involuntary resettlement is unavoidable, the client is required to "carry out a census with appropriate socio-economic baseline data to identify the persons who will be displaced by the project" (para. 11).

In addition to the main project site, to which it was agreed that PS5 should be applied, CGPL acquired land for the purposes of building the outlet channel for the CGPL cooling system, as well as the joint intake channel for CGPL and Adani Power.

In relation to these areas, the project's Resettlement Plan (2008) notes that rights of way will need to be acquired over 102ha of land for CGPL's intake and outfall channels.

The Resettlement Plan (2008) states:

> 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 Kotadi Creek bank located outside the project area about 2.8 km from Mudhwa Creek. The discharge of spent cooling water will not affect the fishing activities in the Gulf, which takes place several kilometers into the waters. The provision of a culvert over the intake channel will ensure continued access of the fishing community to the fish drying areas on the coastline (para. 18).[52]

References for this description of the fishing communities living near the project are not provided, and the Resettlement Plan makes no further reference to the impact of land acquisition on fisher people. The Resettlement Plan was not updated when the final location of the intake and outlet channels was determined in 2008.

As explained to CAO by IFC, the project has not resulted in any restriction of access to the fishing areas nor has it resulted in significant restriction of access to areas used for seasonal fishing settlements. Further, IFC asserts that CGPL has created an alternate access road and provided a bridge over the outfall channel to ensure that access to fishing areas and seasonal settlement areas is maintained (though an increase in travel distance from Tragadi village to Tragadi *bunder* of 3.8km is acknowledged). The increase in travel distance alone, however, is argued not to constitute economic displacement under PS5.

From a review of available satellite imagery, it can be seen that the construction of the channels required the acquisition of areas of the sand bars that constitute Tragadi *bunder* and Kotadi *bunder*. IFC acknowledges that these *bunders* were inhabited before construction of the channels began, though it is apparent that the number of people living on the *bunders* has grown significantly since then. A review of available satellite imagery by CAO allows an estimate of the amount of *bunder* land acquired: 500 linear meters of sandbar (6ha) for the outfall channel and 150 linear meters (7ha) for the intake channel). A review of satellite imagery also suggests that *bunder* land acquired for the

[52] The CAO notes that the Complainants contest this portrayal of their livelihoods.

construction of the channels included areas used for dwellings or other structures, and areas that were used for economic activities such as fish drying. While many of the structures observed on the *bunder* by the CAO team (in February 2013) appeared to be easily moveable, it was noted some seasonal dwellings and trading houses had more permanent aspects, in particular concrete floors. In addition to increasing the distance required to access Tragadi *bunder*, the Complainants advised CAO that the intake channel had restricted access to old Kotadi *bunder* (to the east of the intake channel) and that migrant fisher people had resettled at new Kotadi *bunder* (to the west of the intake channel). IFC and CGPL also acknowledge that the construction of the channels involved the acquisition of areas of land that were previously used by the inhabitants of the *bunders* for purposes of access.

Findings:

CAO finds issues related to the application of PS5 replicate those outlined above in relation to PS1. In short, IFC has engaged with this project based on the understanding that it will have no or negligible negative impact on the communities living seasonally on the *bunders*. Noting the absence of a baseline study or impact assessment that pays detailed attention to the circumstances of these communities, CAO finds that IFC did not take the steps necessary to ensure that the application of PS5 in relation to the Complainants was properly assessed. As a result, neither IFC nor CGPL considered the more detailed requirements of PS5.

In reaching this finding, CAO notes IFC's view: (a) that the "CEIA and RMEIA predicted no physical and/or economic displacement of fishing communities;" and (b) "that the assessments as part of the final outfall location decision reaffirmed the contention of the CEIA and RMEIA."[53]

CAO also notes the following conclusions expressed by IFC in support of its decision that PS5 should not be triggered in relation to the fisher people seasonally resident on the *bunders*:

> the seasonal settlement is essentially temporary, which is dismantled at the end of every season…
>
> the increase in number of families seasonally resident at Tragadi Bunder is evidence that the decrease in sand bar length available for settlement did not deny any of the earlier seasonal residents the opportunity to return and settle on the same bunder the following year…
>
> this may have been a potential physical displacement situation if after the outfall channel construction, not enough length of sand bar was left for all the earlier families to be accommodated…
>
> since the number of families resident at the Bunder has increased, it is evidence that no physical displacement has occurred.[54]

Having reviewed the studies cited by IFC, CAO finds insufficient evidence to support the above conclusions.[55] In particular, CAO reaffirms that the project has not produced a

[53] IFC Comments on CAO Audit Report (2013).
[54] Ibid.
[55] The CEIA (2007) does contain statements that no resettlement activities would be required as the project site is "free of inhabitation, permanent structure, tree vegetation and wild fauna life"

social baseline or impact assessment that covers the households living seasonally on the *bunders*. Given the issues raised in the complaint, CAO's review of satellite imagery, and observations of the settlements at Tragadi and Kutadi *bunders,* CAO finds that there are sufficient indications of project-related displacement (both physical and economic) as to require objective assessment. In reaching conclusions on the applicability of PS5 to the settlements absent a PS1 compliant assessment of risks and impacts to these communities, IFC has failed to meet the requirements of the Sustainability Policy as set out in the discussion of Issue A1 above. While a baseline survey and impact assessment at this stage would be positive remedial measures, any finding that people have been displaced will necessarily lead to noncompliance with the requirements of PS5.[56]

