ADAPTATION
AT ALTITUDE

Leave No Mountain Behind: The Synthesis Series

Is public funding of adaptation going to the mountain regions most in need?

Adaptation at Altitude, a collaborative programme launched and co-supported by the Swiss Agency for Development and Cooperation, assists mountain communities and those working with them by improving the knowledge of appropriate climate change adaptation and disaster risk reduction strategies in the mountains, and by transferring that knowledge through science–policy platforms to inform decision-making in national, regional and global policy processes. This synthesis series is an example of that work.

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Mountains feature some of the clearest indications of climate change: rising temperatures, melting glaciers and changing precipitation patterns are disrupting water flows and affecting ecosystems, creating and worsening natural hazards and threatening livelihoods and communities both within the mountains and downstream. Understanding the geographic distribution and drivers of financial aid for climate change adaptation in sensitive socioecological environments such as mountains is therefore of paramount importance in optimising future programmes and enhancing sustainable development. A clear evidence base that supports donors in their allocation of funding has been lacking.

Under the **Adaptation@Altitude (A@A programme)**, a comprehensive screening of 7,560 adaptation projects was undertaken based on online international and bilateral donor databases. All funded projects were individually reviewed in order to identify whether the objectives or outcomes were conceived for adaptation in or for mountain regions. In total, 444 mountain adaptation projects were identified (6 per cent of all adaptation projects) providing a unique basis with which to explore the funding sources and distribution of mountain adaptation financing in the form of Official Development Assistance (ODA). Projects financed in UNFCCC Annex 1 countries (e.g. in the European Alps and the North America region) were excluded. For more than 100 of these 444 projects, further details relating to the implementation and achievements of the activities are showcased in detail at the **A@A Solutions Portal**.

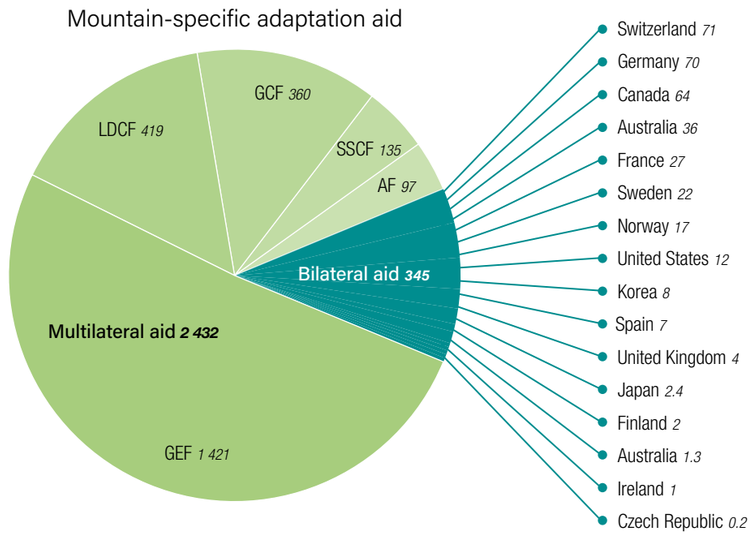
The 444 projects, funded by bilateral and multilateral donors, were implemented over the 2011–2019 period, spanning 25 mountain countries.[1] While not providing complete coverage, these countries represent high mountain regions of the world in which climate related impacts and disasters have been most numerous. Online reporting of financial information for projects prior to around 2011 is generally limited or inconsistent, while the onset of the global Covid-19 pandemic is expected to have introduced new priorities and challenges for donors. While not complete for all mountain countries, this analysis provides a unique stocktake of financial aid allocations in mountains, and explores recipient need and merit in aid allocation decisions.

