



### Joint Response of IDB-IIC Management to Request MICI-BID-CH-2017-0115 referring to the Alto Maipo Hydroelectric Project

#### 1 The Alto Maipo Project

- 1.1 The Alto Maipo Hydroelectric Project ("PHAM" or "the project"), located approximately 50 km east of Santiago, Chile, consists of the construction and operation of two run-of-the-river hydroelectric plants<sup>1</sup> in hydraulic series with a combined capacity of 531 MW (The Alfalfal II Plant, with 264 MW, and Las Lajas, with 267 MW). For the operation of these two plants, the project will capture water from four estuary tributaries of the Volcán River, and others of the Yeso River, the Aucayes Stream, and the Colorado River.
- 1.2 Most (90%) of the construction works planned are underground, including the two engine rooms. The project's development will also require the construction of approximately 67 km of tunnels, four inverted siphons to cross streams, two surge tanks<sup>2</sup> (forebays), and a number of associated facilities that include approximately 31 km of new access roads, four new bridges, 17 km of new transmission lines (110/220 kV), improvements to existing highways and electrical substations, water intakes, conveyance ditches, temporary camps, and storage areas, among other things. The project does not require any dams or regulating reservoirs.
- 1.3 Given its features, and in keeping with Environment and Safeguards Compliance Policy (OP-703) of the Inter-American Development Bank ("the Bank" or "the IDB"), the operation was classified as Category "A." Nevertheless, the project has a number of positive environmental and social aspects, including:
  - a) Annual production of some 2,300 GWh of renewable energy that will be injected into the Chilean network through the Central Interconnected System (SIC).
  - b) The project requires no dams or new reservoirs.
  - c) 90% of the project's construction works are underground.
  - d) The construction and subsequent operation of the PHAM does not require the physical resettlement of persons.
  - e) The project does not directly or indirectly affect any indigenous community.
  - f) Because it does not require a regulating reservoir, the project will not cause habitat loss due to flooding.
  - g) During construction, the project will create approximately 2,500 new jobs (including local jobs).
  - h) The project will displace nearly one million tons of CO<sub>2</sub> every year that would have been produced by the generation of the same amount of energy in thermal power plants.

<sup>&</sup>lt;sup>1</sup> A "run-of-the-river" hydroelectric power plant is defined as one that has no associated reservoir to regulate the incoming water volume.

<sup>&</sup>lt;sup>2</sup> Covering 0.25 and 7.5 hectares of surface area, respectively.





1.4 The project, under construction since 2012, is overseen by a redundant system of internal and external authorities. The internal authorities consist of the environmental and social teams of each principal contractor (Strabag and CNM<sup>3</sup>), the Technical Works Inspection (ITO) and the PHAM. The external supervision authorities are: (i) the Superintendency of the Environment (SMA); (ii) the different sectoral offices with jurisdiction over environmental, health, labor, natural resources, and public infrastructure matters, such as: the Regional Office of the Ministry of Health (SEREMI de Salud); the National Forestry Corporation (CONAF); the Agricultural and Livestock Service (SAG); the National Monuments Council (CMN); the Labor Inspectorate; the Regional Office of the Ministry of Transportation (SEREMI de Transporte), the Water Bureau (DGA), the Hydraulic Works Department (DOH), and others; (iii) the independent environmental audit; and (iv) the lenders' environmental and social teams,<sup>4</sup> supervising directly and through the firm Environmental Resource Management (ERM), which serves as an Independent Environmental and Social Consultant (CASI).

### 2 Request

- 2.1 In September 2015, Tomás González and Marcela Mella, representatives of the *Coordinadora Ciudadana No Alto Maipo* [No to Alto Maipo Coordinating Committee] ("The Coordinating Committee"), and Juan Pablo Orrego, the President of Ecosistemas and Director of International Rivers, were received at the Bank's Headquarters to present the following concerns to Management:
  - a) Possible acceleration of glacier melt as a result of the project.
  - b) Exacerbation of desertification processes in the mountains as a result of the project.
  - c) Potential effects of climate change on the PHAM.
  - d) Potential effects of the PHAM on water rights.
  - e) Potential effects of the PHAM on sedimentation and erosion processes downstream from the discharge.
  - f) Potential effects of the PHAM on underground water flows.
  - g) Location of the project in an area designated as an area of touristic interest that has a Natural Monument (1994), two Nature Sanctuaries (1995 and 2008) and other smaller protected areas.
  - h) An increase in the number of vehicles on local roads during construction and the potential increased accident risk.
- 2.2 At that meeting, Management provided the visitors with an explanation of each of the abovementioned points,<sup>5</sup> supported by technical documents prepared by consultants with recognized competence in their areas of expertise.<sup>6</sup> For the remainder of 2015 and throughout

<sup>&</sup>lt;sup>3</sup> The Nuevo Maipo Construction Consortium, or CNM, consists of the firms Hochtief (Germany) and CMC di Ravenna (Italy).

<sup>&</sup>lt;sup>4</sup> The Lenders" include: i) The Inter-American Development Bank Group (IDB Group); ii) the International Finance Corporation (IFC); the Overseas Private Investment Corporation (OPIC); Corpbanca; Banco de Crédito e Inversiones; Banco Itaú Chile; Banco del Estado de Chile; KfW Ipex-Bank GmbH, and DNB Bank ASA.