Issue E. Whether IFC provided CGPL with adequate guidance on the drafting of an Action Plan that met the requirements for specificity set out in Performance Standard 1

Issue F. Whether IFC exercised due diligence in its review of CGPL's reporting on regulatory and lender E&S requirements

Issue G. Whether IFC has been sufficiently proactive in engaging with the client to remedy E&S issues that have been identified in project supervision

The Complainants raise concerns that IFC supervision of the project has been inadequate. In particular, the Complainants take issue with IFC's reliance on reports prepared by CGPL's external E&S Consultant (SENES), alleging that SENES' annual monitoring reports are significantly copied and pasted from one another and "plagued with lack of understanding of both the IFC/ADB [Asian Development Bank] policies and the issues, lapses in monitoring the violations, prescribing simple solutions to complex problems and taking a casual approach to these serious issues."[57] Further, it is alleged that the SENES reports monitor the project's performance only in relation to a subset of the applicable Performance Standards, while failing to pick up on "glaring violations of both national laws and IFC standards."[58]

IFC is required to monitor clients' E&S performance throughout the life of an investment. Project supervision is conducted on the basis of annual monitoring reports submitted by the client and site visits as required by the IFC's ESRP. As set out in the ESRPs, "the purpose of E&S supervision is to develop and retain the information needed to assess

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(p.121). However, this assessment was found to be inadequate for the purposes of PS5. A separate baseline study, and later a resettlement plan, were thus commissioned with regard to the project-affected villages around the main plant site (Tunda, Mota Kandagara, and Nana Bhadiya). The objectives of the RMEIA (2007) and the MEIA (2009) are restricted to marine environmental issues, and as such, while restating the assumption that the project will not require resettlement, they make no independent findings in relation to displacement. CAO also notes that the 2007 studies predate a final decision on the location of the cooling channels.

[56] Note that PS5 requirements that must be initiated before displacement takes place, including the requirement to consider feasible alternative project designs to avoid or minimize displacement (para. 7), and the payment of compensation in case of physical displacement (para. 16).

[57] MASS Public Statement dated May 17, 2012.

[58] Ibid.

the status of compliance with the Performance Standards (PSs), general and sector-specific Environmental Health and Safety (EHS) Guidelines, and the Environmental and Social Action Plan (ESAP, or Action Plan)" (ESRP 6, para. 1). If a client fails to comply with its E&S commitments as expressed in the ESAP or legal agreement,[59] IFC is committed to "work with the client to bring it back into compliance to the extent feasible, and if the client fails to reestablish compliance, exercise remedies when appropriate" (Sustainability Policy, 2006, para. 26). On the client's side, monitoring is expected to be "commensurate with the project's risks and impacts" (PS1, para. 24).

This audit sought clarification on three issues related to the way in which IFC structured and monitored CGPL's E&S responsibilities: (a) whether IFC provided CGPL with adequate guidance on the drafting of an Action Plan that meets the requirements for specificity set out in PS1; (b) whether IFC exercised due diligence in its review of CGPL's E&S reporting obligations (both regulatory and lender); and (c) whether IFC has been sufficiently proactive in engaging with the client to remedy E&S issues that were identified in project supervision.

In relation to the development of an appropriate E&S Action Plan, the CAO notes the following requirements under PS1:

> [The Action Plan] will reflect the outcomes of consultation on social and environmental risks and adverse impacts and the proposed measures and actions to address these, consistent with the requirements under paragraph 21. The Action Plan may range from a brief description of routine mitigation measures to a series of specific plans. The Action Plan will: (i) describe the actions necessary to implement the various sets of mitigation measures or corrective actions to be undertaken; (ii) prioritize these actions; [and] (iii) include the time-line for their implementation (para. 16).

Additional requirements to disclose the Action Plan to communities together with updates on mitigation measures and reports on progress with implementation are set out in paras. 16 and 26 of PS1.

As part of the IFC E&S review process, CGPL prepared a 14-point Action Plan dated November 2007 (referred to as the ESAP).

For the purposes of the current discussion, the key requirements of the ESAP were as follows:

> 1. Implement environmental and social mitigation measures, management arrangements, and monitoring programs that were: (a) recommended in the Comprehensive Environmental Impact Assessment (CEIA), Baseline Social Impact Assessment (BSIA), Rapid Marine Environmental Impact Assessment (RMEIA), and Supplemental Environmental Impact Assessment (SEIA); (b) described in the IFC Environmental and Social Review Summary (ESRS); and (c) included in the Environmental Management Plan (EMP).

[59] In addition to the ESAP, the CGPL loan agreement included standard provisions requiring adherence to Environmental and Social Requirements, including the IFC Performance Standards, relevant Health and Safety Guidelines, and applicable law relating to environmental and social matters.

