

First Nationally Determined Contributions (NDCs) mentioning mountains

As of 21/04/2017, 137 Parties to the UNFCCC had signed and ratified the Paris Agreement and submitted their first NDCs; 36 of those countries' NDCs contain mentions of mountains:

1. Afghanistan ([MP member](#))
2. Algeria ([MP member](#))
3. Andorra ([MP member](#))
4. Argentina ([MP member](#))
5. Armenia ([MP member](#))
6. Bangladesh ([MP member](#))
7. Bolivia ([MP member](#))
8. Cambodia
9. Cameroon ([MP member](#))
10. Central African Republic
11. Chile ([MP member](#))
12. Djibouti
13. Dominica
14. Ethiopia ([MP member](#))
15. Gambia
16. Guinea ([MP member](#))
17. India ([MP member](#))
18. Jordan ([MP member](#))
19. Lesotho ([MP member](#))
20. Madagascar ([MP member](#))
21. Mexico ([MP member](#))
22. Monaco ([MP member](#))
23. Mongolia
24. Morocco ([MP member](#))
25. Nepal ([MP member](#))
26. Pakistan ([MP member](#))
27. Papua New Guinea
28. Peru ([MP member](#))
29. Rwanda
30. Seychelles
31. Sierra Leone
32. Solomon Islands
33. Sri Lanka ([MP member](#))
34. St. Vincent and the Grenadines
35. Tajikistan
36. Vanuatu

Most of the NDCs are identical to the previously submitted INDCs. However, the following countries submitted NDCs that were different: **Andorra, Argentina, Morocco, Nepal and Sri Lanka.**

Below is the text each country used to discuss mountains in their first NDC:

Afghanistan (submitted 23/11/2016)

http://www4.unfccc.int/ndcregistry/PublishedDocuments/Afghanistan%20First/INDC_AFG_20150927_FINAL.pdf

Afghanistan is highly prone to natural disasters throughout its 34 provinces. As a result of climate change, it is anticipated that the incidence of extreme weather events, [...] as will climate change-linked disasters such as **glacial lake outflows**. (page 2)

For the “pessimistic” scenario (RCP8.5), the models project an extreme warming of approximately 3°C until 2050, with further warming up to 7°C by 2100. Under both scenarios there are regional differences, with a higher temperature increases at **higher altitudes** compared to the lowlands. (page 3)

For precipitation a significant ($\alpha=0.05$) mean decrease of precipitation during springtime (March-May) for the North, the Central **Highlands** and the East for both scenarios from 2006 until 2050 between 5-10 percent is seen. (page 3)

In addition, the decrease is projected to take place in the regions with the highest agricultural productivity of Afghanistan (East, North, and Central **Highlands**). (page 4)

Algeria (submitted 20/10/2016)

[http://www4.unfccc.int/ndcregistry/PublishedDocuments/Algeria%20First/Algeria%20-%20INDC%20\(English%20unofficial%20translation\)%20September%2003,2015.pdf](http://www4.unfccc.int/ndcregistry/PublishedDocuments/Algeria%20First/Algeria%20-%20INDC%20(English%20unofficial%20translation)%20September%2003,2015.pdf)

Parallel to the coastline, **mountains** act as a barrier and accentuate the climate drought towards the south of the country. Anthropogenic effects aggravate those caused by geographic characteristics. Indeed, 85 % of the Algerian population lives in the northern part of the country. (page 4)

Andorra (submitted 24/03/2017)

<http://www4.unfccc.int/ndcregistry/PublishedDocuments/Andorra%20First/Andorra%20INDC-CPDN.pdf>

La temperature moyenne de l'Andorre est de 4,9°C (1950-2010), avec une **altitude moyenne** de 2.044 mètres sur le niveau de la mer. (page 4)

La totalité des déplacements internes se réalisent moyennant le réseau routier national, à l'exception des transports d'hélicoptères, utilisés surtout pour des transports sanitaires et des travaux en **montagne**. (page 4, note 12)

Argentina (submitted 17/11/2016)

<http://www4.unfccc.int/ndcregistry/PublishedDocuments/Argentina%20First/17112016%20NDC%20Revisada%202016.pdf>

