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APPRAISAL REPORT

CAO Appraisal for Investigation of IFC

CAO Compliance

C-I-R9-Y12-F159

June 26, 2013

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**Panama Canal Expansion  
Panama**

**Case of  
Panama Canal Expansion project**

***Summary***

Between May and July, 2011, CAO received a number of complaints from several local and national civil society and environmental organizations regarding environmental and social concerns related to the Panama Canal Expansion.

The Panama Canal Authority (ACP) is currently expanding the Panama Canal to increase its load capacity and permit higher transit frequency. The expansion plan consists of building a third set of locks at the Pacific and Atlantic sides of the canal, widening the existing navigational channels, raising the maximum operational level of the Gatun Lake and deepening the Culebra Cut. The project is intended to increase the shipping capacity of the canal from 330 million tons to 600 million tons per year.

The issues raised in the complaint relate to:

- a) Seismic risk
- b) Salt intrusion
- c) Future water needs
- d) Consideration of design alternatives
- e) Consultation and disclosure of information
- f) Loss of land due to increase in water levels in Gatun Lake

CAO has conducted a Compliance Appraisal in accordance with its Operational Guidelines.

Having considered the complaint and conducted a review of documentation related to the investment, CAO finds that the identification and management of environmental and social risks and impacts around this project has generally been commensurate to its risks and impacts. Nevertheless, CAO has identified some questions on specific issues, in particular: (a) whether IFC adequately assured itself that salinity levels at Gatun Lake would remain below the fresh water limit given the information available at the time of appraisal; (b) upon the update of the salinity studies post commitment, whether IFC adequately assured itself that salinity levels at the Paraiso water

intake station near the Pacific locks would remain below the fresh water limit; (c) whether IFC adequately reviewed the availability of water for canal operations in the medium to long term; (d) whether IFC adequately assured itself that ACP responded to the land related impacts of the rise in water level of Gatun Lake in accordance with the Performance Standards; and (e) whether IFC adequately assured itself of support for the project among directly impacted communities.

These issues notwithstanding CAO decides to close this case at appraisal. This decision has been reached on the basis that: (a) the client has a well developed E&S management and monitoring systems; (b) the issues of concern relate significantly to future risks which may or may not eventuate; (c) these risks (should they manifest) could appropriately be addressed during supervision; and (d) IFC has undertaken to monitor these risks in supervision. In these circumstances CAO finds limited value in conducting a compliance investigation.

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



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## About the CAO

*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](http://www.cao-ombudsman.org)



## 1. Overview of the CAO Compliance Appraisal process

When CAO receives a complaint about an IFC or MIGA project, the complaint is referred to CAO's dispute resolution arm, CAO Dispute Resolution, which works to respond quickly and effectively to complaints through facilitated settlements, if appropriate. If CAO Dispute Resolution concludes that the parties are not willing or able to reach a facilitated solution, the case is transferred to CAO Compliance for Appraisal and potential Compliance Investigation.

The focus of CAO Compliance is on IFC and MIGA, not their client. This applies to all IFC's business activities including the real sector, financial markets, and advisory. CAO assesses how IFC/MIGA assured itself/themselves of the performance of its business activity or advice, as well as whether the outcomes of the business activity or advice are consistent with the intent of the relevant policy provisions. In many cases, however, in assessing the performance of the project and IFC's/MIGA's implementation of measures to meet the relevant requirements, it will be necessary for CAO to review the actions of the client and verify outcomes in the field.

In order to decide whether a Compliance Investigation is warranted, CAO Compliance first conducts a Compliance Appraisal. The purpose of the appraisal process is to ensure that Compliance Investigations are initiated only for those projects that raise substantial concerns regarding environmental and/or social outcomes, and/or issues of systemic importance to IFC/MIGA.

To guide the appraisal process, the CAO applies several basic criteria. These criteria test the value of undertaking a Compliance Investigation, as CAO seeks to determine whether:

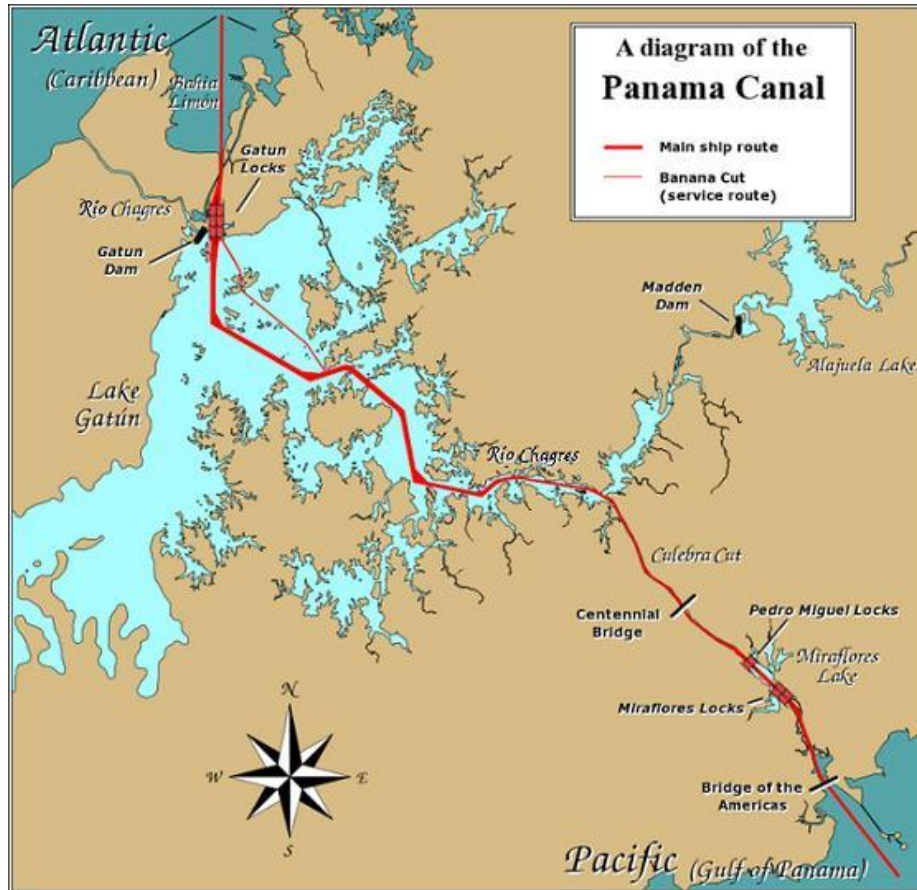
- There is evidence of potentially significant adverse environmental and/or social outcome(s) now, or in the future.
- There are indications that a policy or other appraisal criteria may not have been adhered to or properly applied by IFC/MIGA.
- There is evidence that indicates that IFC's/MIGA's provisions, whether or not complied with, have failed to provide an adequate level of protection.