2. Based on the mitigation framework proposed in the Baseline Social Impact Assessment of November 2007, develop and implement specific measures including livelihood restoration, community development, and a long-term stakeholder engagement process.

3. Conduct a modeling study for intake and outfall channel as per the MoEF Environmental Clearance Condition and discussed in the ESRS, including: (a) completion of the study; (b) making the study available for IFC review and incorporation of any recommendations made by IFC; and (c) implementation of a management plan (as per the time schedule provided in the management plan) developed based on the results and findings of the study.

While these requirements were stated at a level of generality higher than that anticipated by PS1, CAO finds that they were appropriate given the complexity of the project and its stage of development at the time the ESAP was agreed upon. As a result, however, the client's E&S commitments are expressed in terms that are difficult to monitor. This is a point made in the 2009/10 Annual E&S Performance Report, in which it was noted that "…most of the provisions of the EMP are too generic to be actually implemented and tracked."[60] Since that time, a consolidated EMP has been produced that addresses this concern to some extent; nevertheless, the EMP still lacks details of mitigation measures, or timing for implementation. Further, as explained by IFC, CGPL's Social Management Plan comprises elements drawn from 16 separate studies and plans that have either been prepared or are under preparation. This gives rise to concerns that a framework for managing social impact that can be audited and monitored has yet to be established, even as the project transitions to full operation.

In accordance with IFC's E&S Review Procedures, IFC and CGPL agreed on a reporting format for an "Annual E&S Performance Report,"[61] with a contracted consultant (SENES) producing these, as well as interim reports on a quarterly basis. As explained by IFC, the SENES reports assess exceptions/deviations from requirements, recommend corrective actions, and follow-up on implementation of the recommended corrective actions. IFC has documented regular reviews of these reports, and in addition to conducting at least nine supervision visits since committing to the project, is in regular communication with CGPL regarding E&S issues (table 1). This reflects a significant commitment of resources to project supervision. In relation to the early SENES reports, IFC noted that the information provided was inadequate, particularly in relation to "environmental monitoring and relevant ESAP items" and requested that this be remedied (E&S Supervision Review, January 2010). CAO appreciates that these reports have evolved and become more comprehensive as the project has moved from construction into operation, particularly with regard to the inclusion of monitoring data. Still, it is not apparent to CAO that adequate monitoring against mandated E&S requirements is possible on the basis of this reporting: the lacking element being a consolidated articulation of the requirements, against which performance is monitored, using verifiable data.

[60] See Annual E&S Performance Report (2009/10), p.6., available at www.adb.org/projects/41946-014/documents. A similar comment is made in the 2008/9 Annual E&S Performance Report.

[61] Exhibit 5.5(c)(B) to the Loan Agreement.

While noting CGPL's community engagement programs, IFC acknowledges that CGPL's current E&S Management Plans have not been disclosed to the affected communities (or the Complainants). Further, CAO did not find any indication that environmental monitoring data are reported to affected communities (or the Complainants), with the exception of the air quality monitoring board outside the site (see discussion of Issue A4).

As mentioned, IFC has dedicated considerable resources to the supervision of this investment. Nevertheless, as set out in table 2, the extent of structured feedback to the client on E&S issues has been limited. This reflects a confidence among the IFC team in the client's E&S capacity and commitment, combined with a view that the project is performing well from an E&S perspective. The specific concerns raised by the Complainants have not been the subject of recommendations from IFC, as these are seen as being already being addressed or alternatively as outside the scope of the CGPL's responsibility because they are not project-related.

AMR year	IFC review	Suggestions for sponsor follow-up letter
2011/12	Jan. 2013	None
2010/11	June 2012	Not required unless SENES reports continuing noncompliance and/or lack of progress in implementation of its recommended measures in the next quarterly audit report.
2009/10	July 2011	None
2008/09	Jan. 2010	Additional information required to determine compliance with at-approval requirements. Please provide additional information with regard to environment monitoring and relevant ESAP items.

Table 2. Summary of IFC AMR Reviews.

Findings:

In summary, in relation to issues of supervision, CAO notes that IFC has documented regular reviews of CGPL's monitoring reports, and in addition to conducting at least nine supervision visits since committing to the project, is in regular communication with its client regarding E&S issues. This represents a commitment of resources beyond that required by the ESRPs. Nevertheless, CAO finds that CGPL's E&S commitments are expressed in terms that are difficult to monitor. While an EMP has been produced that addresses this concern to some extent, CAO has concerns that a framework for managing E&S impact that can be effectively monitored or audited has yet to be established; the element lacking is a consolidated articulation of the requirements, against which performance is monitored, using verifiable data. In these circumstances, IFC is unable to demonstrate either that its client's monitoring is commensurate to risk (as required by PS1) or that its supervision allows it to meet the stated purposes of supervision as set out in the ESRPs: namely, the development and retention of information needed to assess the status of E&S compliance. Confidence among the IFC team in the client's E&S capacity and commitment, combined with a view that the project is performing well from an E&S perspective, have meant that IFC has not treated the Complainants' concerns as compliance issues.

