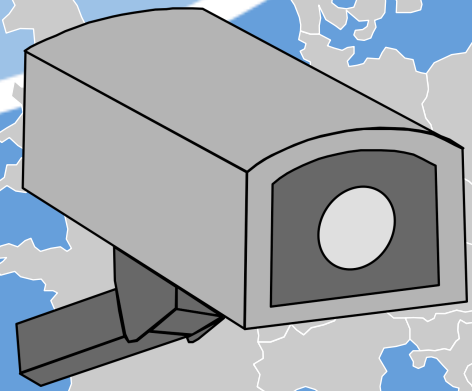




Europe's security and crisis management in a changing climate



Threats driven by climate change and related to security issues:



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Intensified competition over access to, and control over, energy resources is, and will continue to be, a cause of instability. As previously inaccessible regions open up due to the effects of climate change, the scramble for resources will intensify.

As the pressure on natural resources increases, competition can lead to instability and even violent conflict in the absence of effective dispute resolution.

Climate changes will increase the human insecurity of people who depend on natural resources for their livelihoods, which could push them to migrate or turn to illegal sources of income.

Mega-cities, with their supporting infrastructure, such as port facilities and oil refineries, are often located by the sea or in river deltas. Sea-level rise and the increase in the frequency and intensity of natural disasters pose a serious threat to these regions and their economic prospects. An increase in disasters and humanitarian crises will lead to immense pressure on the resources of donor countries, including capacities for emergency relief operations.

Rising sea levels will threaten the viability of low-lying areas even before they are submerged, leading to social disruption, displacement, and migration, while disagreements over maritime boundaries and ocean resources may increase.

Tension over energy supply

Local resource competition

Livelihood insecurity and migration

Economic damage and risk to coastal cities and critical infrastructure

Sea-level rise and coastal degradation



Threats driven by climate change and related to security issues:



Extreme weather events and disasters

Pressure on international governance

Unintended effects of climate policies

Situations of fragility and radicalization

Urbanization

Cities create their own risks by causing degradation of the local, regional, and global environments. High concentrations of resources and people within cities also mean that the economic, social, and environmental costs of extreme events are high in urban areas. Furthermore, these costs are likely to escalate as a result of growing populations in coastal cities, many of which are already highly vulnerable to sea-level rise, tsunamis, and other hazards.

Climate change may significantly increase instability in weak or failing states by over-stretching the already limited capacity of governments to respond effectively to the challenges they face.

As climate adaptation and mitigation policies are more broadly implemented, the risks of unintended negative effects — particularly in fragile contexts — will also increase.

Extreme weather events and disasters will exacerbate fragility challenges and can increase people's vulnerability and grievances, especially in conflict-affected situations.

Climate change impacts will fuel the politics of resentment between those most responsible for climate change and those most affected by it. Impacts of climate mitigation policies (or policy failures) will thus drive political tension nationally and internationally.

Threats driven by climate change and related to security issues:



Climate change is highly likely to disrupt food production in many regions, increasing prices and market volatility, and heightening the risk of protests, rioting, and civil conflict.

Volatile food prices and provision

Environmentally-induced migration

Desertification could trigger a vicious circle of degradation, migration and conflicts over territory and borders that threatens the political stability of countries and regions.

