



EARTHJUSTICE
Because the earth needs a good lawyer



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Palais Wilson, 52 rue des Pâquis, CH-1201 Geneva, Switzerland

8 September 2009

**Re: Universal Periodic Review of Bolivia, 2010
Submission of Agua Sustentable and Earthjustice**

I. SUMMARY

1. Agua Sustentable and Earthjustice respectfully submit to the Human Rights Council information regarding human rights violations in Bolivia resulting from anthropogenic climate change. In this submission, Agua Sustentable and Earthjustice seek to inform the Council of the acute impacts climate change is having and will have on the human rights of the people of Bolivia. We recommend that the Office of the High Commissioner for Human Rights include this information in its summary of stakeholders' information, and urge the Human Rights Council to adopt an outcome recognizing the responsibility of major greenhouse gas-emitting states for human rights violations suffered by the glacier-dependent communities of Bolivia due to climate change.

2. In its Fourth Assessment Report, the Intergovernmental Panel on Climate Change (IPCC) predicts that anthropogenic climate change will have significant adverse effects not only on the natural environment, but also on the human populations that inhabit that environment and rely on its processes and services. In Bolivia, climate change will:

- Threaten highland Bolivians' **health** and **access to water** by elevating temperatures, increasing instances of drought, and accelerating glacial melting;
- Jeopardize Bolivians' **food security** and **subsistence livelihoods** by compromising the agricultural viability of the highlands; and
- Endanger local **indigenous cultures** by forcing communities to abandon traditional customs and practices of self-determination, and potentially to leave their native lands for resettlement elsewhere.

3. The effects of climate change on communities in the Andean highlands of Bolivia are increasing. The glaciers upon which many highland communities depend for their drinking, sanitation, and agriculture have been retreating at an accelerating rate since the 1970s, and most are expected to vanish within the next few decades.¹ One such glacier is Illimani, on which the community of Khapi depends. The increasing intensity of climate extremes in the highlands, including drought, below freezing temperatures and hail, threatens biodiversity, and has exacerbated public health risks and reduced crop yields and livestock productivity.

4. These impacts threaten many international human rights, including the rights to: **life and security of person; health; freedom from hunger; water; a healthy environment; an adequate standard of living; a means of subsistence; property; adequate housing; freedom of movement**

and residence; and culture and traditional knowledge; as well as the rights of indigenous peoples, including the right to self-determination.

II. CLIMATE CHANGE IN BOLIVIA

5. The ecosystem of the Bolivian Andes is among those most sensitive to climate change.² The most critical climate change impacts in the region are rising temperatures, decreasing precipitation, and resultant glacial retreat. Since the 1950s, the temperature in the Andes has increased an average of 0.27°F (0.15°C) per decade, with increases of around 0.61°F (0.34°C) per decade between 1974 and 1998.³ Past and future temperature increases are causing and will continue to cause irreversible damage to the Andean ecology, including by accelerating glacier melt.⁴

6. The tropical glaciers of the Andes are particularly sensitive to climate change because the process of accumulating glacial ice occurs only under specific conditions during summer months when solar radiation is most intense. According to the IPCC, accelerating glacier retreat is a “critical” issue in Bolivia, where water availability has already been compromised.⁵ The IPCC predicts with high confidence that Andean glaciers are “very likely to disappear” within decades.⁶ Chacaltaya, an 18,000 year old Bolivian glacier, disappeared earlier this year. The melting of these glaciers is a human rights issue because the tropical glaciers of the Cordillera Occidental and the Cordillera Real are the main water source for much of Bolivia’s population, including the 1.8 million people⁷ inhabiting the capital metropolitan area of La Paz and El Alto. .

7. Furthermore, the consequences of climate change in Bolivia are out of proportion to the country’s historical and current contribution to global climate-forcing emissions. While Bolivia’s greenhouse gas emissions accounted for only 0.34% of global emissions in 2000 (including land use changes),⁸ reports list Bolivia sixth among countries most affected by extreme weather events in 2007.⁹ Bolivia’s level of economic development also makes it more vulnerable to, and less able to finance adaptation to, climate variability; its Gross Domestic Product is 100th out of 186 countries.¹⁰ In terms of human development, Bolivia ranks 111th out of 179 countries.¹¹

III. THE IMPACTS OF CLIMATE CHANGE ON HUMAN RIGHTS IN GLACIER-DEPENDENT COMMUNITIES IN BOLIVIA

8. Feeding local rivers and high-altitude peat bogs, Bolivian glaciers provide water for consumption, sanitation, and irrigation. Glaciers also serve the crucial function of regulating water flow volumes, storing water during periods of high precipitation and releasing it during dry seasons. Glaciers mitigate the impact of droughts and storms by releasing water slowly during dry spells and preventing flooding during storms. Over the long term, decreasing glacier-melt will deplete dry-season water resources at the same time as dry season temperatures will increase as a result of climate change.