Issue H. Whether IFC policies and procedures provide adequate guidance to staff on how to manage E&S risks associated with projects in areas that are in the process of undergoing rapid industrial development, with environmental and social consequences to be defined[62]

The Complainants argue that Mundra Port should have been considered an *associated facility* (as defined by PS1) and that failure to consider cumulative impacts on marine ecology and livelihoods was in breach of PS1. The Complainants also argue that other developments that should have been included in a cumulative impact assessment include: expansion of the Mundra Port, Adani power station, and other infrastructure related to industrial development on the Gulf of Kutch.

Performance Standard 1, Social and Environmental Assessment and Management Systems (2006), provides that:

> Risks and impacts will be analyzed in the context of the project's area of influence. This area of influence encompasses … (ii) **associated facilities** that are not funded as part of the project…**whose viability and existence depend exclusively on the project** and **whose goods or services are essential for the successful operation of the project**; (iii) areas potentially impacted by **cumulative impacts** from further planned development of the project, any existing project or condition, and **other project-related developments that are realistically defined at the time the Social and Environmental Assessment is undertaken**….The area of influence does not include potential impacts that would occur without the project or independently of the project (para. 5, emphasis added).

CAO finds that, while CGPL is a major customer for Mundra Port, the port does not meet the test of being "a facility whose viability and existence depends **exclusively** on the project…and whose goods or services are essential for the successful operation of the project" (PS1, 2006, para.5, emphasis added).

The coastline, particularly to the east of CGPL, is undergoing rapid transformation. The area under development by MPSEZ alone is envisaged as spanning some 40km of coastline, and supporting industrial development covering an area of approximately 10,000ha.[63]

In this context, CAO accepts that is it cannot be the role of CGPL to undertake an assessment of all existing and proposed developments on the Mundra coastline. Which developments should be included in a project-level cumulative impact assessment would depend on the particular aspect being assessed. For example, noise impacts may be cumulative only over a relatively small area, whereas air quality impacts may accumulate over a wider area.

Cumulative impacts arising from the overall development of the coastal area include (but are not limited to) the following: ambient air quality, noise, groundwater pollution, seawater pollution, labor influx, and impact on livelihoods.

[62] Covered together with Issue B, Whether IFC gave adequate consideration to the cumulative impacts of Adani Power and the construction of the Mundra West Port in its E&S review.

[63] Chairman's Speech, Mundra Port and Special Economic Zone Limited, 11th Annual General Meeting (August 2010), www.mundraport.com/investors/100114554_3_2010.pdf

CAO has reviewed the SEIA (2007), which appears to be the only study to consider potential cumulative impacts around the project. The SEIA is limited to a study of the cumulative impact levels of CGPL and Adani Power Phase I (660MW_e out of 4620 MW_e) on ambient SO_2 levels.

It is not always necessary to estimate or model cumulative impact from existing developments. In the case of existing developments, baseline monitoring may include (if undertaken for long enough time periods in suitable locations) the impact from existing developments. Hence, to estimate the likely cumulative impact, it may only be necessary in an impact assessment to add the impact of the proposed development and other proposed sources to the monitored baseline. It is also possible to examine various studies of different neighboring developments and determine the potential for cumulative impacts. This is often part of scoping—at the outset of the impact assessment process—whether the potential for cumulative impacts exists.

As set out above, PS1 requires an IFC-funded project to consider the cumulative impact of **project-related developments** that are **realistically defined** at the time the Social and Environmental Assessment is undertaken. CAO was advised by IFC that "realistically defined" projects are those have been approved for construction by relevant regulatory authorities; and thus that only these projects need to be considered as part of a cumulative E&S assessment. On this basis, IFC required that CGPL model the cumulative impacts on the airshed of Adani Power (Phase 1) but not, for example, subsequent phases of Adani Power[64] or the Mundra West Port development. CGPL reported this cumulative air quality impact assessment in the SEIA (2007).[65] As explained by IFC, the scope of the SEIA was limited in this manner because it was expected that the regulator would require Adani Phases II to IV to meet relevant standards incorporating CGPL's projected emissions.

Key elements of CGPL's E&S assessment were undertaken in stages between 2006 and early 2009. During this period, information was available from a variety of sources that could have been used to assess the potential for cumulative impact from sources including the expansion of Mundra Port and the further development of Adani Power.[66]

[64] In "October 21, 2008, MoEF gave Environmental Clearance for Phase II of Adani Thermal Power Plant," April 2013, Report of the Committee for Inspection of M/s Adani Port and SEZ Ltd Mundra, Gujarat, p.7.

[65] SEIA (2007), Annexure 2.