Debido al aumento de la temperatura y sumando en algunos casos la menor precipitación, casi todos los **glaciares** de los Andes patagónicos entre los 37° y 55° S han estado retrocediendo durante las últimas décadas. Cabe destacar que son esperables mayores cambios en la composición y dinámica de los ecosistemas de la región debido a la ocurrencia de períodos de sequía más intensos y/o prolongados. (Page 6)

En zonas semiáridas, se observó una disminución de las precipitaciones en la zona **cordillerana** y una disminución de los caudales de los ríos Cuyanos. (Page 6)

Armenia (submitted 23/3/2017)

<http://www4.unfccc.int/ndcregistry/PublishedDocuments/Armenia%20First/INDC-Armenia.pdf>

The geographical location of the Republic of Armenia (**landlocked mountainous country** with vulnerable ecosystems), and the country's need to ensure its national security, necessitates the prioritization of climate change adaptation. (page 1)

Bangladesh (submitted 21/09/2016)

http://www4.unfccc.int/ndcregistry/PublishedDocuments/Bangladesh%20First/INDC_2015_of_Bangladesh.pdf

The country sits on the flood plain of several major rivers, which drain from the **mountainous regions** of the Himalayas, making seasonal flooding 10 another hazard often coinciding with the cyclone season. (page 9)

Bolivia (Submitted 05/10/2016)

[http://www4.unfccc.int/ndcregistry/PublishedDocuments/Bolivia%20\(Plurinational%20State%20of\)%20First/INDC-Bolivia-english.pdf](http://www4.unfccc.int/ndcregistry/PublishedDocuments/Bolivia%20(Plurinational%20State%20of)%20First/INDC-Bolivia-english.pdf)

Bolivia has all the climates of the intertropical zone, from tropical climate in the plains to polar climate— as it reaches the **high mountains**, thus the impacts of climate change are diverse. During the past 50 years, **the country has lost about 50% of the glacier surface** and higher temperatures and stronger precipitation events are expected during the rainy season, which will expose different regions of the country to prolonged dry periods and an increase in the frequency and magnitude of floods, flash floods, hailstorms, overflowing 4 Informal translation. For the authoritative version, please refer to the Spanish version published on the UNFCCC website. rivers, landslides and frost. The effects are evident in the social sectors (health, education, housing), economic (agriculture and industry) and infrastructure and services, which affect the way of life and production of the most vulnerable populations. (pages 3-4)

Cambodia (submitted 06/02/2017)

<http://www4.unfccc.int/ndcregistry/PublishedDocuments/Cambodia%20First/Cambodia%27s%20INDC%20to%20the%20UNFCCC.pdf>

Ensure climate resilience of critical ecosystems (Tonle Sap Lake, Mekong River, coastal ecosystems, **highlands**, etc.), biodiversity, protected areas and cultural heritage sites. (page 13)

Cameroon (submitted 29/07/2016)

<http://www4.unfccc.int/ndcregistry/PublishedDocuments/Cameroon%20First/CPDN%20CMR%20Final.pdf>

La vulnérabilité sera globalement forte à très forte dans les zones 4 et 5, forte à moyenne dans le reste du pays mais avec des tendances fortes dans **les massifs forestiers ou montagneux**. (page 10)

Tourisme : La vulnérabilité sera globalement moyenne à faible dans le pays, sauf dans les **massifs montagneux** et la zone 1 (Sècheresse). (page 10)

Central African Republic (submitted 11/10/2016)

http://www4.unfccc.int/ndcregistry/PublishedDocuments/Central%20African%20Republic%20First/INDC%20C%20R%20publique%20Centrafricaine_EN.pdf

The Central African Republic is a landlocked African country with an area of around 623,000 km². The terrain consists of a vast peneplain dominated by **two mountain ranges at its eastern and western ends** joined by a central spine that separates the two principal drainages, the Chari-Longue basin in the north and the Congo basin in the south. (page 4)

Chile (submitted 10/02/2017)

<http://www4.unfccc.int/ndcregistry/PublishedDocuments/Chile%20First/INDC%20Chile%20english%20version.pdf>

Chile is highly vulnerable to the impacts of Climate Change. The country's low coastline, the **snow and glacier regime of its rivers**, the forests which Chile is trying to protect and restock, its ocean waters - which supply the fishing industry, a key resource for the country- are all encompassed within the 9 criteria set forth by Article 4 of the United Nations Framework Convention on Climate Change (UNFCCC). (page 7)