Over the 2011–2019 period, around 6 per cent of all bilaterally or multilaterally funded adaptation projects targeted mountain regions. In monetary terms, the total value of the 7,560 identified adaptation projects amounts to around USD 20 billion, of which around USD 3 billion (15 per cent) was allocated to the 444 adaptation projects in mountain regions. This means that mountain adaptation projects over this period received, on average, around USD 6.7 million per project, compared to an average of USD 2.6 million per project for all adaptation projects globally. The reasons for mountain adaptation projects incurring higher costs could include the large spatial scales involved, extending from downstream cities to the upper mountain catchments, and the higher human and technical costs associated with accessing and implementing projects in remote mountain regions.

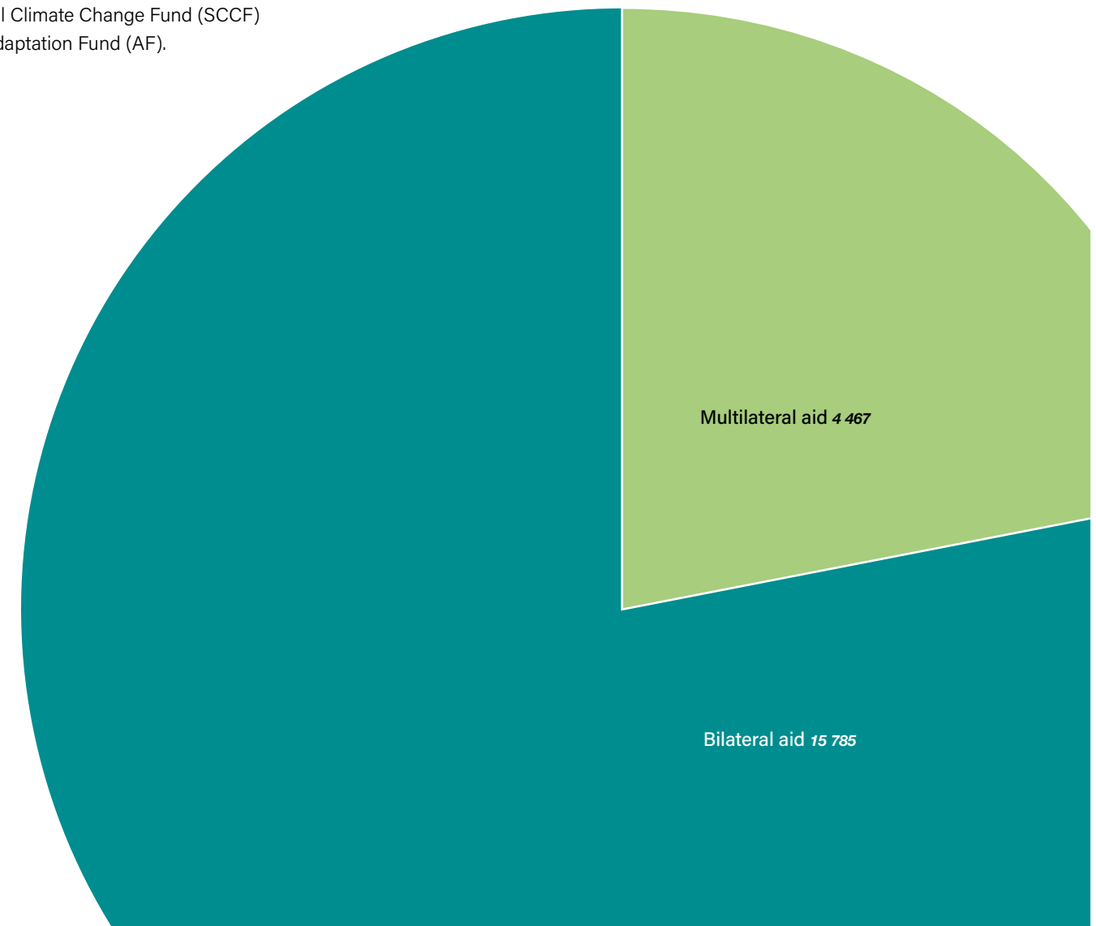
The vast majority of funding for adaptation projects in mountain regions comes from multilateral donors. There is a remarkable difference in the sources of funding for general adaptation projects compared to mountain-specific adaptation projects. Whereas bilateral donors dominate the funding landscape for adaptation project globally (USD 15.8 billion or 78 per cent of the total financial aid), bilateral donors represent only 12 per cent of the financial flow for adaptation projects in mountain regions, and multilateral donors dominate (88 per cent). Of the USD 2.4 billion of multilateral adaptation funding going to mountain regions, the Global Environment Facility was the primary contributor (58 per cent), followed by the Least Developed Countries Fund (17 per cent), Green Climate Fund (15 per cent), and Adaptation Fund (4%).