[66] CAO notes statements in Adani Power's 2006/07 Annual Report (dated April 2007) that Adani had "executed the contract for the supply and erection of the main plant" for its Phase II development (2x330MW). The same report also notes that the company has embarked upon the Phase III expansion of the project (1320MW) to meet commitments under a power purchase agreement that had already been signed. The Adani Power annual report for 2007/08 states that "The company is in the process of setting up of Phase I, II, III , and IV power projects consisting of 2x330MW, 2x330MW, 2x660MW and 3x660MW, respectively aggregating to 4620MW at Mundra, Gujarat" (p. 3). The MPSEZ annual report for the same period confirms that: "Power Plants with total capacity in excess of 8600MW (Tata Power 4000MW, Adani Power 4600MW) are being constructed in Mundra Region"; that "the plants require very high volumes of imported coal, up to 40 million MTPA"; and that "in order to import these requirements, the proposed Coal Terminal […] is under development" (p.11). A review of satellite imagery suggests that preparations for development of the West Port had commenced by March 2008.

In CAO's view, IFC's interpretation of PS1 in relation to cumulative impact as applying only to permitted projects was unduly narrow. PS1 requires consideration of cumulative impact in relation to developments that were realistically defined (including but not limited to those permitted). Concretely, this would mean advising that the MEIA (2009) should have considered any cumulative impact emerging from the development of the West Port (including associated shipping traffic). In relation to the airshed, CAO finds that Adani Phase II was realistically defined as early as mid-2007, with strong indications that the full expansion of the Adani Power plant to 4620MW was in the pipeline emerging during the course of 2007/08. In these circumstances, CAO finds that IFC should have advised that CGPL's consideration of cumulative impact needed to go beyond that contained in the SEIA (2007). Appropriate measures might have included reporting on Adani Power's cumulative impact assessment and pollution control measures and analyzing these in the light of CGPL's E&S requirements.

Beyond the issues discussed above, PS1 engages with the question of a project's indirect impacts in a number of ways. First, "**where relevant,**" it is required that the client's E&S assessment "consider the **role and capacity of third parties** (such as local and national governments, contractors and suppliers), to the extent that they pose a risk to the project, recognizing that the client should address these risks and impacts commensurate to the client's control and influence over the third party actions" (para. 6, emphasis added). Second PS1 provides that in addition to comprehensive ESIAs, for category A projects, "a **regional, sectoral or strategic (E&S) assessment**" may be required in "**exceptional circumstances**" (para. 9, emphasis added).

The context of development of the MPSEZ raises issues in relation to both third-party risk and regional/strategic impact assessment. MPSEZ is a major industrial development and its owners, the Adani Group, have been the subject of multiple allegations of environmental wrongdoing in recent years, particularly in relation to the destruction of mangroves around MPSEZ.[67] As well as being a neighbor, CGPL is a significant client of MPSEZ, with a long-term contract for stevedoring services at the West Port. It is also noted that the cooling intake channel that CGPL and Adani Power share was built as part of the MPSEZ.[68]

In discussions with CAO, IFC staff acknowledged the potential marine impact of the nearby MPSEZ development, contrasting this with the relatively modest coastal footprint of CGPL. Further, CAO notes that CGPL's Annual E&S Performance Reports have flagged risks emerging from CGPL's external linkages with MPSEZ since 2009/10. Following the issuance of an MoEF show cause notice (regarding alleged breaches of environmental clearances) to MPSEZ in December 2010, CAO notes that CGPL assured IFC that it was following the matter and would request MPSEZ to provide information on

[67] See, for example, MoEF (April 2013), Report of the Committee for Inspection of M/s Adani Port and SEZ Ltd Mundra, Gujarat; Fishmarc (2010) Kutch Coast–People, Environment & Livelihoods

[68] Note MoEF (April 2013) Report of the Committee for Inspection findings that "the intake channel … [is] operational but without any lining/protection to protect against contamination of groundwater. This is a clear violation of the environmental clearance condition" and that "that the soil in the area is permeable and without safeguards it will lead to contamination" (p. 46). As a result the committee recommends that "the intake and outfall channel must be reconstructed/repaired so that it has impervious lining at the bottom and sides" (p. 47).

its response. At this point, the IFC team undertook to closely monitor developments in this regard.[69]

In relation to the adequacy of IFC's policies and procedures in dealing with the types of issues discussed in this section, CAO notes changes between the 2006 and 2012 Performance Standards. Whereas the 2006 Standards noted that a regional, sectoral, or strategic assessment could be required in exceptional circumstances, the 2012 standards reference only the need for the E&S assessment to take into account relevant regional, sectoral, or strategic assessments [PS1 (2012) para. 11]. On the other hand, the 2012 Policy on Social and Environmental Sustainability includes strengthened language on third-party risk, requiring IFC to "review clients' identification of third-party risks," and "determine whether such risks are manageable…so as to create outcomes consistent with the Performance Standards". The revised Policy notes that "certain risks may require IFC to refrain from supporting the proposed business activity," presumably if these risks cannot be adequately avoided or otherwise mitigated. The 2012 Performance Standards also provide language clarifying the definition of a project's area of influence, including the requirement for a client's E&S assessment to cover associated facilities, cumulative impact, and indirect impacts on biodiversity and ecosystem services. PS1 (2012) also reaffirms the principle that third-party risk should be identified by the IFC client and addressed in a manner commensurate with the client's level of control and influence. In its 2012 Guidance Notes, IFC further recognizes the risk of "being complicit in third parties' actions or omissions by knowingly supporting, endorsing, or benefiting from them" (PS1:GN2).