Djibouti (submitted on 11/11/2016)

http://www4.unfccc.int/ndcregistry/PublishedDocuments/Djibouti%20First/INDC-Djibouti_ENG.pdf

Support for adaptation to climate change among rural communities in mountainous regions (climate change adaptation project funded by UNDP). (Page 11)

Dominica (submitted on 21/09/2016)

[http://www4.unfccc.int/ndcregistry/PublishedDocuments/Dominica%20First/Commonwealth%20of%20Dominica-%20Intended%20Nationally%20Determined%20Contributions%20\(INDC\).pdf](http://www4.unfccc.int/ndcregistry/PublishedDocuments/Dominica%20First/Commonwealth%20of%20Dominica-%20Intended%20Nationally%20Determined%20Contributions%20(INDC).pdf)

Dominica is volcanic in origin and is characterized by very rugged and steep terrain with approximately ninety miles of coastline. The northern half of the island is dominated by the country's highest summit, Morne Diablotin, which is the highest and largest volcano in Dominica, and the second highest mountain in the Eastern Caribbean, measuring 22 km x 18 km at its base and towering to a height of 1447 meters. A chain of mountains extends from the islands center to the south, and the topography is characterized by a number of ridges and steep river valleys with gently sloping lands being restricted to narrow coastal strips, particularly in the center and northeast of the island. (Page 3)

The high mountains and deep ravines are covered in rich tropical forests. (Page 3)

As a result of its mountainous terrain the island possesses a number of micro-climates. (Page 4)

The western Caribbean coast is in the rain shadow of the various mountain ranges and average rainfall along that coast is significantly less than in interior locations. (Page 4)

High rainfall makes the island susceptible to landslides, particularly in mountainous areas. Dominica's rugged topography results in considerable amount of orographic rainfall. (Page 4)

The island's climate is characterized by consistently warm year-round temperatures with a daytime average of 26-27 degrees Celsius in coastal areas decreasing to 19-21 degrees Celsius in mountainous areas, while night-time temperatures vary from 18-22 degrees Celsius on the coast and 10-12 degrees Celsius at higher elevations. (Page 4)

Rainfall patterns display considerable variability both on annual and locational basis. Nevertheless, Dominica's mountainous terrain makes it the wettest island in the eastern Caribbean with annual rainfall totals exceeding 10,000mm (400 inches) in some of the higher elevations. (Page 4)

Relative humidity remains high throughout the year consistently averaging above 85% in mountainous interior areas. Generally rainfall is less on the islands western Leeward coast which, based on the prevailing winds, is within a rain-shadow of the mountainous interior. (Page 4)

Ethiopia (submitted on 9/3/2017)

<http://www4.unfccc.int/ndcregistry/PublishedDocuments/Ethiopia%20First/INDC-Ethiopia-100615.pdf>

Enhance the adaptive capacity of ecosystems, communities and infrastructure through an ecosystem rehabilitation approach in the **highlands of Ethiopia**. Rehabilitation of degraded lands/forests will also increase resilience of communities, infrastructures and ecosystems to droughts and floods. (Page 6)

Gambia (submitted on 07/11/2016)

<http://www4.unfccc.int/ndcregistry/PublishedDocuments/Gambia%20First/The%20INDC%20OF%20THE%20GAMBIA.pdf>

Nerica **Upland Rice**: Reduce methane emissions from flooded rice fields by replacing them with efficient **dry upland rice**. (Page 3)

Under the Agriculture sector, two conditional mitigation options (NERICA Rice production and Rice efficiency) have been assessed and reported on in this INDC (see Figure 4 to the right). For production of NERICA **upland** production in place of Swamp Rice, estimated emission reductions are 124.1 GgCO₂e in 2020, 397.7 GgCO₂e in 2025 and 2030. (Page 7)

Guinea (submitted on 21/09/2016)

[http://www4.unfccc.int/ndcregistry/PublishedDocuments/Guinea%20First/INDC Guinea english version%20UNFCCC.pdf](http://www4.unfccc.int/ndcregistry/PublishedDocuments/Guinea%20First/INDC%20Guinea%20english%20version%20UNFCCC.pdf)

With its present favourable climate for agriculture (average annual rainfall of 1200 mm in the North and NorthEast, 4000 mm in Conakry and up to 1800 mm in the **mountains of Fouta-Djalon**), Guinea is both exposed and sensitive to climate change and has very little capacity to adapt. (Page 5)