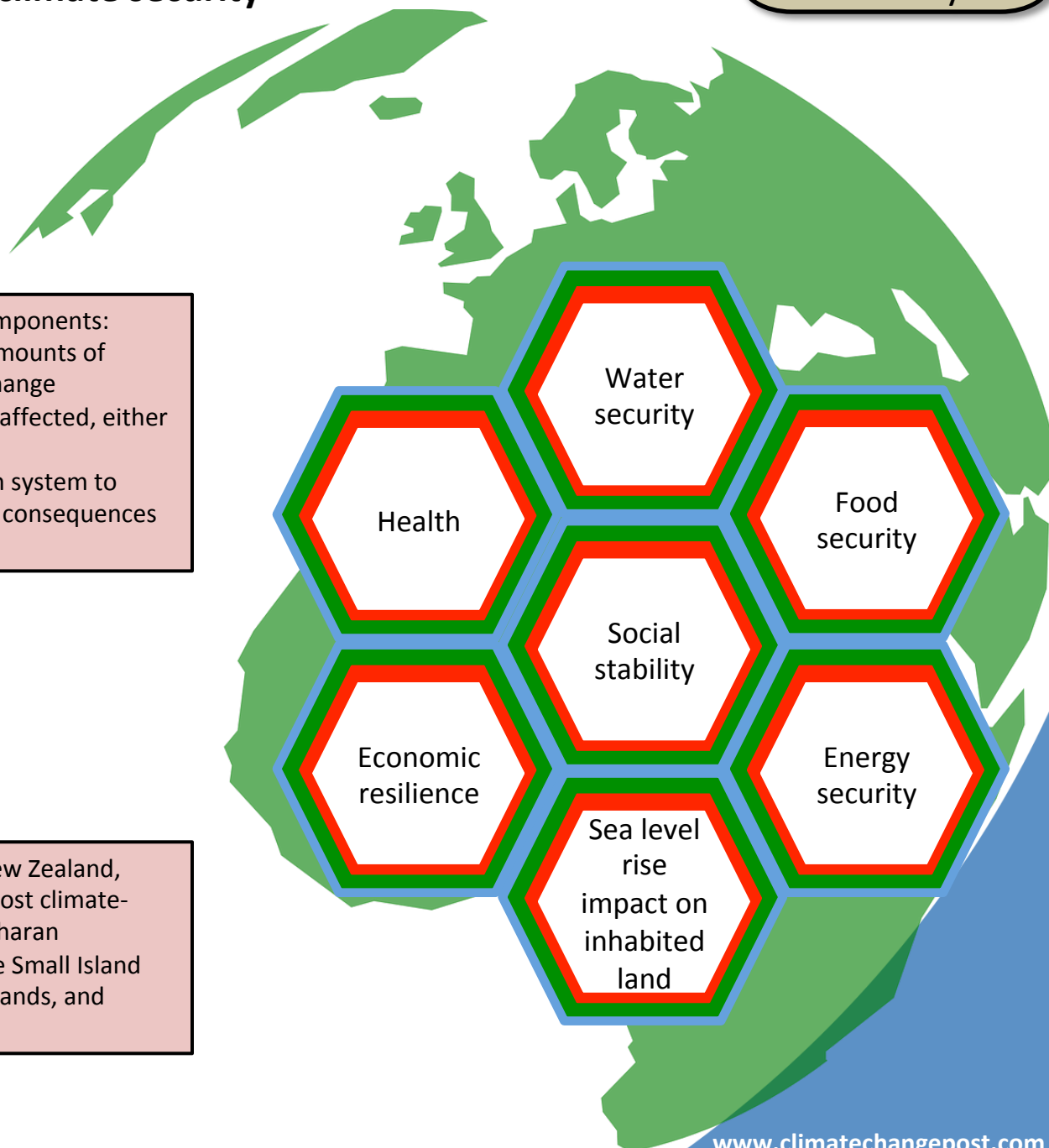
Loss of territory and border disputes

Receding coastlines and submergence of large areas could result in loss of territory, including entire countries such as small island states. A further dimension of competition for energy resources lies in potential conflict over resources in Polar regions which will become exploitable as a consequence of global warming.

Trans-boundary water management

Transboundary waters are frequently a source of tension; as demand grows and climate impacts affect availability and quality, competition over water use will likely increase the pressure on existing governance structures.





7 dimensions of climate security, each with 3 components:

- **Exposure:** the number of people and the amounts of resources and assets affected by climate change
- **Sensitivity:** the degree to which a sector is affected, either positively or negatively
- **Adaptive capacity:** the ability of the human system to adjust to, take advantage of, or respond to consequences of climate change

Climate security ranking: European countries, New Zealand, Canada, and Australia occupy the top ten. The most climate-vulnerable countries in the world are the Sub-Saharan Mauritania, Somalia, and South Sudan, and some Small Island Developing States, such as Maldives, Marshall Islands, and Tuvalu.