Findings:

CAO finds that IFC's E&S review paid inadequate attention to ensuring that the project's risks and impacts were "analyzed in the context of [its] area of influence" as required by PS1, particularly as this requires consideration of "areas potentially impacted by cumulative impacts…from project related developments that are realistically defined at the time the E&S assessment is undertaken" (para. 5). Concretely, this would mean, advising that the MEIA (2009) should have considered any cumulative impact emerging from the development of the West Port (including associated shipping traffic). Further, CAO would have expected to see more robust analysis and reporting in relation to the cumulative impact of CGPL and Adani Power Phases II–IV on the airshed. Cumulative assessment of the full impact of the two power stations on the airshed would have been particularly important given CGPL's obligations to comply with no net increase provisions for PM and SO_2 under the World Bank Group's 1998 Thermal Power: Guidelines for New Plants (see section A4 above).

While recognizing that CGPL's leverage with regard to MPSEZ may be limited, CAO finds, in accordance with PS1 (para. 6), that third-party E&S risk emerging from the project's proximity and relationship with MPSEZ needed to be better assessed, with mitigation measures developed commensurate to CGPL's level of influence. The same principle would have been appropriately applied to potential cumulative impact.

CAO finds that it would not have been appropriate for IFC to require CGPL to conduct a full regional or strategic assessment covering the much larger Adani developments on

[69] e-mail communication related to disbursement clearance dated June 22, 2011.

the Kutch coast, and that these issues would best have been dealt under the headings of cumulative impact and third-party risk, as outlined above. Given the regional context of the project, however, CAO finds that it would have been good practice for IFC to pursue options for a regional or strategic assessment more assertively with relevant regulatory authorities, either directly, in collaboration with the World Bank or through its client.

In summary, CAO finds that the framework for dealing with cumulative impact and third-party risk discussed above is workable for projects in regions that are subject to rapid industrial development, such as that encountered by CGPL. To the extent that guidance is lacking, CAO finds that this lies in the general nature of the framework, and the potential for IFC staff and clients to take restrictive interpretations of the above policies. A particularly difficult aspect will be the exercise of discretion in determining whether third-party risks are manageable so as to create outcomes consistent with the Performance Standards, and identifying risks that would require IFC to refrain from supporting the proposed business activity, including instances where there are risks of complicity arising from third-party risk. In these circumstances, CAO finds IFC staff may benefit from guidance that, in cases of doubt, its policies should be interpreted in ways that further the institution's higher-level commitments to do no harm principles and the avoidance of negative E&S impacts where possible.

Appendix A. Excerpt from CAO Compliance Appraisal Report in Relation to Aspects of the Complaint not Included in the Audit TOR

[Page 12ff]

Failure to consider technically and financially feasible design alternatives to minimize E&S impacts of the project;

The Complainants allege failures to consider technically and financially feasible design alternatives to minimize the E&S impact of the project at a number of levels. These include specific decisions regarding the design of the cooling system chosen and more general concerns that alternatives to what is seen as a socially and environmentally harmful project were not adequately considered. In relation to the design of the cooling system the Complainants argue that the once through design chosen is outdated and cite a California Energy Commission study that finds that this technology is harmful to marine life.[70] At the more general level it is argued that Tata's CGPL bid significantly underestimated its fuel and construction costs which weakened the argument for the competitiveness of what otherwise might have been feasible (and less environmentally damaging) alternative sources of power.[71]

PS1 and PS6 specifically require consideration of alternatives to the source of impacts in the case of "projects with potential significant adverse impacts that are diverse, irreversible or unprecedented," (PS1) or where a project is expected to "significantly convert or degrade" a natural habitat (PS6). In addition, in case of projects that are required to produce significant quantities of GHGs, PS3 requires IFC clients to "evaluate technically and financially feasible and cost effective options to reduce or offset project related greenhouse gas (GHG) emissions…."

The RMEIA (2007) includes consideration of both once through and recirculation cooling systems, finding the once through design preferable from a marine environment perspective. It also considers variants on the once through design concluding that the release of effluent through a channel would be preferable to pipes. The SEIA (2007) also outlines reasons why alternative sites and cooling system designs were not chosen (p.48). As mentioned above, according to the MEIA (2009) and the RMEIA (2007), the project was not expected have significant impacts on the marine environment with appropriate mitigation measures in place. Thus, assuming IFC exercised due diligence in its evaluation of CGPL's environmental impact assessments as discussed under (a) above, CAO finds that no further consideration of alternative designs for the cooling system was required.

[70] Californian Energy Commission (2005), Issues and Environmental Impacts Associated with Once-Through Cooling at California's Coastal Power Plants, available at www.energy.ca.gov/2005publications/CEC-700-2005-013/CEC-700-2005-013.PDF (accessed July 18, 2012).