In conducting the Appraisal, CAO will hold discussions with the IFC/MIGA team working with the specific project and other stakeholders to understand which criteria IFC/MIGA used to assure itself/themselves of the performance of the project, how IFC/MIGA assured itself/themselves of compliance with these criteria, how IFC/MIGA assured itself/themselves that these provisions provided an adequate level of protection, and, generally, whether a Compliance Investigation is the appropriate response. After a Compliance Appraisal has been completed, the CAO can close the case or initiate a Compliance Investigation of IFC or MIGA.

Once CAO concludes an Appraisal, it will advise IFC/MIGA, the President, and the Board in writing. If an Appraisal results from a case transferred from CAO's Dispute Resolution role, the complainant will also be advised in writing. A summary of all appraisal results will be made public. If CAO decides to initiate a Compliance Investigation as a result of the Compliance Appraisal, CAO will draw up Terms of Reference for the Compliance Investigation in accordance with CAO's Operational Guidelines.

## 2. Background and concerns that led to the Appraisal

The Panama Canal Authority (ACP – Spanish acronym) is currently expanding the Panama Canal to increase its load capacity and permit higher transit frequency. The expansion plan consists of building a third set of locks at the Pacific and Atlantic sides of the canal, widening the existing navigational channels, raising the maximum operational level of the Gatun Lake and deepening the Culebra Cut (see map). The project is intended to increase the shipping capacity of the canal from 330 million tons to 600 million tons per year.



While the new locks will require more water to operate, water-saving basins are being built which are expected to reuse 60% of lockage water. Consequently, each lockage is expected to require 7% less water than pre-expansion operations when the water saving basins are utilized. Through utilizing less water and raising the water operational level of the Gatun Lake, the project is expected to permit 1,100 extra lockages per year.

Total project cost is estimated at US\$5.25 billion out of which IFC is financing US\$300 million in the form of a straight senior loan. The Project was assigned IFC's environmental and social category A, signifying this is a project with potentially significant adverse social and/or environmental impacts that are diverse, irreversible, or unprecedented.

Between May and July, 2011, CAO received a number of complaints from several local and national civil society and environmental organizations and members of Alianza Pro Panama<sup>1</sup> regarding environmental and social concerns related to the Panama Canal Expansion. CAO Assessment Report was published in February 2012. As neither the complainants nor IFC's client wished to engage in a dispute resolution process facilitated by CAO, this complaint was transferred to CAO Compliance for appraisal of IFC's performance.

### **3. Scope of the Appraisal for an Audit of IFC**

In cases transferred after CAO's Assessment, the scope of the Appraisal is defined by issues raised in the complaint and identified during the CAO Assessment phase. Based on the letters of complaint and CAO's Assessment Report, the complainants raised the following concerns:

- a) Seismic risk
- b) Salt intrusion
- c) Future water needs
- d) Consideration of design alternatives
- e) Consultation and disclosure of information
- f) Loss of land due to increase in water levels in Gatun Lake

### **4. Discussion and Findings**

Having been processed in 2009 the Panama Canal Expansion is governed by IFC's 2006 Policy on Social and Environmental Sustainability (Sustainability Policy) and 2006 Performance Standards.

The IFC Sustainability Policy (2006) states that IFC's mission is to promote sustainable private sector development in developing countries. In order to accomplish its mission, IFC seeks to establish partnerships with clients on the understanding that the pursuit of social and environmental opportunities is an integral part of good business. Central to IFC's development mission is to carry out its investment operations in a manner that "do no harm" to people or the environment. "Negative impacts should be avoided where possible, and if these impacts are unavoidable, they should be reduced, mitigated or compensated for appropriately".

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<sup>1</sup> Alianza Pro Panama consists of the following groups and grassroots organizations: Unión Campesina Panameña (UCP), Frente Campesino contra los Embalses y la Minería de Coclé y Colon (FCCM), Frente Campesino Colonense (FCC), Organización Campesina Coclesana 15 de Mayo (OCC-15 de Mayo), Unión Indígena y Campesina (UIC), Comité Pro Defensa del Lago Gatún, Coordinadora para la Defensa de Tierras y Aguas (CODETIAGUAS), Asociación Pro Defensa de las Cuencas Hidrográficas, Frente de Resistencia Coclesano (Movimiento – área de Coclé del Norte), Coordinadora Campesina por la Vida and several Panamanian community members in their personal capacity. The group of individuals who supported the complaint includes two engineers who have registered patents for their respective specific models for the partial or whole design of the expansion.

In the context of an investment project, IFC expects its clients to undertake an assessment of the social and environmental risks and impacts and manage these in accordance with the Performance Standards. IFC's role is to "review the client's assessment; to assist the client in developing measures to avoid, minimize, mitigate or compensate the social and environmental impacts consistency with the Performance Standards; ... and to monitor the clients social and environmental performance throughout the life of IFC's investment".

When considering a project, IFC undertakes an E&S review of the project as part of its overall due diligence. "This review is appropriate to the nature and scale of project, and commensurate with the level of social and environmental risks and impacts". This review has three components "(i) the social and environmental risks and impacts of the project as assessed by the client; (ii) the commitment and capacity of the client to manage these expected impacts, including the client's social and environmental management system; and (iii) the role of third parties in the project's compliance with the Performance Standards" (Sustainability Policy). Based on its review, IFC assigned the project an E&S risk categorization based on the expected impacts.

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 (AMR) submitted by the client and site visits as required by the IFC's E&S Review Procedures (ESRP). As set out in the ESRP "the purpose of E&S supervision is to develop and retain the information needed to assess 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). As per PS1, IFC clients are also required to have in place E&S management systems that are commensurate with project risks and impacts. The management system must establish structures for monitoring, including engaging external experts to verify monitoring information in projects with significant adverse impacts.

The complaint outlined above raises issues in terms of IFC's review and supervision of E&S aspects of its investment in ACP.

