

Mastering Disaster in the Anthropocene: Reconciling DRR and Climate Frameworks

Green Infrastructure as a Risk Reduction Approach

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7,056

disasters recorded worldwide

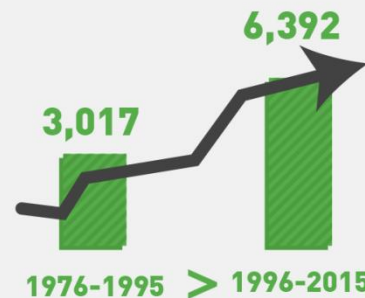
1996-2015



91%

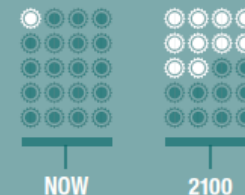
climate-related disasters

the number of climate-related disasters doubled over the past forty years **x2**

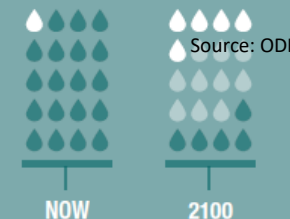


(Global Report on Internal Displacement, 2016)

Climate change is likely to change the rate and intensity of extreme events¹²⁶



A 1-in-20-year hottest day now is likely to become a 1-in-2-year event in most regions.



A 1-in-20-year annual maximum daily rainfall is likely to become a 1-in-5 to 1-in-15-year event in many regions.