[71] According to the Complainants, the CGPL's assumed coal prices were $15/mt and $25/mt over the relevant market price for coal at the time of the bid and award respectively, and $74/mt over the February 2012 benchmark price for Indonesian coal. Construction costs ($1.05 million per MW) are also argued to have been underestimated in comparison to similar plants in India and to have increased due to weakness of the rupee and other factors.

The broader question on design alternatives turns on whether IFC's acceptance of what are alleged to be flawed costing assumptions prevented due consideration of cleaner sources of power. This argument is difficult to make as IFC appraised the project after Tata Power had won the bid for CGPL. That CGPL should be a 4000MW power station using super critical coal fired technology was decided by the Government of India's Power Finance Corporation. It is thus not to be expected that the client, in its E&S assessments, should have been required to consider alternative designs at this level. The question then becomes whether IFC acted in accordance with its policies in deciding to finance the project.[72]

IFC considered the project's GHG emissions, its costing assumptions (including coal prices), and the viability of alternative sources of energy as part of its review process. The ESRS acknowledges that the project will produce significant GHG emissions but places this fact in the context of the thermal efficiency of the planned plant which is estimated to be better by 70%, 30% and 20% than the average thermal efficiency of coal based power plants in India, across the globe and in OECD countries. On this basis IFC argues that the project will result in a reduction of average carbon emissions of India's electricity generation system per unit of electricity supply. CGPL's costing assumptions were also the subject of analysis by IFC prior to approval of the project. While estimates of fuel costs were seen to be low, IFC found that CGPL had taken reasonable measures to mitigate the risk of increasing coal prices by securing a long term contract for Indonesian coal as well as a significant equity stake in the Indonesian mines from which coal was being sourced. As part of its review of the project, IFC also considered alternative sources of power but found these to be either significantly more expensive, or involving technical, social and environmental hurdles, which meant that they were not viable substitutes for a significant increase in coal fired capacity.

While the conclusions reached are no doubt open to debate, CAO is reluctant to review IFC management decisions on project selection unless there is a clear lack of conformance with relevant policies. The key requirement here is that IFC will "not finance new business activity that cannot be expected to meet the Performance Standards over a reasonable period of time" (Sustainability Policy, para. 17). In this case (again assuming IFC exercised due diligence in its evaluation of CGPL's environmental impact assessments as discussed under (a) above), CAO finds that it was open to the IFC to reach the conclusion that the project could be executed in accordance with the PSs and thus to move forward with the investment. While the CAO is not clear that the policies in place at the time provided adequate guidance to staff on how to realize the institution's commitment to "do no harm" principles (Sustainability Policy (2006/12), paras.8/9) in relation to GHG emissions from coal fired power projects, subsequent developments in this respect are noted.[73]

[72] Note unlike World Bank Operational Policy 4.01, the IFC E&S requirements do not require IFC to consider the "without project" alternative.

[73] See Operational Guidance for World Bank Group Staff: Criteria for Screening Coal Projects under the Strategic Framework for Development and Climate Change (March 2010), available at: siteresources.worldbank.org/EXTENERGY2/Resources/CGN_20100331.pdf

Appendix B. Table of Issues, Report Structure and Key Compliance Findings

Complaint	Section of audit report	Key Compliance Findings
a) Failure to identify the Complainants as project-affected people during preparation of the project	Issue A: Whether the IFC exercised due diligence in its E&S review of the project. A1: Identification of fisher people as project-affected people A2: Disclosure and consultation requirements A3: Marine impact	Complainants, who represent a vulnerable group given their migrant traditions and status as a religious minority, were not adequately considered as the E&S risks and impacts of the project were considered and addressed. IFC's review of its client's E&S assessments was not "appropriate to the nature and scale of the project" or "commensurate with… risk" as required by the Sustainability Policy (para. 13). In relation to the issues raised by the complainants, IFC paid inadequate attention to the following requirements of the Performance Standards: • that the client's E&S Assessment consider "all relevant E&S risks and impacts of the project" (PS1, para. 4), be based on "appropriate social baseline data" (PS1, para. 4), and "take into account the differing values attached to biodiversity by specific stakeholders" (PS6, para. 4). IFC failed to ensure that the client's E&S assessments were based on a clear articulation of "the project's area of influence" (PS1, para. 5). IFC failed to assure itself that directly affected fishing communities were engaged in "effective consultation" as defined in PS1 (para. 21).
b) Physical and economic displacement of fisher people from seasonal settlements and fish drying areas in the intertidal zone	Issue D: Whether Performance Standard 5 has been correctly applied with regard to the Complainants' seasonal fishing settlements and fish drying areas.	IFC did not take the steps necessary to ensure that the application of PS5 in relation to the Complainants was properly assessed.