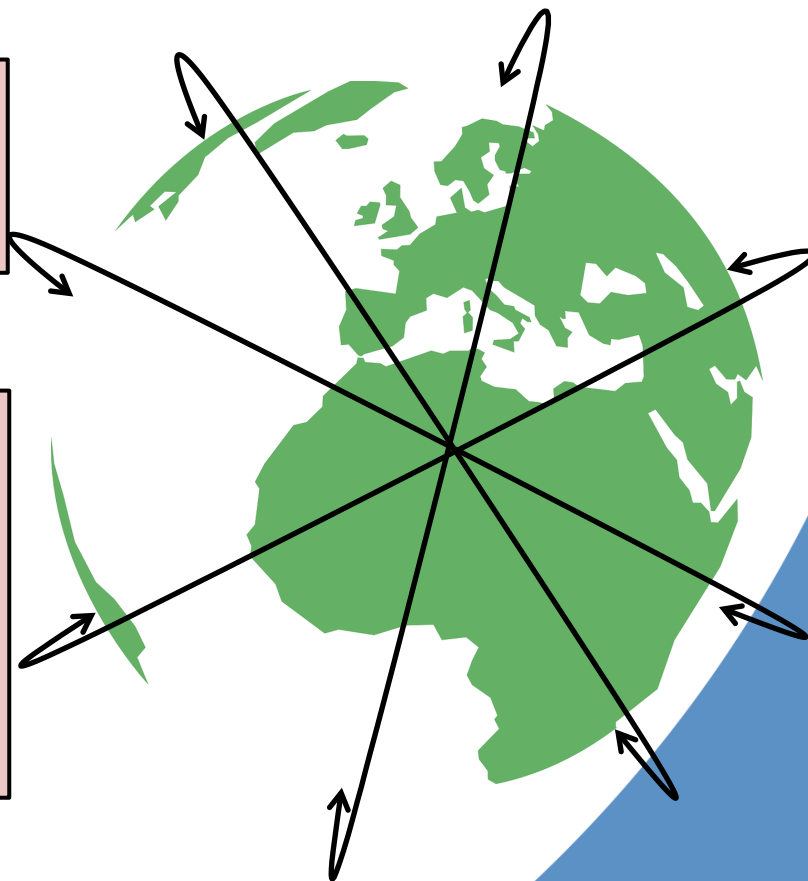
Transnational impacts of climate change

Security

The countries that are most vulnerable to the direct impacts of climate change within their borders are concentrated in Africa and Asia.

There are also so-called 'transnational climate impacts': climate impacts that reach across borders, affecting one country as a result of climate change or climate-induced extreme events in another country. When these transnational impacts are included as well in assessments of countries' vulnerability to climate change, the world map of vulnerable countries has quite a different look.

- Four transnational risk pathways through which climate risk may propagate:
- biophysical systems: changing flows of ecosystem services and resources from transboundary ecosystems such as river basins, oceans and the atmosphere
 - movement of people: changing flows of people between countries as a result of climate impacts, e.g. migration and tourism
 - financial flows: changing capital flows resulting from climate impacts on assets held overseas
 - international trade: changing flows of goods and services via international supply chains and global markets





European countries: direct risk low, transnational risk high

The countries that are most vulnerable to the direct impacts of climate change within their borders are concentrated in Africa and Asia.



In the global top ranking of most vulnerable countries, The Netherlands stands out. Only eight countries are more vulnerable than The Netherlands, and all of them are in Sub-Saharan-Africa and the Middle East.



The high position of The Netherlands seems to be related to its global openness as a trading nation that also makes the country highly exposed to transnational climate impacts.



A need for enhanced international cooperation on adaptation: climate change adaptation as a global collective endeavour, rather than a purely local one.





IPCC (2012):

The relationship between climate risk and displacement is a complex one and there are numerous factors that affect migration. Nonetheless, recent research suggests that adverse environmental impacts associated with climate change have the potential to trigger displacement of an increased number of people.