1 The 25 mountain countries considered in this synthesis are: Afghanistan, Argentina, Bangladesh, Bhutan, Bolivia, Chile, China, Colombia, Dem. Rep. Congo, Ecuador, Ethiopia, India, Kazakhstan, Kenya, Kyrgyz Republic, Myanmar, Nepal, Pakistan, Peru, South Africa, Tajikistan, Tanzania, Turkmenistan, Uganda and Uzbekistan.

Figure 1. Global adaptation aid, 2011–2019
(in USD millions)



The multilateral donors include the Global Environment Facility (GEF), the Least Developed Countries Fund (LDCF), the Green Climate Fund (GCF), the Special Climate Change Fund (SCCF) and the Adaptation Fund (AF).



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Switzerland is a key contributor to bilateral funding of adaptation projects in mountain regions. The top five donor countries for the period analysed – Switzerland (USD 71.3 million), Germany (USD 70.0 million), Canada (USD 64.0 million), Australia (USD 36.0 million), and France (USD 27.0 million) – financed 78 per cent of the total bilateral mountain financial aid. Switzerland has contributed 20 per cent of the total bilateral adaptation financial aid to mountain regions, with Peru, India and Pakistan being the largest recipients. Germany and Canada have tended to prioritise projects or programmes in Peru, India and Pakistan. In contrast, Australia sent USD 25.67 million (representing 10 per cent of the total bilateral financial aid to mountains of the top five donor countries) to Bangladesh. While the overall mountainous area of Bangladesh is small, with an estimated mountain population of around 30 000, its densely populated delta areas are highly susceptible to flood events originating in upstream catchments of the Ganges and Brahmaputra rivers.

Adaptation funding is unevenly distributed across mountain regions. The Hindu Kush-Himalaya region received by far the largest proportion of adaptation funding at 65 per cent (USD 1.798 billion), followed by the Andes with 15 per cent (USD 428 million), Central Asia with 11 per cent (USD 300 million) and finally Africa with 9 per cent (USD 250 million). The Hindu Kush-Himalaya region has the largest mountain population, and has experienced the greatest losses associated with hydrometeorological disasters over recent decades, potentially justifying a strong focus on both reactive and proactive climate change adaptation strategies in the region.

Overall, India received the largest amount of funding for mountain adaptation projects, although Bhutan and Tajikistan rank higher in terms of adaptation funding per mountain population. India received a total of USD 1.1 billion between 2011 and 2019 for adaptation projects across its seven Himalayan states and union territories. In contrast, the next eight countries received in the range of USD 100–200 million per country. When expressed as a per capita value of mountain population, Bhutan comes out far on top with USD 155 per capita-mountain population, followed by Tajikistan with USD 31 per capita-mountain population and India with USD 15. Towards the other end of the ranking, The Democratic Republic of Congo, for example, received only USD 0.02 per capita-mountain population. It is noted that adaptation projects within the framework of sustainable mountain development can generate far-reaching benefits for downstream communities.