India (submitted on 02/10/2016)

<http://www4.unfccc.int/ndcregistry/PublishedDocuments/India%20First/INDIA%20INDC%20TO%20UNFCCC.pdf>

Few countries in the world are as vulnerable to the effects of climate change as India is with its vast population that is dependent on the growth of its agrarian economy, its expansive coastal areas and the **Himalayan region** and islands. (Page 4)

A range of actions have been introduced to address [climate change]. Out of the eight National Missions on Climate Change five mission focus on adaptation in sectors like agriculture, water, **Himalayan ecosystems**, forestry, Capacity building and Knowledge management. Climate plans at the sub national level also focus significantly on adaptation. (Page 20)

Himalayan Ecosystem: The Himalayas form the most important concentration of **snow covered** region outside the polar region. It is highly sensitive to global warming. The detailed **glacier** inventory of Indian Himalayas indicates presence of **9579 glaciers in the Himalayas**, some of which form the perennial source of major rivers. (Page 25)

The National Mission for Sustaining the Himalayan Ecosystem (NMSHE) addresses important issues concerning **Himalayan Glaciers** and the associated hydrological consequences, biodiversity and wildlife conservation and protection, traditional knowledge societies and their livelihood and planning for sustaining of the Himalayan Ecosystem. (Page 25)

The Department of Science & Technology has also initiated creation of Climate Change Centers at the state level especially in the **Himalayan region**. (Page 26)

India's INDC point 6: To better adapt to climate change by enhancing investments in development programmes in sectors vulnerable to climate change, particularly agriculture, water resources, **Himalayan region**, coastal regions, health and disaster management. (Page 29)

Jordan (submitted on 04/11/2016, same as INDC)

<http://www4.unfccc.int/ndcregistry/PublishedDocuments/Jordan%20First/Jordan%20INDCs%20Final.pdf>

Most groundwater aquifers are exploited at more than double of their safe yield. The sustainability of irrigation in the **highlands** and the Badia areas will be greatly endangered unless strict measures are taken to address this issue. (Pages 12-13)

Lesotho (submitted on 20/01/2017)

<http://www4.unfccc.int/ndcregistry/PublishedDocuments/Lesotho%20First/Lesotho%27s%20INDC%20Report%20-%20September%202015.pdf>

4.4, Table 1, prioritized climate change adaptation options: Conservation and Rehabilitation of Degraded Wetlands in the **Mountain Areas** of Lesotho. (Page 6)

Lesotho' proposed targets are ambitious, despite its status as a very vulnerable, small, landlocked least developed country with a **fragile mountainous ecosystem** and numerous pressing social and economic development needs and priorities. (Page 17)

Madagascar (submitted on 21/09/2016)

<http://www4.unfccc.int/ndcregistry/PublishedDocuments/Madagascar%20First/Madagascar%20INDC%20Eng.pdf>

Outbreaks (particularly towards the **Highlands**) of vector-borne diseases, particularly malaria. (Page 7)

Mexico (submitted 21/09/2016)

<http://www4.unfccc.int/ndcregistry/PublishedDocuments/Mexico%20First/MEXICO%20INDC%2003.30.2015.pdf>

Poverty is a determining factor of social vulnerability in Mexico. Some estimates indicate that up to 60% of the population has been affected at some point by natural disasters, coinciding with the percentage of population living in poverty and extreme poverty in the country. These groups inhabit precarious housing facilities and high-risks areas prone to climate disasters such as **mountain landslides**, cliffs or areas prone to flooding. (Page 6)

Monaco (submitted 26/10/2016)

http://www4.unfccc.int/ndcregistry/PublishedDocuments/Monaco%20First/Monaco_INDC.pdf

The topography of the Principality comprises a **mountainous cirque** dropping down to the Mediterranean Sea. (Page 3, preamble)

Mongolia (submitted 21/09/2016)

http://www4.unfccc.int/ndcregistry/PublishedDocuments/Mongolia%20First/150924_INDCs%20of%20Mongolia.pdf

The annual mean temperature ranges from -8°C to 6°C across regions and the annual precipitation varies from 50 mm in the Gobi desert to 400 mm in the northern **mountainous area**. (Page 1)

The **melting of permafrost and glaciers**, surface water shortages, and soil and pasture degradation have been identified as particular challenges faced by Mongolia as a result of climate change. (Page 1)