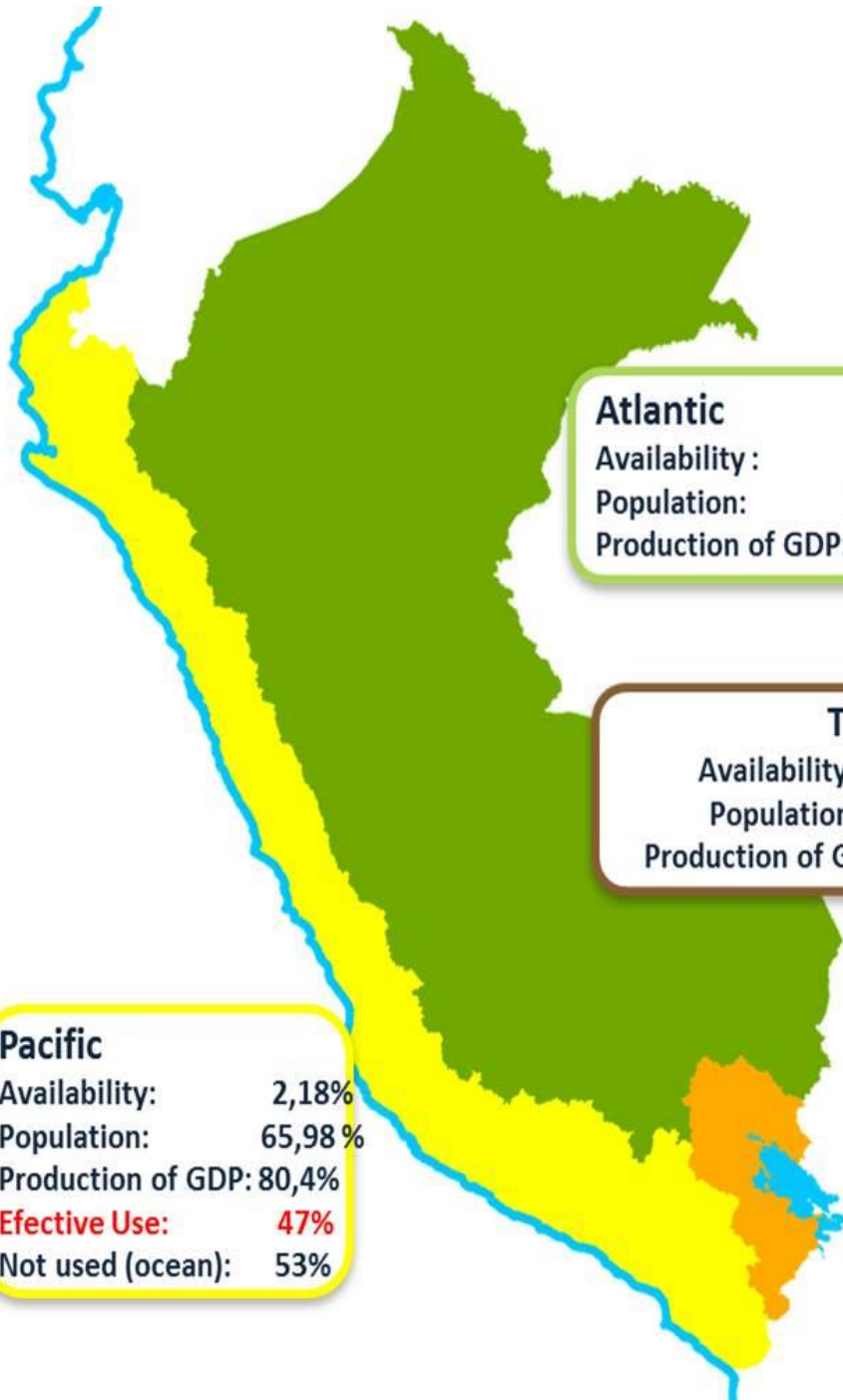


Source: REDDOM





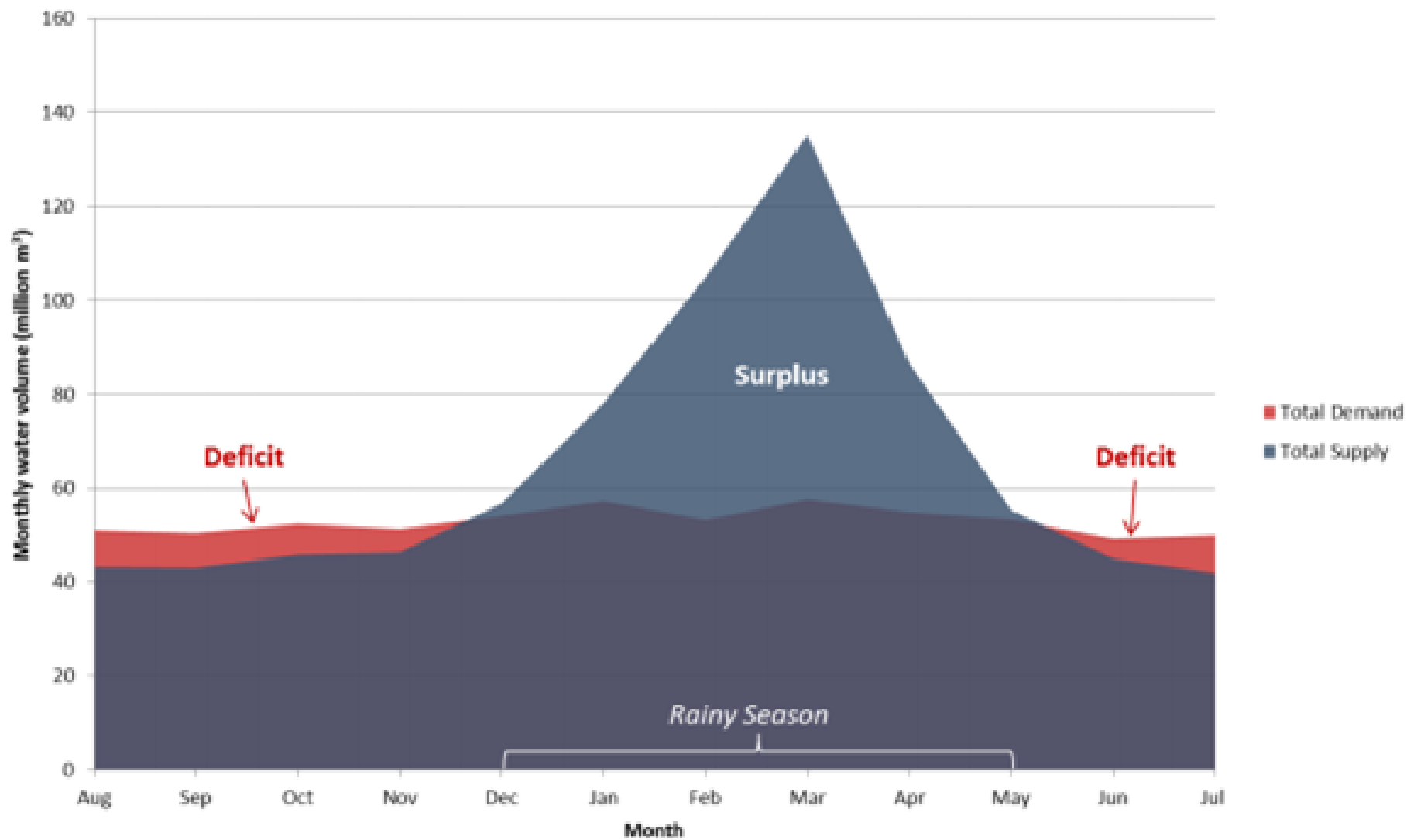
Source: REDDOM



Atlantic
Availability: 97,27%
Population: 30,76 %
Production of GDP: 17,6%

Titicaca
Availability: 0,56%
Population: 3,26%
Production of GDP: 2%

Pacific
Availability: 2,18%
Population: 65,98 %
Production of GDP: 80,4%
Effective Use: 47%
Not used (ocean): 53%