<sup>5</sup> See

<sup>&</sup>lt;sup>6</sup> Universidad y Tecnología – Fundación para la Transferencia Tecnológica -UNTEC (<u>http://www.untec.cl/</u>); ARCADIS (<u>https://www.arcadis.com/en/global/</u>); and Centro de Ecología Aplicada Ltda. (<u>http://www.cea.cl/</u>), among others.





**2016, the Requesters made no additional contact with IDB Management, nor did they make any formal or informal request for clarification about the abovementioned points.** In this regard, it is clear to Management that the Requesters failed to exhaust efforts to "address the issues with Management," or describe in their request "the results of those efforts."<sup>7</sup>

- 2.3 On January 6, 2017, Management received a request via email signed by Juan Pablo Orrego, stating that he and Marcela Mella would be visiting Washington, D.C. from January 23-27, 2017 in their capacity as representatives of the Coordinating Committee, to formally present a complaint before the IDB Group's Independent Consultation and Investigation Mechanism (MICI) and the Office of the Compliance Advisor Ombudsman (CAO)<sup>8</sup> of the International Finance Corporation (IFC), regarding the "irregularities and shortcomings in the project's assessment and in the authorization process, as well as various problems and impacts reportedly caused by the construction of the PHAM, specifically as a result of its inadequate assessment and the political manner in which the authorization was handled." In this communication, they also requested a meeting to "once again discuss these matters and provide an update on the status of the dispute."<sup>9</sup>
- 2.4 On January 26, IDB Management and the Management of the Inter-American Investment Corporation (the "IIC" or the "Corporation") met with Pablo Orrego and Marcela Mella, who were accompanied by Kelsey Alford-Jones and Carla García Zendejas of the Center for International Environmental Law (CIEL).<sup>10</sup>
- 2.5 On February 13, 2017, the MICI notified IDB and IIC Management of the registration of Request MICI-BID-CH-2017-0115 in reference to the Alto Maipo Hydroelectric Project, filed by representatives of the Coordinating Committee and the non-governmental organization ECOSISTEMAS. The most important allegations presented in that Request, which are different from the concerns shared with Management in September 2015,<sup>11</sup> include the following:
  - a) The following shortcomings were evident in the project planning: (i) there was no analysis of the potential hydrogeological impact that the construction of the tunnels; (ii) no water quality baseline was established prior to the construction phase; (iii) the project failed to identify the habitats of species such as the torrent duck (*Merganetta armata*) in the area of the Volcán River and the condor (*Vulgur gryphus*) on the Colorado River; (iv) important social, economic, and cultural impacts, as well as impacts on the area's archaeological and paleontological heritage were not properly assessed; (v) no timely and appropriate consultation was conducted, let alone a real process of dissemination at the time the project was going to be built; (vi) the "no project" alternative was not assessed, and (vii) there was no cost/benefit analysis of the project.
  - b) The PHAM has caused native trees to be cut down in unassessed areas.

<sup>&</sup>lt;sup>7</sup> Para. 14(g) of the MICI Policy.

<sup>&</sup>lt;sup>8</sup> Compliance Advisor Ombudsman.

<sup>&</sup>lt;sup>9</sup> See copy of the email at:

<sup>&</sup>lt;sup>10</sup> Center for International Environmental Law.

<sup>&</sup>lt;sup>11</sup> See detail in para. 2.1.





- c) To date, there have been significant and successive changes in the engineering of the project from the time its Environmental Classification Resolution (ECR)<sup>12</sup> was obtained to the present, including: (i) new construction sites and locations, lack of permits for the new construction works; (ii) changes to the tunnel construction methods and the management of contaminated water; and (iii) effect on fertile plains and high altitude wetlands, especially in Valle de la Engorda, El Yeso, and Aucayes.
- d) The transport and storage of explosives in an irregular manner and at all hours.
- e) The PHAM is contaminating the water with heavy metals.
- f) The PHAM lacks adequate supervision. In addition, the community has not been informed of the results of supervision processes, if any have been carried out.
- g) The working conditions on the PHAM are inadequate because: (i) there have been five different strikes involving the principal contractors; (ii) personnel have been dismissed; (iii) there have been workplace accidents during the construction of the project, and (iv) the PHAM has engaged in anti-union practices.
- h) Project information is scant, and the information that is available is not easily accessible.
- i) The project is causing noise and vibrations from tractor-trailer and heavy construction vehicle traffic along the sole access route, sometimes outside authorized times.
- j) The PHAM is altering the macro balance of the basin, jeopardizing sources of employment related to agriculture and the extraction of sand and gravel from the river.
- k) The PHAM is offsetting environmental harm with non-environmental measures like the creation of a competitive fund.