Table. Adaptation funding and major disasters, 2011–2019

Mountain region	Adaptation funding (mil USD)	Number of disasters*	Economic losses* (mil USD)	Deaths*	Mountain population**
Hindu Kush Himalaya	1 798	323	44 690	26 991	286 million
Andes	428	150	3 138	6 664	73 million
Central Asia	300	39	257	700	4 million
Eastern and Northern Africa	250	163	1 247	4 881	146 million

* Disaster data from EM-DAT International Disaster Database for 1985–2014
** Based on mountain populations used in the funding analyses

Figure 2. Mountain aid to selected countries, 2011–2019

Multilateral funding

GEF 1 421
AF 97
SSCF 135
LDCF 419
GCF 360

Canada 64
United States 12
Japan 2
Korea 8
Norway 17
Finland 2
Sweden 22
Ireland 1
United Kingdom 4
Germany 70
Czech Republic 0.2
France 27
Austria 1
Switzerland 71
Spain 7
China 5
Kyrgyzstan 50
Uzbekistan 29
Tajikistan 218
Turkmenistan 3
Afghanistan 186
Pakistan 125
Nepal 201
Bhutan 125
Myanmar 1
Bangladesh 43
India 1 112
Australia 36
Ecuador 112
Colombia 66
Peru 163
Bolivia 74
Chile 12
Argentina 0.1
Ethiopia 34
Uganda 142
Kenya 70
DR Congo 0.5
Tanzania 5

Mountain-specific adaptation aid
2011–2019, million USD

1 000
500
200
100
50
20
10

Funding organizations and countries
Selected supported mountainous countries

Funding and support by capita

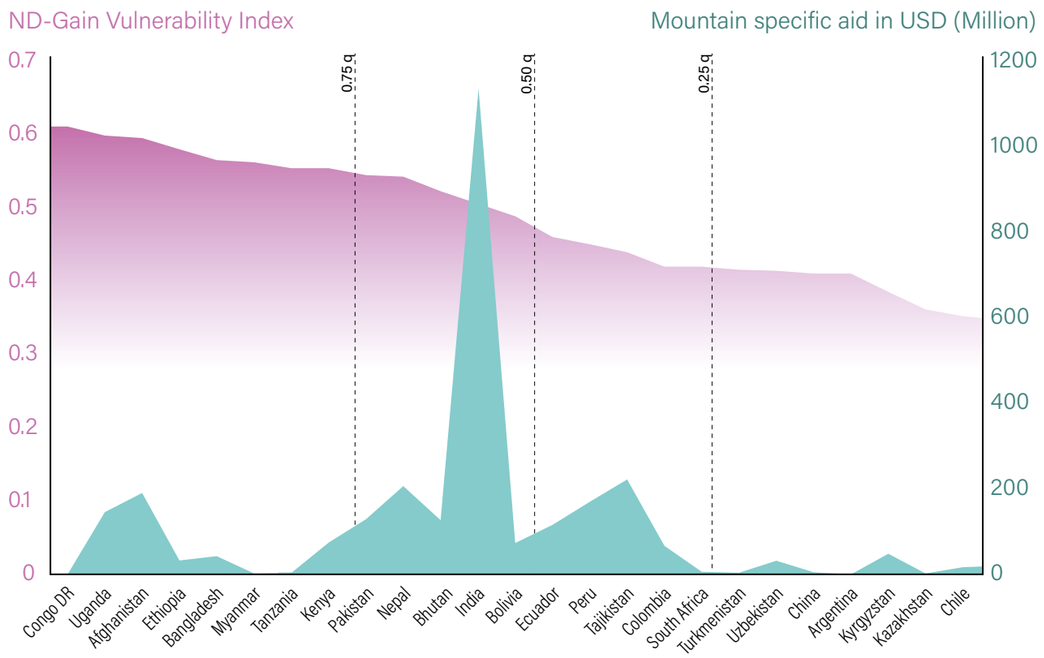
Bilateral funding, 2011–2019, USD per capita
More than 5
More than 1
Less than 1

Selected supported mountainous countries, 2011–2019, USD per capita
More than 100
More than 10
Less than 10