9. One example of the impact of global warming on glaciers – and of the resulting impacts on human rights – is the relationship between the Bolivian community of Khapi and the Illimani glacier. Khapi is located in the municipality of Palca, approximately 53 km southeast of the city of La Paz, in the province Murillo. The community of Khapi is situated at 3500 meters above sea level,¹² in the valley of Palca to the west of the high-altitude glaciers of Illimani, Zora, and Mururata.¹³ Khapi houses approximately one hundred ninety people in approximately 48 families,¹⁴ over ninety percent of which are Aymara Indian,¹⁵ a culture that has lived in this area since before Spanish colonization. The community is organized around the traditional Aymaran communal governance structure of *Ayllus*.¹⁶ The residents of Khapi practice subsistence farming –

growing fava, wheat, and several varieties of potato – using traditional technology. On communal pastureland, families raise sheep, llamas and some cattle, which are used as work animals as well as for their meat. Crops and livestock are exposed to extreme conditions and, because of the uneven terrain, clearing and tilling is possible only with manual labor and oxen.¹⁷

10. Inhabitants of Khapi depend on the water of the Illimani River, which flows from the Illimani glacier, for their consumption, sanitation, and irrigation needs. The Illimani glacier is located in the Cordillera Real mountain range, which rise 6,350 meters above sea level.¹⁸ In the last thirty years, the temperature in the region has increased more than 0.9°F (0.5°C).¹⁹ Glaciers in the range have been found to have lost more than 40% of their volume since 1963 and almost half of their surface area since 1975.²⁰ Nearby Murata glacier has lost seventeen percent of its mass since 1983.²¹ Communities that depend on these glaciers, including the inhabitants of Khapi, face the loss of their most important freshwater resource in the coming decades.

Climate change threatens glacier-dependent communities' health and access to water.

11. Although increased glacial melting has resulted in a short-term increase in water supply to communities like Khapi, the IPCC warns that, for glacier-dependent communities, “problems with supply are expected to increase in the future, becoming chronic if no appropriate adaptation measures are planned and implemented.”²²

12. In Palca, only two percent of communities have sanitation infrastructure, and only 26 percent have access to running water.²³ The rest depend heavily on water from rivers and streams. With decreasing glacier melt, many communities will suffer from a lack of water fit for consumption and numerous health risks associated with improper sanitation infrastructure.

13. In addition to the loss of water, climate change will exacerbate the leading causes of communicable illnesses in Palca, which include respiratory infections, diarrheal disease, and skin infections.²⁴ Acute diarrhea will increase as water shortages make hygienic food preparation more difficult. Finally, skin infections will increase as reduced water quantity and quality affect personal hygiene.

14. *The disappearance of water resources and the exacerbation of health risks in Palca undermines Bolivians' human rights to life, health, food, water; the rights of indigenous peoples; and the rights to a means of subsistence, an adequate standard of living, and a healthy environment.*

Climate change jeopardizes glacier-dependent communities' food security and traditional subsistence livelihoods.

15. Anticipated loss of water in Bolivia's glacier-dependent communities threatens the productivity of croplands and the availability of water for irrigation. At the same time, climate changes in the highlands are creating longer dry seasons, increasing climate extremes, and compromising agricultural viability. Most of the communities of Palca currently display medium to high food insecurity.²⁵ Because Bolivians in these communities cannot afford to replace subsistence crops with purchased food, these climate impacts will dramatically decrease the health and standard of living of many Bolivians. Moreover, without viable traditional crops, residents cannot practice or benefit from their traditional knowledge and culture.

16. Hydrological changes in highland communities also threaten to disrupt the local ecology of grazing lands, while temperature extremes can lead to more parasites and a decline in the health of livestock, which, for communities like those in Palca, provide an essential source of protein.

17. The community of Khapi, like most of the communities in Palca, practices subsistence agriculture. Approximately 78 percent of the population of Palca lives in extreme poverty.²⁶ The vast majority of families do not have additional sources of sustenance outside of what they are able

to produce, and do not have sufficient agricultural surplus or a source of income that would allow them to barter or purchase food from other producers. The loss of agricultural viability from climate change threatens to increase malnutrition and hunger in the population of Khapi.

18. *The destruction of subsistence agriculture and ecosystems essential to Palca residents' livelihoods undermines their rights to life, health, food, culture, traditional knowledge, and property, the rights of indigenous peoples, and the rights to a means of subsistence, an adequate standard of living, and a healthy environment.*

Climate change threatens glacier-dependent communities' culture and right of self-determination.