The drying up of lakes, rivers and springs and **melting of glaciers** has intensified in the last decades. (Page 6)

Adaptation goal: To construct reservoirs for **glacier melt water** harvesting. (Page 9)

Morocco (submitted 19/09/2016)

Certain economic activities, such as agriculture, fisheries, aquaculture, forestry and tourism, are significantly vulnerable, as are certain ecosystems, such as oases, the coastal zones and **mountainous areas**. (Page 15)

Climate change is expected to increase the desertification of these lands, and increase degradation and accelerate the loss of yields in fragile, **mountainous areas**, in oasis ecosystems, and argan trees, which are already in decline. These ecosystems are vital to subsistence for at-risk populations, the protection of natural resources and the fight against desertification. (Page 17)

Forest ecosystems serve an important purpose for the country and the lives of vulnerable populations. They play a crucial role in the socioeconomic development of rural and **mountain areas**, including some of the most remote areas of the country. (Page 18)

Morocco implements a sectoral approach, adapted to the circumstances and specific features of the territorial entities: **mountain regions**, the coast, oases, agricultural areas and urban areas. (Page 19)

The protection of populations, through a risk-prevention management approach, linked to the exodus of rural populations and its socioeconomic consequences, particularly in the most vulnerable areas (coastal zones, **mountainous areas**, regions with a high propensity for desertification, and oases). (Page 19)

Morocco Green Plan: Development Strategy for Rural and **Mountain Areas**. (Page 23)

Conserving fragile ecosystems: **mountains**, oases, the argan tree, pastoral lands, wetlands and coastal areas. (Page 25)

Fruit Arboriculture Program (excluding citrus and olive trees) by 2020 Planting of 160,000 hectares of fruit trees to improve and diversify farmers' income, especially in fragile **mountain areas**. (Page 28)

Nepal (submitted 05/10/2016)

<http://www4.unfccc.int/ndcregistry/PublishedDocuments/Nepal%20First/Nepal%20First%20NDC.pdf>

Nepal, a least developed **mountainous and land-locked country**, is one of the least contributors to the emissions of greenhouse gases (GHGs). With aspirations of development and improving the country's economy; its development agenda is constrained given that it is one of the most vulnerable countries to the adverse impacts of climate change. (Page 2)

Nepal's vulnerability to climate change: Nepal's **mountainous and challenging topography** and socio-economic conditions (ranks 145 on the Human Development Index, merely one-fourth of its population live below poverty line) make it a highly vulnerable country to climate change. (Page 2)

In **Nepal's Himalaya**, total estimated ice reserve between 1977 and 2010 has decreased by 29 percent (129 km³). The **number of glacier lakes has increased by 11 percent and glaciers recede on an average by 38 km² per year**. Hence, **climate change has visible and pronounced impacts on snows and glaciers that are likely to increase the Glacier Lakes Outburst Floods (GLOFs)**. Nepal has suffered from increased frequency of extreme weather events such as landslides, floods and droughts resulting to the loss of human lives as well as high social and economic costs. (Page 2)

The National Rural Renewable Energy Programme (NRREP), under implementation, provides the framework to provide energy access and energy efficient technologies to local communities and **indigenous people living in the mountains, hills** and low lands of Nepal through a subsidy programme. (Page 4)

The Government has accorded high priority to build climate resilience by integrating it into policies, strategies and programmes. At present, projects such as **building climate resilient watersheds in mountainous eco-regions**, building resilience to climate related hazards, mainstreaming climate change

risk management in development, and building climate resilient communities through private sector participation are under various stages of implementation and are contributing to develop human resources so as to integrate climate change concerns in sectoral plans and programmes. (Page 8)

PPCR comprises four components i) **Building Climate Resilience of Watersheds in Mountain Eco regions** ii) Building Resilience to Climate Related Hazards iii) Mainstreaming Climate Change Risk Management in Development iv) Building Climate Resilient Communities through Private Sector Participation. All the PPCR Components are launched and are at different stage of implementation. The ongoing programs are complimenting each other and varied Climate change programs in Nepal including those to implement LAPAs and other NAPA priorities. (Page 8)