### 3 Management's position with respect to the allegations of the Requesters

- 3.1 Before examining the allegations set forth by the Requesters, Management wishes to address the work that has been undertaken through the IDB Country Office in Santiago, Chile to build relationships with civil society<sup>13</sup> in connection with the PHAM. This work included holding three informational sessions about the project: (i) one prior to its approval, at which observations about the PHAM were offered by the participating civil society organizations; (ii) a second one, at which a more detailed explanation of the project's technical aspects was provided, and (iii) one in 2016, which reported on the status of the application of the pertinent environmental and social safeguards.
- 3.2 Management wishes to clarify that the Request combines two types of allegations: (i) a first set, which calls into question compliance with the applicable environmental and social policies, and therefore may be subject to examination by the MICI; and (ii) a second set, which is related to the internal discussions that have taken place in Chile with respect to the project, and that are outside the purview of the Bank, the Corporation, and therefore, the MICI. With regard to the first set of allegations, Management wishes to underscore the following:

### a) The PHAM has no effect on the glacier melting process

<sup>&</sup>lt;sup>12</sup> The ECR is the equivalent of an environmental license.

<sup>&</sup>lt;sup>13</sup> Through the Civil Society Advisory Council (CASC or CONSOC). See list of member organizations at (





The PHAM does not affect any glaciers, as the project's construction works are primarily underground and its tunnels have an average depth of 800 meters. Although the tunnels pass underneath some glaciers, they are not affected by the project at any phase of its execution. The point at which the project comes closest to any glaciers is in the area of El Volcán, where construction is several kilometers away from the entrances and the project works are 660 meters below the ice masses.

The analyses included in the project's EIA<sup>14</sup> conclude that the PHAM has zero impact on the melting of the El Morado and San Francisco Glaciers, as the glacial retreat is due to external and regional processes.<sup>15</sup> The EIA also states that, given the distance between the tunnel excavation activities and the glaciers in question, the vibration produced by the construction work will not be detected on the surface.

The El Volcán tunnel, as established in the ECR,<sup>16</sup> is being built from the entranceway (abscissa 0+000) to abscissa 4+200, by drill and blast method. In the stretch<sup>17</sup> from abscissa 4+200 to 7+800, which is the section just below the El Morado Monument, it will use a TBM,<sup>18</sup> and from that point to the tunnel's exit, it will be done with a TBM or by drill and blast. One of the reasons for using a TBM in the section immediately below the El Morado Glacier was precisely to avoid the vibrations that would be produced by using the drill and blast technique.

The PHAM, bearing in mind the provisions of the ECR,<sup>19</sup> has made an initial effort to measure vibrations<sup>20</sup> through three triaxial geophones installed inside the El Volcán tunnel, and one on solid rock at the surface on a vertical line some 150 meters from the tunnel and 300-400 meters from the facades where drill and blast methods were used. The results of these efforts confirm that the vibrations produced by the tunnel construction activities are practically imperceptible at distances greater than 500 meters from the detonation point, and that their impact "would be equivalent to minor knocking on the walls of a residential structure, without any associated harm."<sup>21</sup>

## b) The PHAM is not responsible for the desertification processes taking place in central Chile

<sup>&</sup>lt;sup>14</sup> Approved by the Regional Environmental Commission of the Santiago metropolitan region through Environmental Classification Resolution (ECR) No.259/09 of March 30, 2009 (see

<sup>&</sup>lt;sup>15</sup> <u>http://www.bbc.com/mundo/noticias/2013/01/130123 glaciares andes derretimiento estudio aw;</u> <u>http://www.iai.int/?p=4988;</u> <u>http://www.upla.cl/noticias/2014/07/09/efecto-del-derretimiento-de-los-glaciares-en-fiordos-chilenos/; http://www.excelsior.com.mx/2012/01/07/global/799962.</u>

<sup>&</sup>lt;sup>16</sup> Section 4.4.1.2, Title "Construction Method and Drilling System."

<sup>&</sup>lt;sup>17</sup> Planned for 2018.

<sup>&</sup>lt;sup>18</sup> Tunnel boring machine.

<sup>&</sup>lt;sup>19</sup> See sections 7.3.5 and 8.3.

<sup>&</sup>lt;sup>20</sup> Vibration Monitoring Stage I El Volcán Tunnel.

<sup>&</sup>lt;sup>21</sup> Ibid.





As indicated by technicians from the Pontifical Catholic University of Chile (PUC),<sup>22</sup> the desertification processes in the project area are due to three clearly distinguishable phenomena: deforestation, soil mismanagement, and decreased rainfall resulting from climate change.

The PHAM has not exacerbated any of these factors, inasmuch as: (i) although the project provides for the localized removal of some tree specimens, it also includes a reforestation plan;<sup>23</sup> (ii) most of the project's construction works are underground, so its visible footprint is very small; and (iii) the project's influence on climate change is actually positive because it will eliminate the release of approximately one million tons of  $CO_2$  per year into the atmosphere compared to the generation of the same amount of energy from nonrenewable sources.

### c) The potential effects of climate change on the PHAM have been previously evaluated

The EIA that was prepared in 2008 did not include an assessment of the impact of climate change on water flows in the project's area of influence. However, a study<sup>24</sup> prepared subsequently by the Foundation for Technology Transfer (UNTEC) concluded as follows: (i) in the most unfavorable scenario, it is possible that the average annual flow could decrease 3% to 8% from current levels; (ii) the glacier melt that will probably take place in the area as a result of climate change will increase the surface run-off so as to counteract any decrease in flow rates even in the most unfavorable scenario; and (iii) projected water flows even after climate change variables have been accounted for will be sufficient to guarantee all currently existing water rights. The operation of the project will have to be adjusted for those changes, ensuring at all times that the pre-established environmental flow rates are respected at each intake point.