19. The Bolivian highlands are the ancestral territory of the Aymara indigenous peoples. For the Aymara, the land provides not only material subsistence, but the basis of their spiritual identity and beliefs. For example, many of the communities in Palca, including Khapi, practice traditional medicine and maintain knowledge and centuries-old traditions regarding the forecasting of weather and natural phenomenon based on astrological, meteorological, and flora and fauna observation.²⁷ Religious holidays and practices, including rites surrounding the deities *P'achamama* (Earth) and *Inti Tata* (Sun), are tied to the solar and agricultural calendar. The disappearance of Illimani, the disruption of planting and harvest seasons, and the loss of local biodiversity, jeopardize the ability of Khapi residents to maintain their religious and cultural traditions.

20. In Aymaran culture, connection to the local environment also dictates the general structure of the community's organization and governance. Several communities in Palca, including Khapi, maintain systems of collective property and shared irrigation systems.²⁸ Practices of water distribution, land ownership, crop rotation, and irrigation rights are interconnected with, and dependent on, the environment and local water resources.

21. The socio-economic characteristics of the communities of Palca – subsistence-level development, use of traditional technology, non-diversified economies, and small landholdings – make climate adaptation all the more difficult. Degradation of natural resources and the toll of climate extremes have already exacerbated emigration to neighboring urban centers of La Paz and El Alto.²⁹ Without effective adaptation, communities like Khapi could be forced to relocate, undermining their private and collective indigenous land rights as well as their cultural rights and collective self-determination.

22. *The reduction in fertility and habitability in Palca due to glacier disappearance and climate extremes undermines Bolivians' human rights to life, food, health, property, culture and traditional knowledge, self-determination, the rights of indigenous peoples; and the rights to a means of subsistence, an adequate standard of living, and a healthy environment.*

IV. CONCLUSIONS AND RECOMMENDATIONS

23. The effect of climate change on the highland ecosystems of Bolivia is a serious threat to the human rights of the people who depend on those ecosystems. The plight of the municipality of Palca illustrates the fundamental importance of an ecologically healthy environment to basic rights such as the right to life, food, health, water, and culture.³⁰

24. The primary responsibility for the impacts of climate change on the human rights of Bolivia's glacier-dependent communities lies with states that are major emitters of greenhouse gases. The international community – particularly those nations historically and currently responsible for the greatest portion of greenhouse gas emissions – has a responsibility to prevent climate change from

undermining the human rights of these communities, and, where that is not possible, to mitigate the harms and assist the victims.

25. Agua Sustentable and Earthjustice respectfully recommend that the Human Rights Council encourage the government of Bolivia to increase efforts to provide citizens with information and education on the impacts of climate change, and to provide opportunities for public participation in decision-making concerning measures to adapt to the harms that will result. Recognizing the role of other states in causing climate change, the government of Bolivia must take serious steps to increase its adaptation efforts to protect the right of the glacier-dependent communities to a clean and ecologically sustainable environment.

26. Article 22 of the Universal Declaration of Human Rights underscores that protection of human rights requires “national effort and international co-operation.” Every state has the obligation to do no harm either to its own citizens or to the citizens of another state. Agua Sustentable and Earthjustice therefore respectfully recommend that the Human Rights Council 1) recognize the responsibility of major greenhouse gas emitting states for human rights violations suffered by glacier-dependent communities in Bolivia, and 2) encourage the international community to take immediate action to decrease global greenhouse gas emissions, to assist Bolivia in its efforts to adapt to the effects of climate change, and to collectively provide for or offset the costs of adaptation measures such as water conservation programs and water storage and distribution infrastructure, or if necessary, resettlement, on a basis proportional to their responsibility for historic and current greenhouse gas emissions.