At appraisal, the key question for CAO is whether IFC exercised due diligence in its review of and response to the client's assessment of E&S impacts. At this stage, the following requirements are of particular relevance:

- Whether IFC conducted an E&S review that is "appropriate to the nature and scale of the project, and commensurate with the level of social and environmental risks" of the project (Policy on Social and Environmental Sustainability, 2006, para. 13);
- Whether IFC ensured that the client's E&S Assessment meets the requirements of the Performance Standards, and if not whether appropriate additional assessments were required (Policy on Social and Environmental Sustainability, 2006, para. 15).

In supervision the key question is whether IFC assured itself of client compliance, in particular with its commitments under the Performance Standards.

Additional requirements and discussion in the context of the issues raised by the complaint are provided below.



a. Seismic risk

The Complainants assert that the current design for the Panama Canal Expansion will “knowingly and unnecessarily expose the canal to a high level of seismic risk”. They affirm that the 6.2km Borinquen Dams being constructed to facilitate the navigational channel around the Miraflores Lake to the post-Panamax lock, west of the current Miraflores locks, lies across seismically active faults. Should the dam fail, the complainants argue, the Gatun Lake would be lost and the Panama Canal shut indefinitely.

As noted above, IFC is required to review the client’s assessment to ensure it is commensurate with the level of social and environmental risks (Sustainability Policy, 2006). A review of IFC project documentation shows a discussion of the new locks’ design criteria as it pertains to seismic risk. The new locks were originally designed using a seismic acceleration of 0.30g.<sup>2</sup> Following the conduct of a probabilistic seismic hazard assessment in 2006 by URS Holding (an established US based engineering, construction and technical services company), IFC notes that the design of the new locks were updated. Specifically, the Atlantic locks were augmented to 0.33g and the Pacific locks to 0.52g. IFC’s appraisal of the project included reviewing an Independent Engineers Report, prepared by the Louis Berger Group in 2008 (commissioned by ACP). This report affirmed that the “seismic risk appears to be medium low and manageable with proper design criteria”. In reviewing the design of the Borinquen Dams, the report affirms that “(t)he Borinquen Dams is being designed to prevent loss of Gatun Lake due to an earthquake with a peak acceleration of 0.95g, which we understand has a 1:2500 year return period. This is an appropriate design requirement, considering the consequences of failure”. Furthermore, the Independent Engineer’s report concludes that “(e)ngineering design criteria developed by ACP have identified state of the art solutions for the project. All considerations are according to international practices”.

On the basis of the above, CAO finds that IFC took reasonable steps to assure itself that the client had considered issues of seismic risk and incorporated specific performance specifications in the design of the new locks. Further IFC ascertained that these design specifications had been reviewed by an independent expert. In these circumstances CAO is satisfied that IFC’s approach to the seismic issues raised by the complaint was commensurate to risk.

b. Salt intrusion

The Complainants assert that the current design of the Panama Canal Expansion will “permit excessive salt to intrude into the transited lakes of the Panama Canal”. Salt water is mixed with freshwater as ships are transited through the canal. The degree to which the salinity of the water increases, the complainants argue, is a function of the lock arrangements and the transit procedure. The current project design will have the post-Panamax ships bypassing Miraflores Lake, which has been a barrier to salt-migration into the larger freshwater Gatun Lake to date. Furthermore, the complainants argue that increased salinity of the Panama Canal will lead to the “formation of a submerged corridor” that will permit salt water organisms to transit from the Atlantic to the Pacific Ocean and vice versa, with negative environmental impacts.

The complainants dispute the independence and reliability of ACP commissioned studies (conducted by a Dutch based research institute focusing on water related issues, WL Delft Hydraulics) on salt water intrusion. In particular, the complainants state that the 2004/2005 Delft

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<sup>2</sup> g = peak ground acceleration



reports concluded that salt intrusion would become a problem for the expanded canal unless adequate mitigation measures were adopted. The complainants state that these studies were replaced by a further Delft study (2009) which was more favorable.

In addition to IFC's general requirements outlined above, the complainants concerns regarding salt water intrusion raises issues covered by PS3 (Pollution Prevention) and PS6 (Biodiversity Conservation). Relevant provisions include:

- that the client consider the impacts of the project on ambient conditions and applies "pollution prevention and control technologies and practices that are best suited to avoid or, where avoidance is not feasible, minimize or reduce adverse impacts on human health and the environment while remaining technically and financially feasible and cost-effective" (PS3, para 3); and
- that the client determine and manage the risk of alien species incursion into areas where they are not normally found – specifically that "client will not deliberately introduce any alien species with a high risk of invasive behavior or any known invasive species, and will exercise diligence to prevent accidental or unintended introductions" (PS6, para 13).

IFC's Environmental and Social Review Summary (ESRS) asserts that "salt concentrations in the lakes could be very sensitive to the number of post-Panamax ship transits which corresponds to the number of uplifts of the locks. Although there has been concern regarding water quality conditions and acceptable salinity concentrations for the potable water supplies, when hydrodynamic models are projected out several decades to include the increased ship transits under Project operations there does not appear to be a significant impact due to the introduction of limited quantities of salt water during ship transfer activities".<sup>3</sup> Further in the Board Paper, IFC notes that "increased salinity of the Gatun Lake and other transit channels may have a negative impact on the flora and fauna of the water bodies". However, IFC's Board Paper affirms that ACP has developed models to assess and mitigate the salinity risk and that potable water sources are not at risk from a saline intrusion as they are upstream of the lakes and not near the locks.

Delft was commissioned by ACP to undertake studies and modeling of salt water loads focusing on Gatun and Miraflores Lakes taking into consideration the number of estimated future Panamax and post-Panamax transits through the canal. These models considered seasonal variability of lock transits, water levels and rainfall. The 2005 Delft study estimated that utilizing three water saving basins, without other mitigation measures, could lead to salinity levels on or above the fresh water limit when the canal operates at full capacity.<sup>4</sup> Accordingly, Delft's 2005 study concluded that "when sufficient water from new water resources can be made available, the best option from the view point of salt water intrusion mitigation is to build post-Panamax shipping locks without water saving basins".<sup>5</sup> However, as water conservation was critical to the operation of the locks, Delft

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<sup>3</sup> IFC (2008), Environmental and Social Review Summary for Panama Canal Expansion, see <http://www.ifc.org/ifcext/spiwebsite1.nsf/78e3b305216fcd8a85257a8b0075079d/3fc41efc24a99097852576ba000e2c7b?opendocument&Highlight=0.26665> (Accessed May 13, 2014)