## d) The PHAM does not jeopardize current water rights or the water supply of the city of Santiago

During the assessment of the PHAM, and at the lenders' request, an updated and expanded evaluation was performed to examine the potential adverse impact of the project on third party water rights, which included a more detailed identification of water uses and users in the river basin.<sup>25</sup> This evaluation verified that even at the PHAM's highest demand times, the projected flow downstream of each one of the project's intake points will be greater than the sum of the legally authorized flow rates in view of current water rights. Therefore, the project will not affect existing water rights.

<sup>&</sup>lt;sup>22</sup> <u>http://www.elmostrador.cl/noticias/pais/2015/07/27/el-desierto-avanza-silenciosamente-sobre-santiago/</u>

<sup>&</sup>lt;sup>23</sup> See: section 7.2.1 of the ECR; para. 6.1 of the Environmental and Social Management Report – ESMR (<u>http://www.iadb.org/es/proyectos/project-information-page,1303.html?id=CH-L1067</u>).

<sup>&</sup>lt;sup>24</sup> Cambio Climático y su Impacto en la Disponibilidad de Recursos Hídricos del Proyecto Alto Maipo (2013) http://www.iadb.org/Document.cfm?id=37958008.

<sup>&</sup>lt;sup>25</sup> Identificación y Evaluación de Impactos Potenciales Sobre Usos y Usuarios del Agua, prepared by the firm ARCADIS. See: <u>http://www.iadb.org/Document.cfm?id=38156586</u>.





The PHAM presents no threat to Santiago's water supply because, as a run-of-the-river power plant, it has no regulation dams and will not consume water. All of the water that will be used to generate power will be returned to the Maipo River at a point located 5.9 km upstream of the capture point of the Aguas Andinas (AA) potable water processing plant, which supplies water to the Santiago Metropolitan Region. In addition to the water supplied from the Maipo River, Santiago also gets water from the Negra and Lo Encañado Lagoons. That water is captured directly by AA and carried through an aqueduct that is unrelated and unconnected to the PHAM.

### e) The PHAM will not have significant adverse effects on the riverbed downstream from the site where the water is returned after passing through the turbines

During the assessment of the project, the lenders commissioned the firm ARCADIS to conduct a study to estimate the potential adverse impact that the turbinated water from the PHAM could have downstream from its point of return to the Maipo River.<sup>26</sup> This study concluded that significant adverse impacts were not expected in the critical zone (consisting of the first 5 km downstream from the return point).<sup>27</sup> Nevertheless, the Sediment Monitoring Program adopted by the PHAM will perform a follow-up on the hydraulic profiles of the river downstream from the discharge point, and will activate control measures when variations in the cross-sections of the river indicate the appearance of sedimentation or erosion processes different from those created by the river's own dynamic. These measures, which among other things are designed to guarantee the integrity of the intake and drainage structures for the authorized water uses, including the construction of protective blocks and the placement of stabilizing elements along the riverbanks (tetrapods and gabions).

#### f) The PHAM will not affect the availability of groundwater in the area

The project's EIA, which assessed the potential effects of the PHAM on groundwater, concludes that: (i) the transport capacity of each sector of the aquifer associated with the Maipo River is much less than the minimum flows that would travel through any section of the river; (ii) the aquifers will maintain their saturation condition; (iii) the reduction of water flows during the operating phase of the project will not negatively affect local aquifers; and (iv) no adverse impacts are expected on the extraction of water from private wells operating in the area.

The PHAM has additionally implemented a surface water monitoring system based on test wells located upstream and downstream from the *Sitios de Acopio de Marinas* (SAM). The results to date—while not representative over time because they pertain to

<sup>&</sup>lt;sup>26</sup> Identificación y Evaluación de Impactos Potenciales en los Sedimentos, prepared by the firm ARCADIS. See: <a href="http://www.iadb.org/Document.cfm?id=38151167">http://www.iadb.org/Document.cfm?id=38151167</a>.

<sup>&</sup>lt;sup>27</sup> This assertion has also been confirmed by the Advanced Sediment Transport Study required for the Environmental Classification Resolution (ECR), which has been presented to the Hydraulic Works Department (DOH) and is pending approval.





groundwater that travels at very low speeds—have not detected any change in the usual water table levels. The project will continue to monitor this aspect in keeping with the approved Environmental and Social Management Plan.

# g) The environmental, social, and occupational safety management system (ESOSMS) adopted by the PHAM is sufficiently effective to detect and correct instances of noncompliance with management plans during the construction phase of the project

The ESOSMS adopted by the project, which is composed of the different internal and external oversight authorities mentioned earlier,<sup>28</sup> has been able to adequately and timely identify and correct deviations from the management plans for the construction phase of the project, and to identify and handle unforeseen situations, such as: (i) the filtration of water into the tunnels at real flow rates higher than anticipated, leading to the installation of two water treatment plants in addition to the two already planned; (ii) the installation of redundant control wells downstream and upstream from the SAMs to better monitor subsurface flows; (iii) the creation, with excellent results, of an entire system of penalties and incentives to control the project's vehicle traffic (and speeds), and (iv) the adoption of a wildlife monitoring system, which has made it possible to document and manage previously unidentified species.