Complaint	Section of audit report	Key Compliance Findings
c) Impact of coal ash and other airborne pollution on fish drying and public health	Issue A: Whether IFC exercised due diligence in its E&S review of the project. A4: Emissions to air	IFC failed to ensure that its client correctly applied the requirements of the World Bank Group Thermal Power Guidelines (1998), to an airshed that should be classified as degraded.
d) Lack of compliance with national regulations in relation to the decision to construct a once-through cooling system	As per CAO appraisal report (p.9): "… CAO finds that IFC adequately assured itself that regulatory clearance was obtained in relation to: (i) the construction of a once through cooling system and (ii) the change in the location of the construction of the outfall channel."	N/A
e) Impacts on marine environment and long-term decline in fish stocks due to destruction of mangroves; and construction/operation of the plant	Issue A: Whether the IFC exercised due diligence in its Environmental and Social (E&S) review of the project. A3: Marine Impact	IFC did not adequately assure itself that the thermal plume from CGPL's seawater outfall would comply with the relevant 3°C criterion at the edge of a scientifically defined mixing zone (IFC General EHS Guidelines 2007, p.25). Projections that the thermal plume from CGPL's outfall channel will extend a distance of kilometers into the shallow waters of the gulf and surrounding estuaries suggest inadequate mixing/cooling, with significant risks of ecological impact. These risks are heightened by claims that the plume will intersect with components of the ecosystem which the Complainants assert are important to their livelihoods. Cumulative nonlethal (but potentially harmful) effects of submarine noise, light, heat, and other aquatic disturbance from the project on the local marine environment were not adequately considered in marine impact assessment process.

Complaint	Section of audit report	Key Compliance Findings
f) Failure to consider expansion of Mundra Port as an associated development or to consider the investment in the context of cumulative impacts of related developments	Issue B: Whether IFC gave adequate consideration to the cumulative impacts of Adani Power and the construction of the Mundra West Port in its E&S review. Issue H: Whether IFC policies and procedures provide adequate guidance to staff on how to manage E&S risks associated with projects in areas that are in the process of undergoing rapid industrial development, with environmental and social consequences to be defined.	While CGPL is a major customer for Mundra Port, the port does not meet the test of being an associated facility. IFC's E&S review paid inadequate attention to ensuring that the project's risks and impacts were "analyzed in the context of [its] area of influence" as required by PS1, particularly as this requires consideration of "areas potentially impacted by cumulative impacts…from project related developments that are realistically defined at the time the E&S assessment is undertaken" (para. 5). In accordance with PS1 (para. 6), third-party E&S risk emerging from the project's proximity and relationship with MPSEZ needed to be better assessed, with mitigation measures developed commensurate to CGPL's level of influence.
g) Impacts on additional livelihood groups, namely graziers and salt pan workers, that were not adequately identified or mitigated	As per the CAO appraisal report (p.11): "As MASS did not establish itself as of other livelihood groups [CAO] did not consider issues raised subsequent to conclusion of the CAO Ombudsman process in relation to salt pan workers and graziers as part of the current process."	N/A
h) Social impacts of increases in the cost of power beyond that which was projected in the project documentation	As per the CAO appraisal report (p.11): "This issue relates to a concern that the project will not deliver an anticipated social benefit as opposed to a claim that it will have adverse social or environmental consequences. As such this issue falls outside the CAO Compliance mandate."	N/A

Complaint	Section of audit report	Key Compliance Findings
i) Failure to consider technically and financially feasible design alternatives to minimize E&S impact	Issue A: Whether the IFC exercised due diligence in its E&S review of the project. Issue D: Whether Performance Standard 5 has been correctly applied with regard to the Complainants' seasonal fishing settlements /fish drying areas. Otherwise, see appendix A, this report (excerpt of Appraisal Report, p.12f).	Engaging with the Complainants' concerns late in the project cycle has undermined IFC's commitment to the avoidance of negative impacts where possible (Sustainability Policy, para. 8), and the examination of "technically and financially feasible alternatives" (PS1, para. 9) to the sources of adverse impacts. A lack of effective consultation with fishing communities early in the project cycle process resulted in missed opportunities to assess, avoid and reduce adverse potential adverse impacts of the project in accordance with the objectives of PS1.
j) Adequacy of IFC's supervision of E&S aspects of the project.	Issue E: Whether IFC provided CGPL with adequate guidance on the drafting of an Action Plan that met the requirements for specificity set out in Performance Standard 1. Issue F: Whether IFC exercised due diligence in its review of CGPL's reporting on regulatory and lender E&S requirements. Issue G: Whether IFC has been sufficiently proactive in engaging with the client to remedy E&S issues that have been identified in project supervision.	IFC has documented regular reviews of CGPL's monitoring reports, and in addition to conducting at least nine supervision visits since committing to the project, is in regular communication with its client regarding E&S issues. A framework for managing E&S impact that can be effectively monitored or audited has yet to be established. IFC is not in a position to demonstrate either that its client's monitoring is commensurate to risk (as required by PS1) or that its supervision allows it to meet the stated purposes of supervision as set out in the ESRPs: namely, the development and retention of information needed to assess the status of E&S compliance. Confidence among the IFC team in the client's E&S capacity and commitment, combined with a view that the project is performing well from an E&S perspective, have meant that IFC has not treated the Complainants' concerns as compliance issues.

Appendix C. Key References

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