<sup>4</sup> As per the WL Delft Hydraulics (2009) report, the fresh water limit is understood to be 0.4 – 0.5 parts per thousand (ppt). The 2005 study estimates that at full capacity (15 post-Panamax ships utilizing the three water saving basins), the salt concentration could rise to 0.45-0.75 ppt. See Delft (March 2009) *Water Quality Model of Gatun Lake for Expanded Panama Canal – Part II*, page 9-3

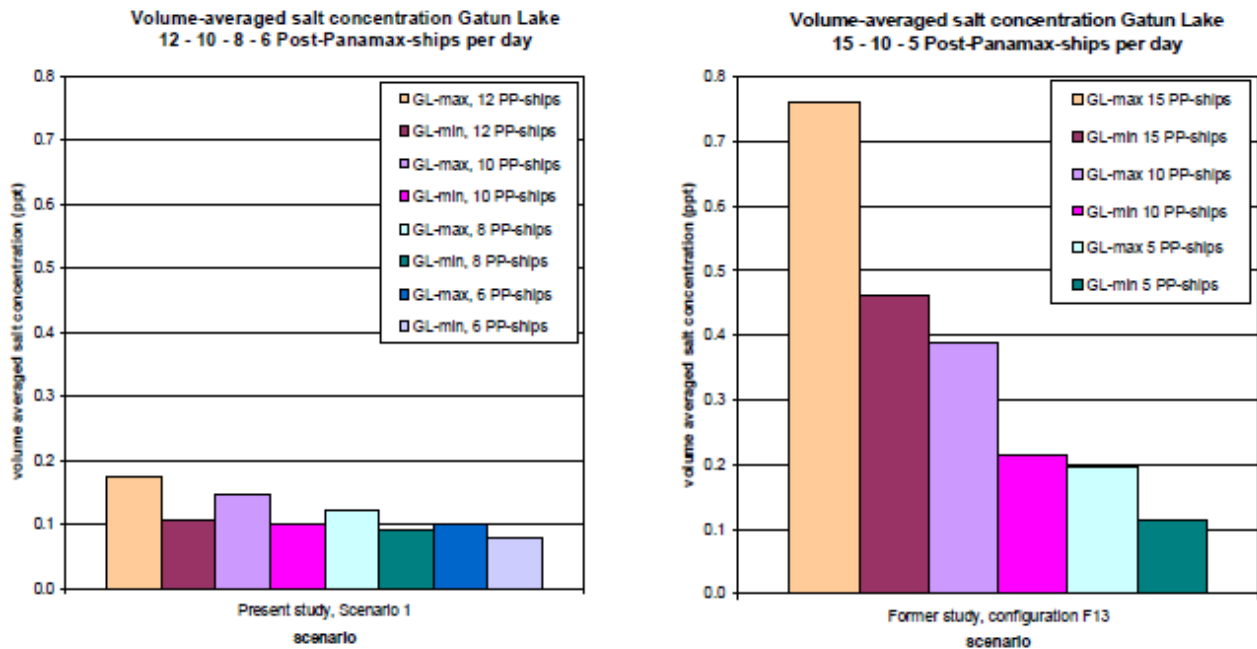
<sup>5</sup> Delft (April 2005) *Salt Water Intrusion Analysis Panama Canal Locks*, page Sum – 22. See <http://www.pancanal.com/esp/plan/estudios/0260.pdf> (Accessed May 1, 2013)

recommended the three water saving basins design with stepwise flushing of all lock chambers, possibly in combination with pneumatic barriers as mitigating measures.

At the time of IFC’s due diligence, the Delft 2005 studies were reviewed by the Louis Berger Group (author of the ACP Independent Engineers Report) and Moffatt & Nichol (a US global infrastructure advisor specializing) without concerns being raised.

In 2008/2009 Delft was commissioned to undertake further modeling of the present level of salinity and expected future level after the expansion of the canal. Delft concluded that the present level (2007/2008) of salt concentration of the Gatun Lake was very low. With regard to future expectations, Delft simulated the base line scenario (‘normal’ hydraulic conditions).<sup>6</sup> Based on the three water saving basins design, Delft conclude that “it appears that the salt concentration of the Gatun Lake will increase in the future; however, the volume-averaged salt concentration of the lake will remain ample beneath the fresh water limit (0.4 ppt – 0.5 ppt)”. The difference between the 2005 and 2009 results was attributed to the expectation of smaller post-Panamax ships utilizing the new locks, thus reducing the effects on water displacement. Figure 1 details the results of the 2005 and 2009 Delft studies of the expected future volume average salt concentration of Gatun Lake for various combinations of post-Panamax ship transits.

**Figure 1 – Maximum and minimum volume-average salt concentration Gatun Lake. Left panel is the 2009 Delft study, Right panel is the 2005 Delft study**



Source: Delft 2009

<sup>6</sup> The base line scenario is considered as the new locks operating at full design capacity (12 post-Panamax ships per day with full utilization of the Water Saving Basins) in addition to maintaining full capacity of existing locks (36 ship transits), and hydrological conditions as in the period 2003 – 2005.

The 2009 Delft report further notes that “local salinity values in the vicinity of the locks, in particular near the bottom [*of the lake*], may rise above the fresh water limit”<sup>7</sup>. However, most of the intruded salt water is expected to remain in the southern area of Gaillard Cut. This finding is of particular concern for the Paraiso water intake station; “the most important intake for potable water,”<sup>8,9</sup> which “is located with the direct sphere of influence of the Pacific Locks”.<sup>10</sup> Accordingly the Delft study continues, “the fresh water limit of 0.4 – 0.5 ppt is now and than (*sic.*) exceeded (near the bottom), when the new locks are operated at full design capacity”<sup>11</sup>.

IFC notes that ACP is considering management options in the event that salinity levels increase above a threshold considered safe for the protection of freshwater resources. These include washing of ship hulls or reduced use of water recycling basins.