Recent studies (O'Brien (2008):

- Bulk of migration will take place internally in individual countries
- Majority of migration will come as a result of gradual changes in climate and not so much from individual catastrophic events
- In most cases when hydro-climatic disasters occur in developing countries they will not lead to net out-migration because people tend to return to re-establish their lives after a disaster
- Long term environmental changes are likely to cause more permanent migration

Jägerskog and Swain (SIWI, 2016):

"The ability to cope with climate change and water scarcity decreases, and the likelihood of migration increases, as a result of factors that include poverty, low levels of education, lack of skills, weak institutions, limited infrastructure, lack of technology and information, limited access to health care, poor access to resources, and the over-exploitation of resources, etc. Pull factors, such as a hope of a better life and employment, often combine to result in migration."

Climate change is generally regarded to act as a threat multiplier for instability in some of the most volatile regions of the world.

Experts in refugee studies have stressed that environmental events by themselves rarely, if ever, produce 'refugees'.



Some degree of exaggeration?

While it does seem likely that climate change will be an additional contributor to migration, many studies emphasize that it is very unclear how many migrants there may be, where they may move from and to, and over what time scale.

It is also widely recognized that environmental change is never a sole cause of migration. There are always one or more underlying economic, political or other social factors that make environmental change a proximate trigger, rather than an underlying driver of migration.

Four possible pathways through which climate change could affect migration:

- Intensification of natural disasters
- Increased warming and drought that affects agricultural production and access to clean water
- Sea-level rise, which makes coastal areas and some island states increasingly uninhabitable
- Competition over natural resources, leading to conflict and displacement of inhabitants

Climate change-induced refugee flows are increasingly seen as one of the foremost crises of our times, blamed too easily on drought and climate change.

Most studies agree that the most important climate change-related driver of migration will be sea-level rise. These studies also recognize that the rate of migration driven by sea-level rise is likely to be slow, but steady.



No clear evidence relating climate change to armed conflict and refugee flows

The war in Syria may serve as an example. According to a number of experts, it was the Syrian regime's failure to establish proper water governance and irrigation systems in the south of the country that led to unpreparedness when drought hit harder than usual. The impact of droughts depends on the geopolitical setting and adaptive capacity of societies, as Syria's civil war outbreak illustrates. Several social factors and causal mechanisms play a role in turning climate-induced stress into violent conflicts.

The evidence about the links between environmental change and violent conflict is currently inconclusive. Conflicts resulting from climate change will not necessarily be violent and can instead lead to changes in the distribution of power and resources, and protection of the things that are valued. Furthermore, research on international river basins shows that issues of water access and water scarcity in many cases lead to cooperation, rather than conflict.

However, some studies relate current climate variability to armed conflict:

- 21% of conflicts since 1950 are attributable to movements in the global climate away from the cooler and wetter La Niña state to the hotter and drier El Niño phase.
- Warming trends since 1980 elevated conflict risk in Africa by 11%.

Disaster and conflict often go hand in hand; in 60 years of peace building operations in 49 countries, in only one case (Kosovo) were there no natural disasters.