Nepal, a **land-locked mountainous country**, has challenges of reducing poverty and addressing people's basic needs. With the increasing adverse visible impacts of climate change and recent earthquake, Nepal is continuously facing additional burden from climate change and urgently requires huge investments in adapting and building resilience to climate change in order to protect her people, property and natural resources. It is, therefore, imperative for Nepal to tackle the impact of poverty and climate change simultaneously to achieve Sustainable Development Goals. (Page 10)

Nepal hereby communicates its NDC in response to the decisions of the Conference of the Parties to the UN Framework Convention on Climate Change:

3. Nepal will undertake scientific (physical and social sciences) approaches to understand and deal with the impacts of climate change in **mountains, hills and lowland ecosystems and landscapes**. It will develop and implement adaptation strategies for climate change affected sectors. (Page 10-11)

Pakistan (submitted 6/11/2016)

<http://www4.unfccc.int/ndcregistry/PublishedDocuments/Pakistan%20First/Pak-INDC.pdf>

Pakistan is well known for its geographic as well as climatic variability. A **high altitude mountainous region with several peaks over 8,000 meters** (above sea level) and deserts, which cover about 11 million hectares, make 14 percent of the country's total landmass. The coastline in the south stretches about 990 kilometers. The country exhibits most differentiated altitudes as well as diversely rich geophysical conditions. Presence of about **15,000 sq. km of glacial area and nearly 7,000 glaciers** makes it one of the **most glacially populated regions of the world outside the polar region**. These **glaciers are considered to be stabilizers of global and regional climatic changes, apart from being the most prominent source of water to meet the needs of the region**. The rate of **glacial melt** in Pakistan, 2.3 percent per annum, has placed Pakistan amongst the **fastest melting glacial regions** in the world. (Page 8)

Climate-induced disasters pose a great challenge to the economy. Located in a subtropical arid zone, most of the country is subjected to a semi-arid climate. Based on physiographic factors and causes of diversity in climate, the country has been classified into four major climatic regions: i) the marine tropical coastland; ii) the subtropical continental lowlands; iii) the **subtropical continental highlands**; and iv) the **subtropical continental plateau**. (Page 8)

Hydrometeorological hazards such as **glacial melt, glacial lake outburst flooding (GLOF), avalanches,** storms, cyclones, desertification and heat waves are becoming more common, putting lives, property and the allied socio-economic features of country at great risk. (Page 9)

For Pakistan, adaptation to the adverse impacts of climate change is inevitable and likely to become critical in future. Due to geo-physical conditions, climatic extremes and high degrees of exposure and vulnerability, Pakistan has become a disaster-prone country. Frequent exposure to extreme climate-induced events such as droughts, floods, landslides, cyclonic activities, **recession of glaciers, glacial lake outburst flooding (GLOF)** and heat-waves have led the country to rank amongst top ten most climate-affected countries on the Global Climate Risk Index. (Page 14)

The National Economic & Environmental Development Study (NEEDS) shows that the average cost of adaptation to flood disasters ranges between US\$ 2.0 - 3.8 billion per annum, depending on the frequency and intensity. However, it does not include adaptation cost of other climate change-induced extreme events such as **glacial lake outbursts,** cyclones, heat waves and droughts. Overall, Pakistan's adaptation needs range between US\$ 7 - 14 billion per annum. (Page 14-15)

Papa New Guinea (submitted 24/3/2016)

http://www4.unfccc.int/ndcregistry/PublishedDocuments/Papua%20New%20Guinea%20First/PNG_IND_C%20to%20the%20UNFCCC.pdf

The natural environment already poses significant risks to Papua New Guinea today; hazards like coastal flooding, inland flooding and droughts take a severe toll on the people and the economy. Climate change are predicted to exacerbate some of these event-driven hazards and may also introduce new hazards due to gradual shifts in climatic conditions – most prominently, **increased malaria penetration in the highlands,** changed agricultural yields and damaged coral reefs. (Page 7)

Peru (submitted 25/7/2016)

<http://www4.unfccc.int/ndcregistry/PublishedDocuments/Peru%20First/iNDC%20Per%C3%BA%20english.pdf>

The adaptation proposal is based on national and regional vulnerability studies, as well as those of prioritized basins, and the results of different projects and practical experiences on adaptation².