During IFC’s due diligence, IFC considered that while the salinity levels would rise, this would not affect potable water, particularly considering that the intake stations are not located near the locks. Noting that IFC’s due diligence was undertaken before the 2009 Delft studies became available, it is unclear to CAO how IFC made this determination, given that: (a) the 2005 Delft study estimated that when the canal operated at full capacity, salinity levels could rise above the fresh water limits, and (b) the most important intake station in Gatun Lake is located within the direct influence of the Pacific Locks. Nevertheless, CAO notes that ACP actively monitors salinity levels, is considering options to mitigate salt intrusion and in the past has relocated water treatment plants in response to water quality issues. CAO also notes that IFC is apprised of this issue and gives it due regard in its future monitoring of the project. In these circumstances CAO finds that concerns about salt intrusion can be adequately managed through the ACP’s E&S management systems.

c. Future water needs

The Complainants argue that the expansion of the Panama Canal will increase the possibility of there being a lack of drinking water for rural and urban communities. The complainants maintain that new dams may be constructed to create artificial lakes to supply water to the Panama Canal. In such instance, they claim this would lead to displacement of communities and expropriation of their land, which has been inhabited by them and their ancestors for many years.

As per the Organic Law of the Panama Canal Authority (1997), ACP was created with two responsibilities: i) the management and operation of the Panama Canal and ii) the sustainable management of water resources to meet the current and future demand of the Canal and Metropolitan population of Panama City and Colon. The Organic Law determined the Panama Canal Watershed over which ACP had responsibility. Law 44 (1999) amended the Watershed to include areas in the western provinces. During parliamentary debate on this amendment – the Administrator of the Panama Canal detailed ACP’s plan to construct three artificial lakes in the

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<sup>7</sup> Delft (2009) *Water Quality Model of Gatun Lake for Expanded Panama Canal Final Report, Part II: Modelling of the Present Situation*, page Summary 35

<sup>8</sup> Delft (2008) *Water Quality Model of Gatun Lake for Expanded Panama Canal Final Report, Part I: Modelling of the Present Situation*, page 5-2

<sup>9</sup> The Paraiso station handles 55.9% of municipal and industrial water supplied from Gatun Lake

<sup>10</sup> Delft (2009) *Water Quality Model of Gatun Lake for Expanded Panama Canal Final Report, Part II: Modelling of the future situation*, page Summary 32

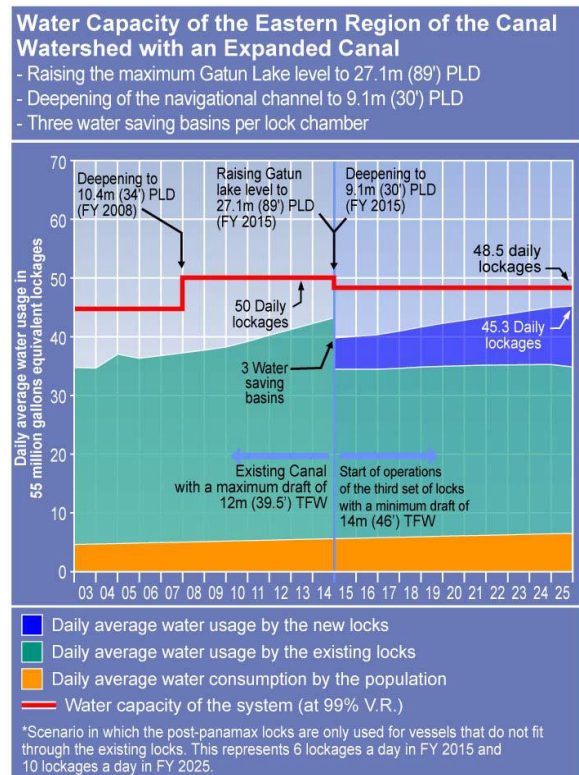
<sup>11</sup> *Ibid* page 8-55

western provinces to supply water to the Panama Canal.<sup>12</sup> In March 2006 ACP’s Master Plan for expanding the Panama Canal was published and in June 2006 the Government of Panama reduced the PCW to its original size as per the Organic Law. The Master Plan does not include a plan to construct artificial lakes in the western provinces. Further, ACP affirms that the expansion program “guarantees the water volumes required to satisfy both the demand from the population and human activities that are served by Gatun and Alhajuela Lakes and as well as for Canal operations once it is expanded with a third set of locks, even when it reaches its maximum sustainable capacity beyond 2025. .... For that reason, it will not be necessary to build additional reservoirs in the future”.<sup>13</sup>

ACP’s Master Plan details the expected water usage of the canal up until 2025 (see figure 2). In 2006, the daily canal usage for canal operations and human consumption was equivalent to 37 lockages per day – of a maximum capacity of 45 lockages per day at the time. Through deepening the Gatun Lake and increasing its operational level the expansion plan will increase the capacity of the canal to 48.5 lockages per day. ACP estimates demand for water for canal operations and human consumption at 39.9 lockages in 2015 – when the new third set of locks open. By 2025 ACP expects demand to rise to 45.3 lockages per day based on 10 post-Panamax lockages per day. This is broken down as 38.8 lockages for canal operations and 6.6 lockages for human consumption.<sup>14</sup>

A number of studies commissioned by ACP utilize different estimates for the number of transits expected through the Panama Canal post expansion. Delft’s<sup>15</sup> 2004/2005 studies were conducted based on the existing locks handling 36 ships per day in addition to the new locks handling 10 post-Panamax ships by 2026 – rising to 15 by 2056<sup>16</sup> - a total of 51 transits per day. Delft’s follow up study in 2009 affirms that “the maximum capacity of the expanded Panama Canal may be reached in 2030. At maximum capacity 36 ships per day are

**Figure 2 – Water Capacity and Usage post expansion**



Source: ACP (2006). *Proposal for the expansion of the Panama Canal*

<sup>12</sup> Rosales, Martin Renzo (2007) *The Panama Canal Expansion Project: Transit Maritime Mega Project Development, Reactions and Alternatives from Affected People*. Page 145

<sup>13</sup> ACP (2006) *Proposal for the Expansion of the Panama Canal: Third Set of Locks Project*. Page 55-56. See <http://www.pancanal.com/eng/plan/documentos/propuesta/acp-expansion-proposal.pdf> (accessed May 14, 2013)

<sup>14</sup> World Bank (June 2008) *Republic of Panama Country Environmental Analysis* see <http://hdl.handle.net/10986/12303> (Accessed May 14, 2013)

<sup>15</sup> The WL Delft Hydraulic studies modeled current and future salinity levels. They are relevant for this discussion as they detail full capacity estimates for future transit levels.

<sup>16</sup> Delft (2004) *Salt Water Intrusion Analysis Panama Canal Locks – Report E, part I*. page 7-1



handled in the existing locks and 12 Post-Panamax ships per day are handled in the new locks” - a total of 48 transits per day.<sup>17</sup> ACP’s Master Plan states that the “proposed expansion of the Canal by the construction of a third set of locks will allow it to capture the entire demand projected through the year 2025 and beyond ... in accordance with the mix and types of vessels forecasted which equals more than 16,000 transits per year” – average of 43.8 transits per day.