### h) The PHAM's negative impact on tourism will be extremely low

During the project's preparation process, the lenders requested additional assessments of its potential impacts on protected areas<sup>29</sup> and on the minimum flow rates<sup>30</sup> to be maintained downstream from the project's water intake works in order to ensure the preservation of the ecological functions of the rivers and their potential uses, including recreational uses.

These studies conclude that: (i) because most of the project's construction works are underground, the PHAM is unlikely to adversely affect the Cajón del Maipo as a tourist attraction, as its surface footprint will be very small; and (ii) the anticipated minimum flows downstream from the project's water intake points are sufficient to preserve the ecological integrity of the bodies of water and levels of water required for recreational boating (rafting), although they could diminish the "recreational experience" during a few critical months of the year.

In December 2016, at the request of the lenders, the PHAM commissioned the firm ERM to perform a Recreational Boating Study on the rivers affected by the project.<sup>31</sup> The preliminary findings of this study (supported by field observations and measurements) indicate that: (i) the preferred range for recreational boating, conducted only on a delimited section of the Maipo River, is between 70 m<sup>3</sup>/s and 150

<sup>&</sup>lt;sup>28</sup> See para. 1.4.

<sup>&</sup>lt;sup>29</sup> See: <u>http://www.iadb.org/Document.cfm?id=38162105</u>.

<sup>&</sup>lt;sup>30</sup> See: <u>http://www.iadb.org/Document.cfm?id=38040835</u>.

<sup>&</sup>lt;sup>31</sup> Whitewater Recreational Boating Study (





 $m^3/s$ , observed at the San Alfonso hydrometric station; (ii) the minimum volume required<sup>32</sup> for adventure boating is around 20  $m^3/s$  to 25  $m^3/s$ ; (iii) on the lower reaches of the Maipo, during wet and average years, the changes in flow rates owing to the project will not affect the number of days on which rafting can be enjoyed; (iv) in dry years, the number of rafting days on the lower reaches of the Maipo will decrease by 6%<sup>33</sup>; (v) there are almost no current recreational uses of the Volcán and Yeso Rivers, and the few that exist are limited solely to expert kayakers; (vi) the recreational uses of the Colorado River are also close to zero, given its difficult access and the fact that the rapids are considered very dangerous; (vii) no recreational uses have been documented on the upper reaches of the Maipo River because its rapids are considered dangerous, and (ix) the effects of the project in the middle reaches of the Maipo River are negligible, given that this section of the river is only used by skilled kayakers.

An adaptive management method will be used during the project's operation, including, if necessary, additional flow releases in order to guarantee the recreational uses of the rivers.

### i) The project's preparation process included a cost/benefit analysis<sup>34</sup>

In keeping with the provisions of the Bank's Public Utility Policy (OP-708) for nonsovereign guaranteed projects (private projects), the project preparation process included a cost/benefit analysis. This study was performed for two anticipated demand scenarios: The Baseline Case and Scenario 2, which were the ones agreed to with the lenders for the private assessment of the project. Both cases considered an interconnection between the Central Interconnected System (SIC) and the Norte Grande Interconnected System (SING) in 2019.

The results for the Baseline Case yielded an internal rate of return (IRR) of 9.7%. For Scenario 2, the calculated IRR is 9.2%. Both cases used a discount rate of 12% even though the rate determined by the government at that time was 6%.<sup>35</sup> The study concludes that, according to the analysis performed, the project is considered "acceptable."

The study additionally states that the results obtained do not take account of the annual benefits of not producing greenhouse gases. In this regard, taking a reference

<sup>&</sup>lt;sup>32</sup> Volumes above 150 m<sup>3</sup>/s make activity dangerous, and flows below 20 m<sup>3</sup>/s cause rafts to constantly run aground.

<sup>&</sup>lt;sup>33</sup> This situation has caused a change in the operating parameters to which the project will be adapted, so that in dry years and during daylight hours, the minimum flows will be sufficient to ensure a minimum volume of 25 m<sup>3</sup>/s in this section. At night, greater volumes can be diverted toward the project provided that the appropriate environmental volumes are guaranteed.

<sup>&</sup>lt;sup>34</sup> This analysis, prepared by SYNEX, is included as Annex G-DEM to the loan proposal. This document is confidential under the Bank's Access to Information Policy OP-102, given that it concerns "information relating to non-sovereign guaranteed operations" (section 4.1 j.) as well as "information provided in confidence [...] and business/financial information" (section 4.1 e.).

<sup>&</sup>lt;sup>35</sup> See: (http://sni.ministeriodesarrollosocial.gob.cl/postulacion links/78 precios sociales nip 2013.pdf).





price of US\$ 23.88 per ton of  $CO_2$  and a discount rate of 12%, the net present value (to 2008) would be about US\$ 261 million. If the discount rate used for the analysis is 6% (rate suggested by the government at that time), the present net value would reach US\$ 512 million.