Map produced by Zoï Environment Network, April 2023

Adaptation financial aid is tending to flow to vulnerable mountain countries, but not to the most vulnerable. A comparison against national-level vulnerability index scores extracted from ND-GAIN shows that the most vulnerable countries, such as The Democratic Republic of Congo, Ethiopia, Myanmar and Tanzania, have received little funding for mountain adaptation (17 per cent of the total). This contrasts with what could be considered a fair and equitable model of adaptation aid – that the most vulnerable countries should be prioritised and that countries with similar levels of vulnerability should receive similar levels of adaptation financial aid per capita. The next category of vulnerable countries – including Pakistan, Nepal, Bhutan, India, and Bolivia – account for 59 per cent of funding allocation, biased heavily by the large amount going to India. The two most vulnerable categories thus received a combined total of 76 per cent of the mountain adaption funding (USD 2.8 billion), and only 4 per cent of the funding has gone to countries with comparatively low levels of vulnerability.

Figure 3. Vulnerability ranking and total amount aid received (USDm) for each mountainous country

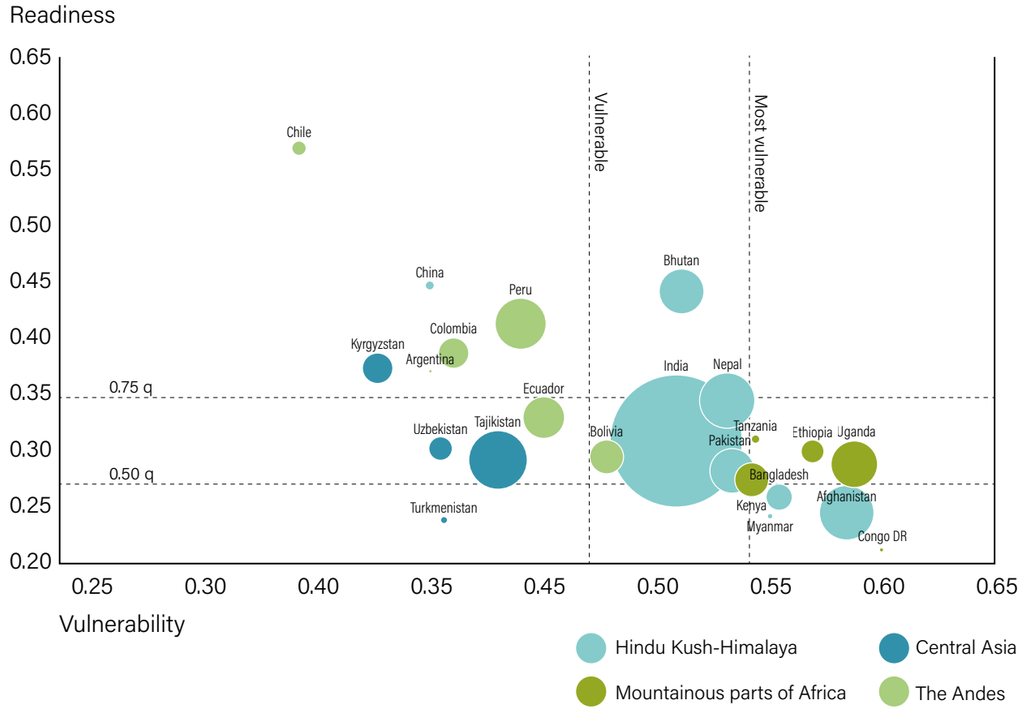


Vulnerability scores are in accordance with ND-GAIN and are classified by quantiles with the percentage of aid given to each quantile indicated. Most vulnerable are above the 0.75 quantile and vulnerable are between the 0.5 and 0.75 quantiles.