One lockage does not necessarily equal one transit. Smaller ships can be transited in tandem through one lockage. However, the opportunity to continue this practice is unclear. As detailed by ACP, the average size of the ships utilizing the Panama Canal has increased. In 2005 nearly 45% of the vessels that passed through the canal were the maximum width allowed by the present locks, as opposed to 23% percent in the year 1990.<sup>18</sup>

In its 2008 Country Environmental Analysis of the Republic of Panama, which was complete before IFC finalized its due diligence, the World Bank raised concerns with the population growth estimates and the degree to which the effects of climate change were considered in ACP’s studies. The report notes that “previous population growth rate estimates, used for predicting water demand, are showing to be too conservative”. Furthermore, “a wild card in the Watershed water resources scenario is the potential impact of climate change. Currently, this is not factored into water supply and demand predictions”.<sup>19</sup> On this topic, the report concluded that “should the somewhat slim 7 percent margin in projected 2025 water supply compared to demand be “consumed” by unforeseen factors (such as those arising from climate change or increased climatic variability or human consumption, and so forth), this region’s water resources might also become important to the long-term operation of the Canal”.

IFC’s ESRS notes that “national legislation and ACP by-laws protect the interest of the public by prioritizing the provision of potable water supplies in the event of water shortages due to draught”.<sup>20</sup> IFC also notes that in previous instances of water shortages (i.e. El Niño 1997-98), the ACP has responded by imposing ship draft restrictions and reducing the number of lockages. It remains ACP’s current practice to impose ship draft restrictions in the event of an unusual dry season (nominally, 1 out of 10 years).<sup>21</sup>

Multiple studies detailing different transit capacity estimates of the canal post-expansion exist. ACP’s Master Plan, which IFC documentation relies on, leaves a slim margin between the water demand and supply in its 2025 projections. Furthermore, the World Bank has questioned ACP’s water projections in relation to population demand and the effects of climate change on water supply. In instances where water shortages existed due to unusual weather variation, IFC notes that ACP has responded in prioritizing potable water supplies. IFC also notes: (a) that any expansion of the canal’s watershed would require legislative change, and (b) that in accordance with its loan agreement, any action by ACP in this respect would need to be carried out in

<sup>17</sup> Delft (March 2009) *Water Quality Model of Gatun Lake for Expanded Panama Canal – Part II*, page 5-3

<sup>18</sup> For further details see page 34 of ACP (2006) *Proposal for the Expansion of the Panama Canal: Third Set of Locks Project*. Page 42-44 See <http://www.pancanal.com/eng/plan/documentos/propuesta/acp-expansion-proposal.pdf> (accessed May 14, 2013)

<sup>19</sup> World Bank (June 2008) *Republic of Panama Country Environmental Analysis* Page 68 & 78

<sup>20</sup> IFC (2008), Environmental and Social Review Summary for Panama Canal Expansion, see <http://www.ifc.org/ifcext/spiwebsite1.nsf/78e3b305216fcd8a85257a8b0075079d/3fc41efc24a99097852576ba000e2c7b?opendocument&Highlight=0,26665> (Accessed May 13, 2014)

<sup>21</sup> ACP (2012) *OP notice to shipping No. N-1-2012 (Rev.1)* see <http://www.pancanal.com/eng/op/notices/2012/N01-2012.pdf> (accessed May 6, 2013), page 6

compliance with the Performance Standards. Towards the end of the tenor of the IFC loan (2028), however, the availability of fresh water may become a constraint to the growth of ACP's business. IFC has committed to monitor this emerging risk by requesting that water availability projections be updated in the course of ACP's E&S reporting going forward. CAO finds this approach to monitoring appropriate given the contingent and longer term nature of the risk to water availability.

*d. Consideration of design alternatives*

The complainants claim that ACP did not consider other economical and feasible alternatives to the design of the canal expansion. In particular, some complainants proposed a two lane system design for the expansion which, in their opinion, could be constructed at a comparable cost and within the same time frame as the selected design, and would be more sustainable, reliable and responsible. Furthermore, the complainants argue that ACP bypassed fundamental project development and engineering design processes.

Other complainants argue that additional transportation options could be available in the future that would limit the need for the Panama Canal. In particular, they argue that the advent of new energy production technology, not based on oil, could revolutionize land transportation; and the impact of climate change could lead to the a viable route for an additional canal to the North of the Panama Canal.

As per Performance Standard 1, for projects with potential significant adverse impacts IFC reviews the social and environmental impact assessment to assure itself that it includes "an examination of technically and financially feasible alternatives source of such impacts, and documentation of the rationale for selecting the particular course of action proposed".

As detailed in the ESRS, IFC's analysis of ACP's consideration of project alternatives is confined to how ACP evaluated project alternatives that sought to maximize the use of available water resources in the Canal watershed. ACP's objectives, as detailed below, were more expansive than discussed in IFC's documentation.

ACP set the following objectives for the Panama Canal Expansion;<sup>22</sup>

- Maintain Canal profitability and its contributions to the Republic of Panama over the long range
- Maintain the competitiveness and value of the route
- Increase the capacity to meet the growing demand for transits with adequate levels for each segment
- Allow the transit of ships larger than Panamax, in order to increase Canal productivity
- Add room in the operating capacity to perform maintenance work that requires prolonged lane outages in the current Canal

ACP considered the "Non-Implementation Alternative" and determined that to keep the status quo would result in "a gradual loss of competitiveness". As detailed in ACP's Environmental Impact Study, ACP considered various alternative designs that involved multiple technological options and

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<sup>22</sup> URS Holdings (2005) *Category III Environmental Impact Study Panama Canal Expansion – Third Set of Locks Project* – chapter 3

configurations for the Panama Canal Expansion. The two main tenets of the options considered included: (1) a canal with sea level navigational channels and, (2) a locks canal.<sup>23</sup>

A canal with sea level navigational channels was discarded as it entailed “investment and environmental mitigation costs significantly higher than [sic] those of a locks system utilizing existing Canal navigational channels”. ACP’s analysis concluded that the “three-level configuration results in the best relation between initial investment, operational efficiency, maintenance, environmental impact, and water utilization”. ACP concluded that “the option with the larger chamber locks alternative: (1) would contribute the necessary capacity to capture both cargo volume and vessels size of the demand; (2) presents the most efficient cost-benefit ratio; and, (3) would have smaller and easily manageable environmental impacts”.<sup>24</sup> In reviewing the selected design, the Louis Berger Group concluded that “a three lift lock system is best for minimizing saltwater intrusion and saving water, while maintaining similar system capacity and comparative costs”. IFC’s review concluded that this approach “guarantees the water volume required to satisfy the demand from the population and human activities served by Gatun Lake as well as expanded Canal operations” (ESRS).