Build resilience against climate-fragility risks

Disaster risk reduction

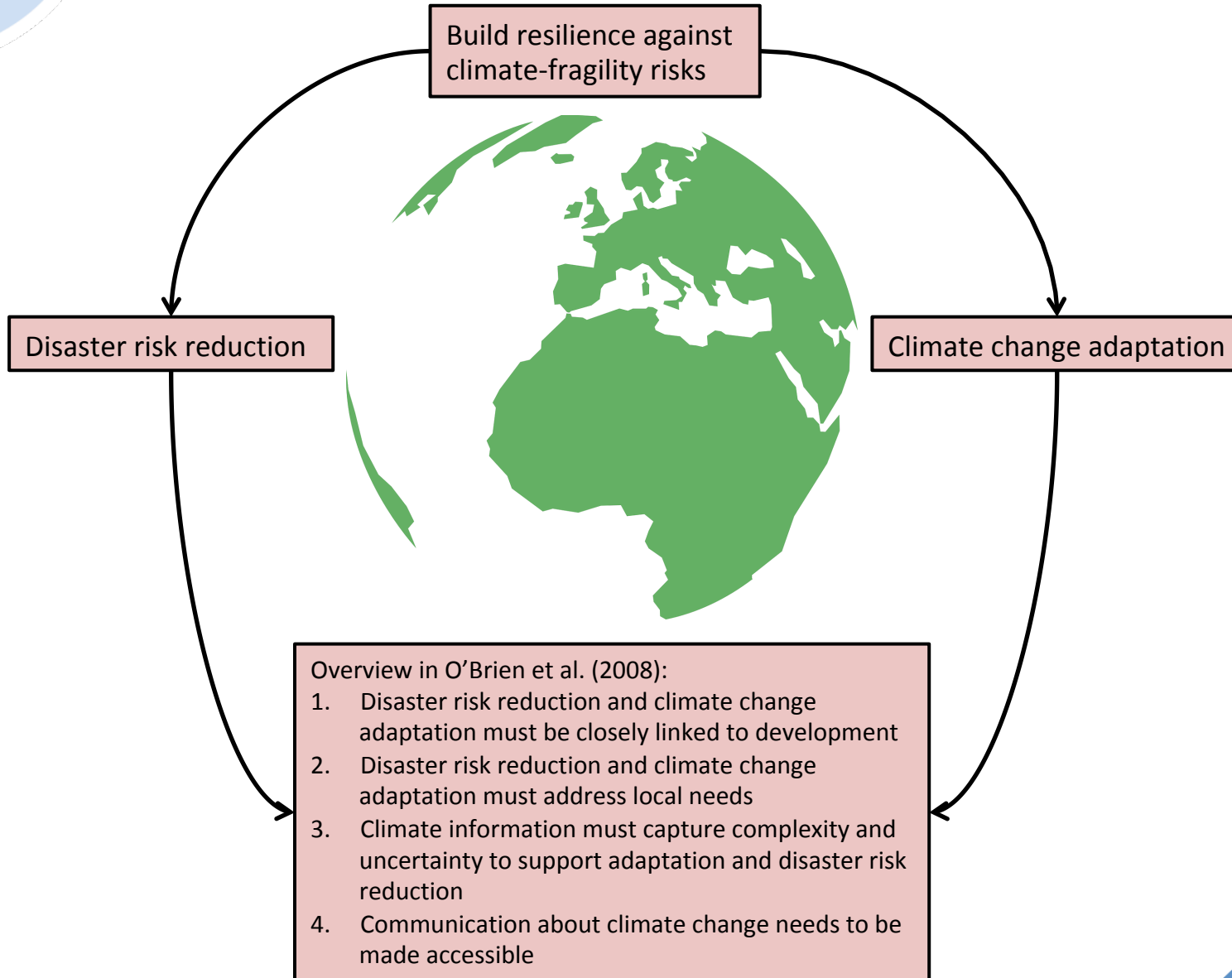
Climate change adaptation



Hyogo Framework for Action (2005). Five priorities for action:

- ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation
- identify, assess and monitor disaster risks and enhance early warning
- use knowledge, innovation and education to build a culture of safety and resilience at all levels
- reduce the underlying risk factors
- strengthen disaster preparedness for effective response at all levels

Within the United Nations Framework Convention on Climate Change (UNFCCC, 1992) the Bali Action Plan (BAP, 2009), puts adaptation on an equal footing with mitigation.





Ad 1.

Risk reduction and adaptation strategies must be carefully tailored to individual, household and community needs. Approaches that treat communities as homogeneous are prone to failure, as are adaptation and disaster risk reduction measures that do not explicitly and simultaneously address poverty.

Ad 3.

The complexity of future extreme events, which are likely to be characterized by one or more hazard that is compounded by other factors (e.g. flooding combined with a cholera outbreak that coincides with an economic crisis), requires more robust and flexible disaster risk strategies and institutional responses than has been typically used in the past.