- 3.3 Management notes that, in addition to the points raised<sup>36</sup> at the September 2015 meeting, the Request contains totally new concerns<sup>37</sup> that have not previously been brought to its attention and that are related to impacts or situations that have arisen during the construction phase of the project. With regard to these additional points, Management wishes to state that:
  - a) The wall built around the town of Alfalfal was the result of two factors: (i) it is a requirement of the ECR;<sup>38</sup> and (ii) the community expressly requested it.<sup>39</sup> The wall is temporary, and will be removed after construction of the water intake works is completed. In addition, none of the community's access points have been blocked as a result of the wall. Management will verify on its next visit whether the wall in question is creating other kinds of impacts on the community, and if so, how they should be mitigated or offset.
  - b) The traffic problem created by the project has been brought under control<sup>40</sup> (speed and circulation times), thanks to the implementation of a Traffic Safety and Signage Plan<sup>41</sup> that includes the following aspects: (i) placement of traffic signs along the roads used by the PHAM; (ii) installation of two traffic lights at critical points along the route; and (iii) implementation of ongoing campaigns to control the vehicular traffic associated with the project.<sup>42</sup> The implementation of this plan has resulted in a substantial drop in the number of speeding violations involving project vehicles, a decrease in the amount of speed over the established limit, and a marked decline in the number of repeat offenders. Nevertheless, given that the PHAM has no influence over them, vehicles not associated with the project<sup>43</sup> continue to be observed traveling at average speeds over the limits.
  - c) The supervision conducted by the respective authorities has not documented any pollution of the Aucayes Estuary by explosives.<sup>44</sup>

<sup>&</sup>lt;sup>36</sup> See detail in para. 2.1 of this document.

<sup>&</sup>lt;sup>37</sup> See detail in para. 2.6 of this document.

<sup>&</sup>lt;sup>38</sup> See sections 7.1.2; 7.1.2.1, and 7.1.2.8 of the ECR

<sup>&</sup>lt;sup>39</sup> See Record of Request (

<sup>&</sup>lt;sup>40</sup> See Environmental Supervision Report 2016-12-09 (Construction); Alto Maipo -2Q2016 Environmental and Social Consultant Monitoring Report – ERM (Construction). These documents are confidential under the Bank's Access to Information Policy OP-102, given that it concerns "information relating to non-sovereign guaranteed operations" (section 4.1 j.) as well as "information provided in confidence [...] and business/financial information" (section 4.1 e.).

<sup>&</sup>lt;sup>41</sup> See ESRM para.6.19.

<sup>&</sup>lt;sup>42</sup> See Environmental Supervision Report 2016-12-09

<sup>&</sup>lt;sup>43</sup> Under Chilean law, the Chilean Police Force [*Cuerpo de Carabineros*] is responsible for managing and controlling vehicular traffic on non-urban public roads.

<sup>&</sup>lt;sup>44</sup> See SMA charges against Alto Maipo () describing the instances of noncompliance documented by the agency since 2014.





- d) The PHAM maintains high safety standards on all fronts of its work. Employees have "Stop Work Authority,"<sup>45</sup> which can be invoked when they believe that safety conditions on their job sites are inadequate. While there may have been circumstances in which employees had to work in waist-deep water, these were unforeseen and short-term situations where they had to deal with sudden water filtration. Once the situation was under control, working conditions went back to normal. The strikes that have taken place have been mainly in connection with labor demands (wages and compensation).
- e) PHAM contractors are constantly monitored by the pertinent labor authorities who, among other things, verify compliance with labor laws.<sup>46</sup>
- 3.4 In view of the foregoing, and bearing in mind that: (i) one of the objectives of the MICI is to "be a last-resort mechanism for addressing the concerns of Requesters, after reasonable attempts to bring such allegations to the attention of Management have been made;"<sup>47</sup> and (ii) that the Request neither "describes the efforts that the Requesters have made to address the issues in the Request with Management" nor "includes a description of the results of those efforts, or an explanation of why contacting Management was not possible,"<sup>48</sup> Management considers that, at this stage:
  - i) The MICI should not declare the Request eligible with respect to the concerns that have not been previously brought to Management's attention, and the Requesters should first direct those concerns to Management to be addressed; and
  - ii) Given that Management provided the Requesters with explanations regarding the concerns they raised at the September 2015 meeting, and that the Requesters demonstrated no interest during the 15 months following that meeting in approaching the Bank's technical team in order to expand upon, discuss, or refute the explanations they were given, Management considers that the Requesters failed to make "reasonable attempts to bring [the allegations made in September 2015] to the attention of Management."<sup>49</sup>

#### 4 Issues raised in the Request that are under arbitral or judicial review in Chile

4.1 According to information obtained from the Chilean Judiciary and provided by the Client, there are a number of pending legal actions that have been filed by individual members of the Coordinating Committee against Alto Maipo. There is also a pending legal action that was filed by the project against Dr. Andrei Tchernitchin,<sup>50</sup> as well as a resolution by the Superintendency

<sup>&</sup>lt;sup>45</sup> Stop Work Authority or "SWA."