In conclusion, CAO notes that ACP engaged in an extensive analysis to select a project design and this design was considered by an independent third party to be the best for minimizing saltwater intrusion and saving water. IFC reviewed ACP’s documentation on these issues and was satisfied by its findings. CAO is satisfied that IFC’s review of the project alternatives was commensurate to risk.

e. Consultation and disclosure of information

The complainants assert that there is lack of accessible, clear and reliable information in Spanish regarding the design and impacts of the Canal expansion, and that there has been a lack of meaningful public consultation around the project. Furthermore, some community members expressed that they did not vote in the referendum as a way of protest, and that voting centers near their territories had been eliminated.

Additionally, as stated in the CAO Assessment report, some complainants’ claim that the real cost of the Panama Canal expansion has not yet been disclosed. Specifically, they argue that the headline figure stated by ACP, \$5.25 billion, does not include the cost of finance (interest payments), the cost of tax exemptions on imports and the cost to dredging the lake.

IFC’s Sustainability Policy outlines IFC’s role and responsibility to community engagement and broad community support for a project. IFC requires its clients, through the Performance Standards, to engage with affected communities through disclosure of information, consultation and informed participation. For projects with significant adverse social and/or environmental impacts on affected communities, IFC requires its client to engage with affected communities early in the E&S Assessment process and on an ongoing basis. Through the Sustainability Policy, IFC is required review the client’s documentation of the engagement process. In addition, in relation to

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<sup>23</sup> URS Holdings (2005) *Category III Environmental Impact Study Panama Canal Expansion – Third Set of Locks Project* – Chapter 3

<sup>24</sup> ACP (2006) *Proposal for the Expansion of the Panama Canal: Third Set of Locks Project*. Page 42-44 See <http://www.pancanal.com/eng/plan/documentos/propuesta/acp-expansion-proposal.pdf> (accessed May 14, 2013)





projects with significant impacts, IFC is required, “through its own investigation, to assure itself that the client’s community engagement is one that involves free, prior and informed consultation and enables the informed participation of the affected communities, leading to broad community support [BCS] for the project within affected communities, before presenting the project for approval by IFC’s Board of Directors”.

In reviewing ACP’s consultation engagement, IFC noted broad national support for the project and the client’s ongoing engagement that seeks to reach out to all citizens and targets communities living within the Canal watershed. Broad national support was reached through the approval of the project via national referendum in October 2006. Six months prior to the national referendum, ACP implemented its Citizen Participation Plan/Program – which involved an extensive disclosure process. ACP set up 17 information centers, a free telephone line, made 2,088 informative presentations, distributed 820,000 copies of Canal expansion-related literature.<sup>25</sup>

As part of the environmental impact study in 2007, URS Holdings conducted a Citizen Participation Poll to measure public opinion in the following zones: Gatun; Urban-Pacific East; Urban-Pacific West; Urban-Atlantic and Trans-Isthmian Corridor. This poll revealed that 87% of people surveyed knew of the project and 77% had a favorable disposition to the project. Following the publication of the Environmental Impact Study in English and Spanish, ACP held public consultation forums at the Atlantic and Pacific sides of the Canal in August 2007. Further, the Citizen Participation Plan sets out ACP’s strategy for community engagement once the project commences – specifically, establishment of two community relation offices and ongoing disclosure of the project’s progress near work areas.

Environmental Resource Management (ERM), a third-party consultancy contacted by ACP to undertake E&S reviews of the expansion program, has affirmed that ACP has “continued effective implementation of the Citizen Participation Program, which includes informational programming by broadcast and print media, sharing of studies and technical information online, as well as large and small public meetings. Information on public opinion and suggestions from the public are sought through several types of community outreach. ACP continues to communicate with potentially affected communities by a variety of methods, which ERM has observed or seen documented”.<sup>26</sup>

From the documentation reviewed, CAO is unable to find evidence that IFC complied with its responsibility under the 2006 Sustainability Policy to “through its own investigation” adequately assure itself “that the client’s community engagement is one that involves free, prior, and informed consultation and enables the informed participation of the affected communities, leading to broad community support for the project within the affected communities” (Sustainability Policy 2006, para 20). In the ESRS and internal pre-Board documentation, IFC’s discussion of support for this project is focused on the national referendum with no reference to the verification of support from “communities who will most likely feel the direct impacts of the project” as indicated by the ESRP (3.5.1). This said, a review of the 2007 Citizen Participation Poll conducted on behalf of ACP, suggests that broad community support for this project among directly affected communities was present at the time of IFC’s investment.

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<sup>25</sup> See ACP Environmental Impact Study (2007) Chapter 8 for further details.

<sup>26</sup> ERM (October 2012) *Environmental and Social Monitoring Report Panama Canal Expansion Program – Third Set of Locks March 16, 2012, - September 15, 2012*

IFC's review considered the steps the client undertook pre-commitment in assuring itself that disclosure had occurred early in the Social and Environment Assessment. On-going disclosure has been reviewed by an independent expert, and found to be in compliance with IFC's requirements. In these circumstances, CAO is satisfied that IFC's review and supervision of the client's disclosure requirements is commensurate to projects risks and impacts.

The issue of disclosure of the real financial cost of the Panama Canal is not within the remit of the CAO.

f. Loss of land due to increase in water levels in Gatun Lake

CAO's Assessment report notes that some individuals are concerned that the increase in the operational level of the Gatun Lake will lead to owners losing up to 30 meters of land. Further, it is claimed that ACP has not provided appropriate compensation for these losses. Issues of the loss of crops and rights of way are mentioned in particular.

The IFC's requirements in terms of resettlement and land acquisition is set out in PS5. One of the objectives of PS 5 is "to mitigate adverse social and economic impacts from land acquisition or restrictions on affected persons' use of land by: (i) providing compensation for loss of assets at replacement cost; and (ii) ensuring that resettlement activities are implemented with appropriate disclosure of information, consultation, and the informed participation of those affected".