GREEN INFRASTRUCTURE RESOURCE GUIDE



SEPTEMBER 2017

www.climatelinks.org



EVIDENCE SUMMARY

Ecosystem-based Adaptation and Water Security



Fresh water sustains all life and is an essential requirement for human development. Globally, many communities are water-stressed, and an estimated 1.8 billion people are projected to live in areas with absolute water scarcity by 2025 (UNDP 2014). Communities rely on secure water resources for a wide array of purposes, including direct consumption, household use, irrigation, energy production, and sanitation and hygiene. However, as global temperatures increase and precipitation patterns change, floods, droughts and storms are likely to become more frequent and severe, which will impact water security in many areas. Climate stressors can also worsen the water stress already caused by human activity such as overconsumption of water resources, thus further threatening water security and resulting in direct socio-economic and health impacts on the most vulnerable populations.

Ecosystem-based adaptation (EbA) is a nature-based method to address water insecurity and climate change adaptation by strengthening natural systems concerning biodiversity and maintaining the goods and services that ecosystems provide for human development. EbA approaches to address water insecurity can also provide important benefits for other development sectors that rely on sustainable and clean sources of water.



CASE STUDY

Restoring Coral Reefs in the Face of Climate Change in the Seychelles



An Ecosystem-based Adaptation Approach

Project at a Glance

Coral reefs are critically important to the Seychelles, which is highly dependent on these ecosystems for food security, local livelihoods and economic growth. Importantly, coral reefs also serve as natural physical buffers that reduce wave energy and thus protect coastal communities from sea level rise and extreme weather events, such as storms and sea-level rise. At the same time, coral reefs are highly vulnerable to increasing temperatures and carbon dioxide emissions, which contribute to coral bleaching and reef damage. The USAID/Southern Africa Regional Mission's Reef Restorers Project is implemented by the non-governmental organization, Nature Seychelles. It focuses on restoring damaged coral reefs in the Seychelles to increase their resilience and reduce the vulnerability of coastal communities to storms, floods and sea level rise.



Project Donors: United States Agency for International Development (USAID), Global Environment Facility (GEF) and the United Nations Development Programme (UNDP)

Implementing Partner: Nature Seychelles

Climate Stressors: Sea level rise and ocean acidification

Funding: \$1.01020

Period of Performance: 2011-2016 (completed in 2015)

Ecosystem Services: Enhancement of reef ecosystem services, including coastal protection, fisheries habitat and tourism value

Project Focal Areas: Coral reefs and barrier reefs, coastal and marine parks



EVIDENCE SUMMARY

Ecosystem-based Adaptation and Extreme Events



Extreme weather and other climate events, such as floods, droughts, storms and heat waves, pose considerable risks to communities and reverse development gains. As the climate warms, these events are likely to increase in frequency and intensity. Because extreme events often have greater impacts on the most vulnerable populations, there is an urgency to implement strategies that will improve resilience. Ecosystem-based adaptation (EbA) is a nature-based method for climate change adaptation that can reduce the vulnerability of societies and economies to extreme events. EbA provides flexible and cost-effective approaches that enhance resilience through the improved management and conservation of ecosystems. EbA can be an effective adaptation strategy alone or as an element of broader national, regional and community adaptation plans.



CASE STUDY

Maintaining Water Security in Critical Water Catchments in Mongolia



An Ecosystem-based Adaptation Approach

Project at a Glance

The Ecosystem-based Adaptation Approach to Maintaining Water Security in Critical Water Catchments in Mongolia protects vulnerable communities in two areas in rural Mongolia (the Alta Mountains and Great Lakes Basin ecoregion and the Eastern Steppe ecoregion) adapt to climate change. Mongolia is an arid and to hyper-arid country with low precipitation rates (50 to 400 mm per year) and low groundwater recharge. The country's watersheds are under growing pressure from climate stressors such as higher temperatures and drought, leading to increased evapotranspiration. From 1940 to 2007, the mean air temperature in Mongolia increased by 2.1 degrees Celsius and average annual precipitation declined by seven percent. A water inventory in 2007 found that an estimated 800 out of 1,128 rivers and streams had dried up.



Project Donors: United Nations Development Program (UNDP) and Adaptation Fund

Implementing Partners: Mongolian Ministry of Nature, Environment and Tourism

Funding: \$3.3 million from the UNDP and Adaptation Fund \$1 million from the Government of Mongolia

Period of Performance: 2012-2017

Climate Stressors: Increased temperatures, irregular winter patterns and drought

Ecosystem Services: Maintenance of riparian, mountain and forest ecosystem services, particularly water provision

Project Focal Geographies: Alta Mountains/Great Lakes Basin and the Eastern Steppe (this includes the area of concern for 70 percent of the country's water resources)

Direct Beneficiaries: 58,000 people