<sup>&</sup>lt;sup>46</sup> See Environmental Supervision Report 2016-06-30

<sup>&</sup>lt;sup>47</sup> MICI Policy, para. 5.c.

<sup>&</sup>lt;sup>48</sup> MICI Policy, para. 22.d.

<sup>&</sup>lt;sup>49</sup> MICI Policy, para. 5.c.

<sup>&</sup>lt;sup>50</sup> A study carried out by Dr. Andrei Tchernitchin affirmed that the PHAM is contaminating the water with heavy metals. The project contracted the services of Ms. Laura Bröguel to review Dr. Tchernitchin's studies. Those studies concluded that the presence of heavy metal in the water was naturally occurring in the basin, and not due to the PHAM. These arguments





of the Environment against Alto Maipo<sup>51</sup> for alleged instances of noncompliance that were reportedly confirmed in 2014-2016 through routine oversight visits. A summary of all of these cases is attached in Table No.1.

- 4.2 Management wishes to underscore that several of the issues being litigated in the Chilean courts are directly related to some of the allegations set for by the Requesters. Therefore, it considers that those issues should not be eligible, according to paragraphs 19 EXCLUSIONS and 20 REGISTRY OF REQUESTS, clause (b)(iii), of the MICI Policy.
- 4.3 Management remains at the disposal of the MICI to provide clarification regarding any of the issues mentioned herein.

were submitted to the SMA which, in Resolution No. 2889, paragraph 85, concluded that, "According to the investigation undertaken by this service [SMA], as described in the above sections, to date, there is no evidence to establish a causal relationship between the Alto Maipo Hydroelectric Project and effects on the water quality in the area." See:

<sup>51</sup> Resolution EX. No./ ROL 0-001-2017 Superintendency of the Environment





### Table No.1. Summary of Open Court Cases Related to the Request

Case / Court	Plaintiff / Respondent	Summary of the Complaint	Status	Similar Allegations Contained in the Request to the MICI
Case 2.456-2014 28 <sup>th</sup> Civil Court of Santiago: Motion to Nullify Resolution No. 2060 of the Water Bureau (DGA), which approved the Hydraulic Works of the Alto Maipo Hydroelectric Project	Sara Larraín <sup>52</sup> and <i>Instituto</i> <i>Rio Colorado</i> v. the DGA	<ul> <li>Resolution No. 2860 (the "resolution") is the culmination of a proceeding in which various provisions of public and constitutional law were violated:</li> <li>The requests of AES Gener do not meet the requirements of Article 122 of the Chilean Water Code (such as the registration of rights in the Public Water Registry), and violates the constitutional and water use rights of the claimants; therefore, the proceeding and resolution should be nullified.</li> <li>If the resolution is not nullified, the harm suffered by the complainants will be irreparable because the water available to satisfy their rights will decrease, given that the change from natural to manmade canals will alter the balance of the river's volume.</li> <li>The tunnels to be built will have an impact on the sources of the Maipo River.</li> <li>The level of available water will decrease notably due to the construction works will cause.</li> <li>The level of available water will decrease notably due to the construction works will additionally harm local flora and fauna.</li> <li>The decrease in water resources will also have an impact on the environmental subsistence of the Maipo area, which is essential to the city of Santiago.</li> </ul>	The evidentiary phase of the proceeding has concluded. On December 30, 2015, Sara Larraín requested a hearing to present and identify a number of documents related to water rights in Alto Maipo. On November 29, 2016, Gener objected to some of the documents presented by the plaintiffs and submitted a list of witnesses for the evidentiary period in relation to this objection. On January 18, 2017, the court granted Sara Larraín authorization to gather information from the Public Water Registry. On January 24, 2017, the DGA presented witness testimony before the court.	<ul> <li>Water levels in the Maipo River have decreased due to the construction of the PHAM, which has accelerated the desertification process in the region (see pp. 8, 13, 14, 15, 20, 23 &amp; 32 of the MICI complaint filed by the "No to Alto Maipo" Citizens' Coordinating Committee and the NGO Ecosistemas.</li> <li>The PHAM acknowledges that the project directly affects water rights of current users in terms of quality and quantity. Therefore, several water users' associations (irrigators and channel users) have opposed the project from the beginning (21).</li> <li>No studies were done, and no mitigation measures were taken with respect to the increased risk of natural disasters that the construction of the PHAM entails (p. 31).</li> <li>The PHAM threatens the drinking water supply of the city of Santiago, as well as the environmental integrity of the area, including flora and fauna (see pp. 2, 17, 21, 25, 26 &amp; 34).</li> </ul>
Case 13.218-2012 4 <sup>th</sup> Civil Court of Santiago: Obtain the nullification of ECR No. 256/2009, which approved the PHAM	Various associations of channel users [ <i>canalistas</i> ] and Sara Larraín v. CONAMA (National Environmental Council, replaced by the Environmental Assessment Service), AES		The company Cordillera Ltda., the sole remaining plaintiff, asked the Court to rule on the merits, which is pending. On February 16, 2017, the Court met with the parties to issue its final decision.	

<sup>&</sup>lt;sup>52</sup> Sara Larraín is an active member of the "No to Alto Maipo" Coordinating Committee.