² Interventions started with the PROCLIM Program in 2003, which allowed the analysis of the current and future vulnerability in the basins of Piura and Mantaro; and later with the "Second National Communication on Climate Change (CNCC2 in Spanish)", the "Regional Project of Adaptation to Climate Change (PRAA in Spanish)", the "Program for Adaptation to Climate Change (PACC in Spanish)"; the projects "Public Investment and Climate Change Adaptation (IPACC in Spanish)", "**Glaciers 513**", the Adaptation project based on **Mountain Ecosystems "EbA Mountains"** and others. (Page 7)

Peru has seven of the nine characteristics recognized by the UNFCCC to describe a country as

"particularly vulnerable": low-lying coastal area, arid and semi-arid lands, areas liable to flood, drought and desertification, **fragile mountain ecosystems**, disaster-prone areas, areas with high urban atmospheric pollution and economies highly dependent on income generated from the production and use of fossil fuels⁴. The processes of ecosystem degradation and environmental pollution from anthropogenic origin exacerbate these conditions. (Page 7)

Studies reveal that temperature and rainfall regimes are changing throughout the country. Climate scenarios predict water regime irregularities in 2030. **In the Mountain regions**, it is predicted that annual rainfalls would show deficiencies between -10% and -20%; in the northern and central Amazon area (high jungle) annual rainfalls it would be up to -10%, and in the northern and southern coast it would show increases between + 10% and + 20%. It is worth mentioning that the retreat of **tropical glaciers** in the country also modifies the hydrological regimes: seven basins studied in the **"Cordillera Blanca" (mountain range)** have exceeded a critical transition point in their retreat, showing a decline in the dry season discharge. (Page 8)

Rwanda (submitted 6/10/2016)

http://www4.unfccc.int/ndcregistry/PublishedDocuments/Rwanda%20First/INDC_Rwanda_Nov.2015.pdf

Rwanda, known as the **"land of a thousand hills"** is a landlocked country of 26,338 square kilometres, geographically located in Central Africa between 1°04' and 2°51' of south latitude and between 28°45' and 31°15' of east longitude¹. The country has seen significant economic development in recent years, with GDP growing at an average of over 8% annually over the last decade and targeted to reach 11.5 % under the medium term development implementation framework EDPRS II². It has a population of 10,515,973 people³ which is growing at 2.8% per year. (Page 1)

Rationale and process for adaptation contribution: Rwanda is highly vulnerable to climate change, as it is strongly reliant on rain-fed agriculture both for rural livelihoods and for exports of mainly tea and coffee. With the highest population density in Africa⁵, adaptation concerns are central to the INDC. In recent years, extreme weather events in Rwanda increased in frequency and magnitude what, in some parts of the country, led to significant losses including human lives⁶. Floods and landslides were increasingly reported in the **high altitude Western and Northern Provinces**, whereas droughts made severe damages in the Eastern Province. (Page 2)

Seychelles (submitted 29/4/2016)

<http://www4.unfccc.int/ndcregistry/PublishedDocuments/Seychelles%20First/INDC%20of%20Seychelles.pdf>

Adaptive responses may include expanding marine tourism (yachts, ocean-based experiences) and **mountain tourism** (away from the coast). Greater co-management of the sector by the Ministry of Tourism and Department of Risk and Disaster Management as well as with the Ministry of Environment, Energy and Climate Change. (Page 12)

Sierra Leone (submitted 1/11/2016)

<http://www4.unfccc.int/ndcregistry/PublishedDocuments/Sierra%20Leone%20First/SIERRA%20LEONE%20INDC.pdf>

Geographical location and main physical features/regions: Sierra Leone is located on the west coast of Africa, between the 7th and 10th parallels north of the equator. Sierra Leone is bordered by Guinea to the north and northeast, Liberia to the south and southeast, and the Atlantic Ocean to the west. The country has a total area of 71,740 km², divided into a land area of 71,620 km² and water of 120 km². The country has four distinct geographical regions: coastal Guinean mangroves, the wooded hill country, an upland plateau, and the eastern mountains. Eastern Sierra Leone is an interior region of large plateaus interspersed with high mountains, where Mount Bintumani rises to 1,948 meters. Sierra Leone can be split into three geological areas, in the east is part of the West African craton, the western area consists of the Rokelides, an orogenic belt, and a 20- to 30-km coastal strip of sediments (Schlüter and Trauth, 2008). (Page 2)

Solomon Islands (submitted 21/9/2016)