Respectfully Submitted,



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- ¹ IPCC Technical Paper VI: *Climate Change and Water* (June 2008), <http://www.ipcc.ch/pdf/technical-papers/climate-change-water-en.pdf>.
- ² The World Bank, *Visualizing Future Climate in Latin America: Results from the application of the Earth Simulator*, at 5 (Latin America and Caribbean Region Sustainable Development Working Paper 30, Nov. 2007), http://siteresources.worldbank.org/INTLACINSPANISH/Resources/SDWP_Future_Climate.pdf.
- ³ Comunidad Andina, *El fin de las cumbres nevadas? Glaciares y cambio climático en la Comunidad Andina*, at 14, 91 (Dec. 2007) available at http://www.comunidadandina.org/public/libro_76.htm.
- ⁴ The World Bank, *supra* note 3, at 3, 4.
- ⁵ IPCC Working Group II Report, *supra* note 1, at 583.
- ⁶ *Id.*
- ⁷ Instituto Nacional de Estadística, <http://www.ine.gov.bo/indice/visualizador.aspx?ah=PC20402.HTM> (last visited Aug. 14, 2009).
- ⁸ World Resources Institute, Climate Analysis Indicators Tool (CAIT) (Version 6.0, 2009), <http://cait.wri.org/cait.php?page=yearly> (last visited Aug. 19, 2009).
- ⁹ Sven Harmeling, *Global Climate Risk index 2009: Weather-related loss events and their impacts on countries in 2007 and in a long-term comparison*, at 6, German Watch (Dec. 16, 2008) available at http://www.preventionweb.net/files/8658_cri2009.pdf.
- ¹⁰ The World Bank, World Development Indicators Database (2009), available at <http://siteresources.worldbank.org/DATASTATISTICS/Resources/GDP.pdf>
- ¹¹ United Nations Development Program: 2007/2008 Human Development Report, http://hdrstats.undp.org/2008/countries/country_fact_sheets/cty_fs_BOL.html (last visited Aug. 14, 2009).
- ¹² Servicio Nacional de Riego (SENARI), *Sistema de Riego: Estudio a Diseño Final*, at 4. On file with Earthjustice and available upon request.
- ¹³ Edson Ramírez R., *Deshielo del nevado Mururata y su impacto sobre los recursos hídricos de la cuenca de Palca*, Informe Final, La Paz, Dec. 2008, at 14 [hereinafter *Deshielo del nevado Mururata*]. On file with Earthjustice and available upon request.
- ¹⁴ Censo de Poblacion y Vivienda – 2001, Poblacion por Departamentos, Provincias, Secciones Municipales, Localidades y Organizaciones Comunitarias, available at <http://www.ine.gov.bo/comunitaria/comunitariaVer.aspx?Depto=02&Prov=01&Seccion=02>.
- ¹⁵ InterAmerican Institute & Agua Sustentable, *Coming down the Mountain: Understanding the Vulnerability of Andean Communities to hydroclimatologic variability and Global Environmental Change*, La Paz, Jan. 31, 2008, at 9. On file with Earthjustice and available upon request.
- ¹⁶ *Id.* at 7.
- ¹⁷ Servicio Nacional de Riego (SENARI), *supra* note 13, at 20.
- ¹⁸ Patrick Wagon, Jean-Emmanuel Sicart, et. al., *El Fin De Las Cumbres Nevadas - Glaciares y Cambio Climático en la Comunidad Andina*, Secretaría General de la Comunidad Andina, Programa de las Naciones Unidas para el Medio Ambiente y Agencia Española de Cooperación Internacional (2007), at 65, available at http://www.comunidadandina.org/public/cambio_climatico_fin_cumbres_nevadas.pdf.
- ¹⁹ Edson Ramírez, *Impacto del Cambio Climático sobre la Disponibilidad de Recursos Hídricos*, Instituto de Hidráulica e Hidrología – UMSA, La Paz 2007, address to Foro-debate cambio climático “Retrosceso de los glaciares y recursos hídricos en Bolivia – De la investigación a la acción.”
- ²⁰ Soruco, A., C. Vincent, B. Francou, and J. F. Gonzalez, Glacier decline between 1963 and 2006 in the Cordillera Real, Bolivia, 36 *Geophys. Res. Lett.* L03502 (2009), available at <http://www.agu.org/pubs/crossref/2009/2008GL036238.shtml>; see also “Bolivia’s Indians feel the heat,” BBC News, 29 July, 2009, available at <http://news.bbc.co.uk/2/hi/americas/8172981.stm>.
- ²¹ *Id.*
- ²² IPCC Working Group II Report, *supra* note 1, at 583.
- ²³ Agua Sustentable, *Manejo Microcuenca Palca*, Consorcio Glaciares Andinos, at 10. On file with Earthjustice and available upon request.
- ²⁴ *Id.* at 9.
- ²⁵ InterAmerican Institute & Agua Sustentable, *supra* note 16, at 12.
- ²⁶ *Id.* at 10.
- ²⁷ Agua Sustentable, *supra* note 24, at 8.
- ²⁸ Servicio Nacional de Riego (SENARI), *supra* note 13, at 9..
- ²⁹ Agua Sustentable, *supra* note 24, at 7, 16.
- ³⁰ See, e.g., *Human Rights and the Environment: Final Report by Mrs. Fatma Zohra Ksentini, Special Rapporteur, U.N. ESCOR*, Hum. Rts. Comm., U.N. Doc. E/CN.4/Sub.2/1994/9 (1994).