Case / Court	Plaintiff / Respondent	Summary of the Complaint	Status	Similar Allegations Contained in the Request to the MICI
Case IC 512-2016 San Miguel Court of Appeals ("CA"): Motion to Nullify ECR No. 256/2009 which approved the PHAM	Gener, Treasury of Chile "Coordinadora Ciudadana No Alto Maipo" and "Red Metropolitana No Alto Maipo"	The existence of metals derived from mining activity in the potable water obtained from the Maipo River and used in the city of Santiago, in violation of ECR No. 256/2009; and the noncompliance of the authorities and the PHAM with the observations issued by the Regional Offices of the Ministries of Health and Agriculture (SEREMI) to the environmental impact assessment (EIA). The observations refer to the potable water supply and the actions that should be taken in the event of contamination.	On January 3, 2017 the SMA presented a final report, informing the Court that there is no evidence that the PHAM is affecting water quality. On January 9, 2017, the Court decided to hear the case without the participation of the parties, meaning that the case will be reported by an internal Court official. The hearing is pending.	<ul> <li>The construction and operation of the PHAM has polluted the soil, water, and air with metals and minerals that have a widespread impact on the local ecosystem and population (see pp. 21, 25, 26, 29 &amp; 33).</li> <li>Various complaints have been filed against the PHAM with respect to water contamination that adversely affects the health and safety of the community and environmental responsibility (see pp. 21 &amp; 26).</li> </ul>
Case C-5178-2016 28 <sup>th</sup> Civil Court of Santiago: Alto Maipo v. Andrei Tchernitchin	Alto Maipo v. Andrei Tchemitchin	Civil defamation cases stemming from public allegations that the PHAM is polluting the water with heavy metals (see footnote No. 36)	A settlement is expected in early 2017. On September 13, 2016, the respondent presented its defense. On September 16, the Court summoned the parties to a conciliation hearing that was scheduled for February 20, 2017, but neither party appeared. The next step will be the start of the probationary period.	<ul> <li>The construction and operation of the PHAM has polluted the soil, water, and air with metals and minerals that have a widespread impact on the local ecosystem and population (see pp. 21, 25, 26, 29 &amp; 33).</li> <li>Various complaints have been filed against the PHAM with respect to water contamination that adversely affects the health and safety of the community and environmental responsibility (see pp. 21 &amp; 26).</li> </ul>
Resolution EX. No./ ROL 0- 001-2017 Superintendency of the Environment: Infractions during the 2014 – 2016 period	SMA v. Alto Maipo	<ol> <li>Unauthorized effects on an area of approximately 850 m2 in lowland area EY-1.</li> <li>Unauthorized activities inside a restricted area.</li> <li>Violation of various National Forest Service (CONAF) resolutions with respect to the illegal cutting of trees</li> <li>Lack of representation on micro routes No. 31, 33 &amp; 34 of the species selected for those micro routes.</li> <li>Not all of the rainwater wells that were established in the ECR have been implemented.</li> <li>The maximum allowed levels in the industrial liquid residue treatment units (ILRs) were exceeded.</li> <li>No certification of resampling in the sampling of various water treatment units</li> <li>Bridge over the Manzanito River was built without authorization</li> <li>Vehicles traveled through the project area during prohibited times</li> <li>No additional mitigation measure was</li> </ol>	On February 16, 2017, Alto Maipo SpA presented a compliance program in response to the charges filed against it on January 20, together with the information that reportedly evidenced said compliance and its costs. A ruling on the compliance program is pending.	<ul> <li>The cutting of trees for the construction of the PHAM was not properly assessed (see pp. 5 &amp; 22).</li> <li>The PHAM jeopardizes the health and safety of the population due to exposure to blasting, noise, vibrations, increased traffic, and water pollution, among other things (see p. 17).</li> <li>During the construction phase, there have been impacts from the circulation of trucks and construction equipment along the sole access road. There is a failure to comply with the scheduled times and maximum speeds established in the ECR (see p. 17).</li> <li>It has been observed during the construction phase that explosives are being transported and stored in an irregular manner and outside authorized times (see pp. 18, 21, 29).</li> <li>The PHAM has not taken mitigation measures, or has taken insufficient mitigation measures, in relation to the impact on natural habitats in the area. These measures failed to take account of variables such as climate change and the effect of</li> </ul>





Case / Court	Plaintiff / Respondent	Summary of the Complaint	Status	Similar Allegations Contained in the Request to the MICI
		<ul> <li>applied to minimize the impact of blasting for the construction of the tunnel.</li> <li>11. The authority was not informed and measures were not taken to mitigate the environmental impact of the transmission lines.</li> <li>12. Blasting was done without an adequate monitoring program.</li> <li>13. Disposal of residual water outside the winter season</li> <li>14. The authority was not informed and measures were not taken to mitigate the impact of the incremental water volume in the tunnels.</li> </ul>		<ul> <li>underground construction projects on surface water (see p. 29).</li> <li>The PHAM has not determined what effect the tunnels will have on the quantity and quality of water in the Maipo River (see pp. 5, 8, 13, 21, 23 &amp; 29).</li> </ul>