Donors appear to strike a balance between the readiness of the country to implement adaptation and its need for assistance. A country's ability or readiness to leverage investments to implement adaptation projects can also play a role in funding allocations, and is influenced by such factors as social and economic stability, governance, and institutional capacities. While some scholars report that country merit is an even greater determinant of adaptation funding allocation than country need, donors appear to try to balance these factors for mountain countries. Based on the ND-GAIN readiness index, mountain adaptation aid clearly does not simply flow to countries with the highest levels of adaptation readiness (such as Chile or China). Overall, however, 67 per cent of adaptation funding between 2011 and 2019 has gone to countries with above average levels of readiness. Given that higher levels of readiness tend to be associated with lower levels of vulnerability, it makes sense that donors typically compromise and direct mountain aid towards countries that need assistance and that have the capacity to support or implement the project. If donors were to focus only on the most vulnerable countries, the risk that adaptation projects would fail due to weak governance and institutional limitations would be too high. In contrast, focusing on those countries with highest readiness values would then lead to criticism that those countries suffering most are being left behind.

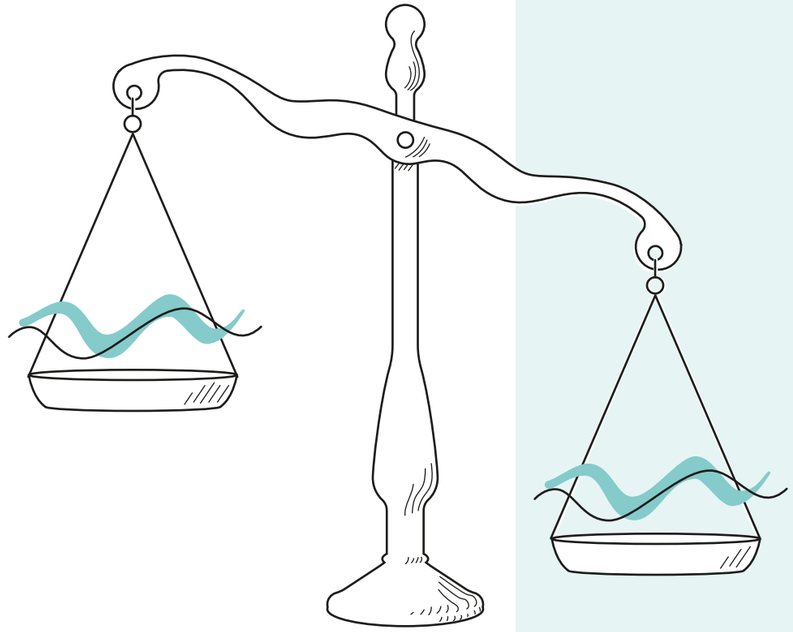
Countries of the Andes span the largest range of vulnerability and readiness scores, from Chile with high readiness and low vulnerability receiving the least adaptation aid, through to Bolivia, above the median for both readiness and vulnerability, receiving moderate levels of financial aid. In comparison, Peru, which receives the most adaptation financial aid in the region is less vulnerable than Bolivia, but has a higher level of readiness.

Figure 5. Vulnerability and readiness of mountain countries.
Circle sizes represent amount of mountain aid



A greater focus on, and financial investment in, bottom-up community level adaptation projects could allow donors to achieve more success within the most vulnerable countries. Such community-led initiatives typically do not have the same level of dependency on national institutions and governance structures. This means that targeted adaptation projects working with local NGOs and communities could be successful and sustainable even in those countries with low levels of readiness. In the Makanya Basin, Tanzania, for example, farmers have been using a traditional irrigation technique known as ndiva, a local word meaning micro-dam. This water harvesting technology has been in use since the 18th century, but agrarian communities in the district continue to improve it to capture water to irrigate their farms during dry spells and to adapt to current challenges. Likewise, the implementation of beekeeping activities in communities adjacent to the Udzungwa Mountains National Park in Tanzania, represents an alternative source of livelihood and a successful strategy that has helped reduce unsustainable activities such as logging in the targeted areas, thereby reducing human pressures on local ecosystems already affected by climate change.

These and other such community-based projects typically are implemented with small budgets but offer significant potential for upscaling and replication elsewhere with support of bilateral or multilateral funding. As with any financial decisions, donors may reduce or spread their risk when investing in the most vulnerable countries by targeting a larger number of smaller community-based adaption projects, rather than large, nationally led projects requiring greater political and institutional support.



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