<http://www4.unfccc.int/ndcregistry/PublishedDocuments/Solomon%20Islands%20First/SOLOMON%20SLANDS%20INDC.pdf>

Solomon Islands comprises a scattered archipelago of 994 islands combining mountainous islands as well as low lying coral atolls within a tuna-rich and potentially mineral-rich maritime Economic Exclusive Zone (EEZ) of 1.34 million square kilometres. The land area of 28,000 square kilometres with 4,023 kilometres of coastline is the second largest in the Pacific after Papua New Guinea. The highest point in the country, Mt Makarakomburu is 2,447m above sea level and is the highest peak in the insular Pacific. There are six main islands, Choiseul, New Georgia, Santa Isabel, Malaita, Guadalcanal and Makira, which are characterized by a rugged and mountainous landscape of volcanic origin. Between and beyond the bigger islands are hundreds of smaller volcanic islands and low lying coral atolls. All of the mountainous islands of volcanic origin are forested with many coastal areas surrounded by fringing reefs and lagoons. (Page 3)

Sri Lanka (submitted 6/11/2016)

<http://www4.unfccc.int/ndcregistry/PublishedDocuments/Sri%20Lanka%20First/NDCs%20of%20Sri%20Lanka.pdf>

Introduce suitable land and water management practices for central highlands and other marginal areas to minimize land degradation and to improve land and water productivity. (Page 16)

The NDCs of Irrigation Sector:

2. Establishing the water flow and sediment loads monitoring system in selected streams in the central highlands. (Page 19)

St. Vincent and the Grenadines (submitted 29/6/2016)

http://www4.unfccc.int/ndcregistry/PublishedDocuments/Saint%20Vincent%20and%20Grenadines%20First/Saint%20Vincent%20and%20the%20Grenadines_NDC.pdf

The geography, geology and socio-economic circumstances of St. Vincent and the Grenadines make it extremely vulnerable to climate-related natural disasters. Due to its **mountainous topography**, most activities on the mainland are concentrated on the narrow, low-lying coast line, at risk to sea-level rise (SLR) and coastal erosion while the landscape also adds risks of landslides and flash flooding. An increase in severe weather events will result in significant expenditures, which will further constrain St. Vincent and the Grenadines' social and economic growth. (Page 1)

Tajikistan (Submitted 22/3/2017)

<http://www4.unfccc.int/ndcregistry/PublishedDocuments/Tajikistan%20First/INDC-TJK%20final%20ENG.pdf>

The Republic of Tajikistan, as a **mountainous** and landlocked country with a developing economy and low per capita GDP, is characterized by the low level of gross and specific greenhouse gas emissions and an extreme vulnerability to climate change, including frequent natural disasters. More than 60% of the water resources of the Central Asia Region, which originate from the **high mountain glaciers**, are generated in the country. (Page 1)

State Programme for Study and **Preservation of Glaciers** of the Republic of Tajikistan for 2010-2030 (Page 2)

The INDC of the Republic of Tajikistan with respect to climate adaptation, subject to new substantial international funding and technology transfer: • monitoring and **preservation of the glaciers and water resources** in the runoff formation zones under the conditions of climate warming; (Page 3)

For the Republic of Tajikistan, the basic priority of climate measures lies in adaptation because of high dependence of the considerable part of the population and of the branches of the economy on climatic conditions, also taking into account the key role of the country's **mountain ecosystems** in water resources generation and biological diversity for Central Asia. (Page 4)

The forests and gardens in Tajikistan are of critical importance for the **preservation of mountain ecosystems and biodiversity**, improvement of the state of lands and prevention of their further degradation, protection of vulnerable infrastructure, protection of water resources and carbon absorption from the atmosphere. (Page 4)

Vanuatu (submitted 21/9/2016)

<http://www4.unfccc.int/ndcregistry/PublishedDocuments/Vanuatu%20First/VANUATU%20%20INDC%20UNFCCC%20Submission.pdf>

The Republic of Vanuatu is an island nation located in the Western Pacific Ocean. The country is an archipelago of over 80 islands stretching 1,300 kilometres from North to South. Vanuatu's terrain is mostly mountainous, with narrow coastal plains where larger islands are characterised by rugged volcanic peaks and tropical rainforests. Vanuatu is located in a seismically and volcanically active region and has high exposure to geologic hazards, including volcanic eruptions, earthquakes, tsunamis and landslides. (Page 3)