When displacement cannot be avoided, IFC reviews their client's assessment with regard to how they compensate displaced persons and communities for loss of assets at full replacement cost and other assistance to help them improve or at least restore their standards of living or livelihoods.

IFC's ESRS (2008) notes that the expansion plan envisages increasing the operational level of the lake by 0.45 meters while deepening and widening the operational channels which signifies technical maximum water level of the original 1914 design. While markings are affixed around the lake indicating the maximum water level, over the years people living around the lake have constructed buildings and otherwise used land beyond the demarcated high water mark. At IFC's appraisal, ACP expected the expansion to effect nine structures, with neither livelihoods nor crops being affected. "The main economic activities in the area include sport fishing and lake tourism". Further, ACP state that four duplex houses need to be removed for the construction of the third set of locks. ACP committed to providing compensation to the occupants of these houses.

Louis Berger's 2009 *Plan for the Social-Environmental Management of Lake Gatun* (which included a baseline study of expected impacts) identified 208 shoreline structures of which 163 were in active use. The loss of 40 of these structures was considered to have an economic impact due to their use for water access for a commercial reason. As reported by ACP to IFC, the other structures have no known owners or are private recreational structures that were installed based on original agreements with ACP, which allowed their installation only under the condition that the owners be responsible for moving them. With reference to crops and plantations, the baseline study identified a limited number that are expected to be affected by the rise in the operational level of the lake, however, concluded that most crops and plantations are located above the new maximum operational level which is expected to be in operation in 2014.

In IFC's supervision, as reviewed by ERM (ACP's E&S monitoring consultant), to date ACP has addressed or is addressing four instances of physical displacement.

1. Resettlement in the small Gatun Town community, which was complete prior to the start of the expansion program
2. Minor impact to one structure and related crops in the Loma Borracho hamlet
3. Resettlement of four isolated households which would be affected by the raising of the water level
4. Of the 208 structures located in lakeside settlements or in the Barro Colorado Island facility affected by the raising of the water; 66 structures are subject to replacement or repair. Of the remaining structures; 42 houses are reported to be abandoned and 100 structures are not subject to any modification or replacement since their conditions is not considered to affect the livelihoods of residents.

The documentation reviewed by CAO shows that ACP commissioned a detailed baseline study of the expected affects on structures by the rise in the operational level of Gatun Lake. As reviewed by an independent consultant (ERM), following on from the baseline study ACP has engaged in a structured approach to relocate, mitigate and/or compensate, where considered appropriate, persons whose structures are expected to be affected. While the baseline identified a number of crops and plantations that are expected to be affected, it is unclear to CAO if IFC has adequately assured itself that ACP has a structured approach to compensate those persons to be affected.

As per Performance Standard 5, ACP is required to engage affected persons and communities throughout the implementation of the project and establish a grievance mechanism to "receive and address specific concerns about compensation and relocation that are raised by displaced persons or member of host communities, including a recourse mechanism designed to resolve disputes in an impartial manner". As confirmed in ERM's March 2013 monitoring report, ACP distributes fliers and brochures to homes, businesses and other institutions adjacent to the expansion works detailing schedules for blasting and major construction activities. ACP continues to hold small and large community meetings, and conducts in-home visits with affected communities. ACP maintains a free toll free telephone line and e-mail account to receive complaints. ACP directly tracks questions and complaints received through these channels and a log is maintained for all responses. The grievance mechanism is disclosed through fliers and at community meetings. Further, ACP requires their contractors to maintain a "Community Relations Office, a telephone call line to receive community complaints, and a log describing community calls, particularly complaints. The call numbers for complaints are announced to the public by means of fliers that are regularly distributed to the community and posted in public places in the relevant communities"<sup>27</sup>. In summary, ERM considers the grievance mechanism to be functioning well and aligned to the requirements of the Performance Standards.

While ACP continues to actively engage with communities adjacent to construction sites, and operates a grievance mechanism that deals with project related impacts, raising the operational level of Gatun Lake in 2014 presents a different challenge in terms of consultation and handling complaints, particular in consideration of the increased number of individuals who may be affected. Detailed consideration of the land related impacts of raising the operational water level is evident in the studies that were conducted as part of the client's *Plan for the Social-Environmental Management of Lake Gatun*. The client's approach to these issues appears to have focused on compensation for private structures impacted by the increase in water level. In addition, CAO has

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<sup>27</sup> ERM (April 2013) Environmental and Social Monitoring Report of ACP

reviewed evidence that the client considered and identified crops and plantations that were expected to be impacted by the rise. However, it is unclear to CAO that IFC assured itself that compensation for lost crops and agricultural land was included in the client's compensation framework. Further, it is noted that a systematic assessment of the impacts of the increase in water level on rural roads and rights of way used by people living around Gatun Lake was not evident in the documentation reviewed.

## 5. CAO Decision

The decision about whether CAO should initiate a Compliance Investigation requires the weighing of a number of factors including the likely social and environmental impact of a project, a preliminary Appraisal of IFC's E&S performance, as well as a more general assessment of whether there is an argument for the value of a Compliance Investigation for project-related or systemic reasons.

Having considered the complaint and conducted a review of documentation related to the investment, CAO finds that the identification and management of environmental and social risks and impacts around this project has generally been commensurate to its risks and impacts. Nevertheless, CAO has identified some questions on specific issues, in particular: (a) whether IFC adequately assured itself that salinity levels at Gatun Lake would remain below the fresh water limit given the information available at the time of appraisal; (b) upon the update of the salinity studies post commitment, whether IFC adequately assured itself that salinity levels at the Paraiso water intake station near the Pacific locks would remain below the fresh water limit; (c) whether IFC adequately reviewed the availability of water for canal operations in the medium to long term; (d) whether IFC adequately assured itself that ACP responded to the land related impacts of the rise in water level of Gatun Lake in accordance with the Performance Standards; and (e) whether IFC adequately assured itself of support for the project among directly impacted communities.

These issues notwithstanding CAO decides to close this case at appraisal. This decision has been reached on the basis that: (a) the client has a well developed E&S management and monitoring systems; (b) the issues of concern relate significantly to future risks which may or may not eventuate; (c) these risks (should they manifest) could appropriately be addressed during supervision; and (d) IFC has undertaken to monitor these risks in supervision. In these circumstances CAO finds limited value in conducting a compliance investigation.