Overview in O'Brien et al. (2008):

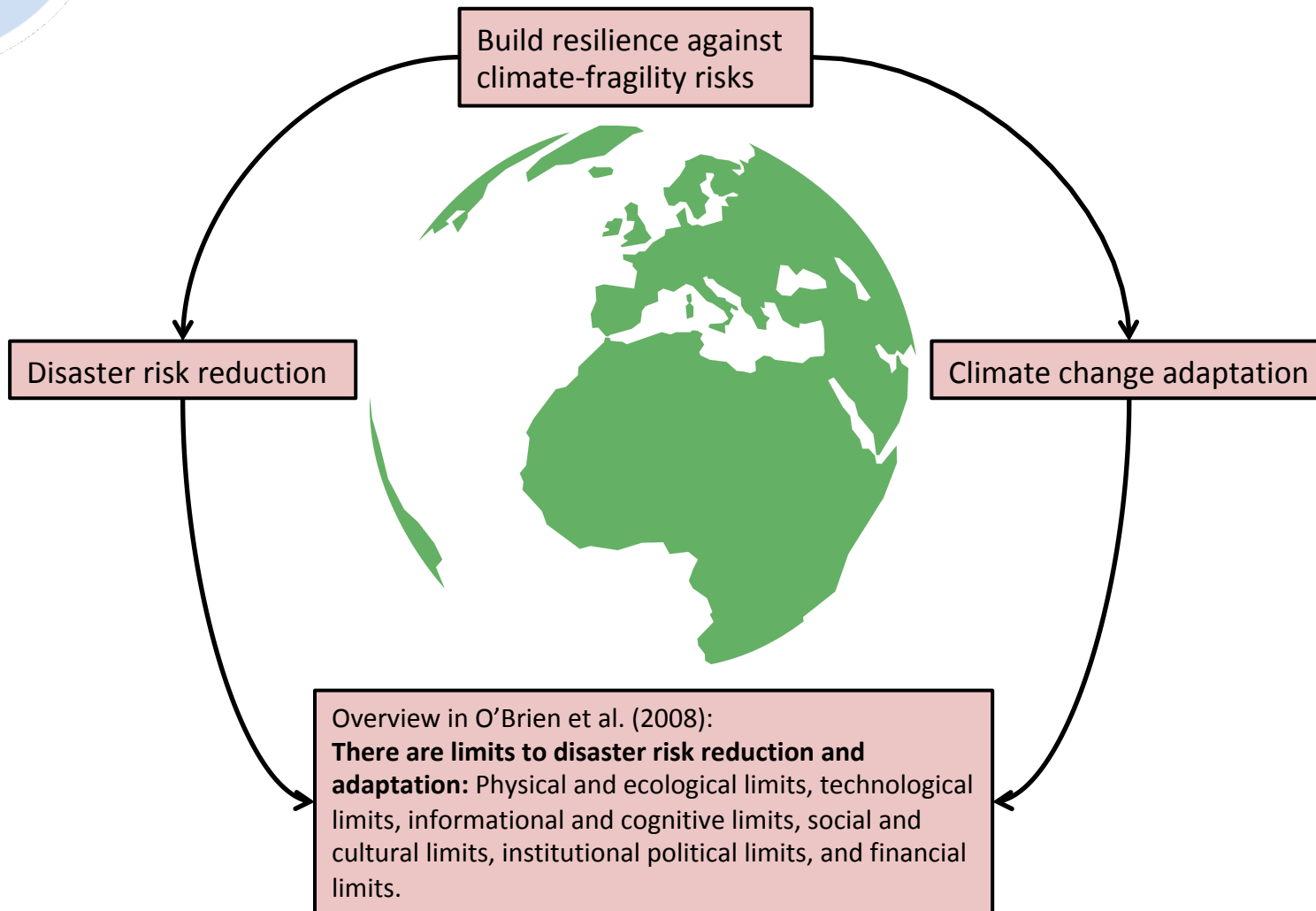
1. Disaster risk reduction and climate change adaptation must be closely linked to development
2. Disaster risk reduction and climate change adaptation must address local needs
3. Climate information must capture complexity and uncertainty to support adaptation and disaster risk reduction
4. Communication about climate change needs to be made accessible

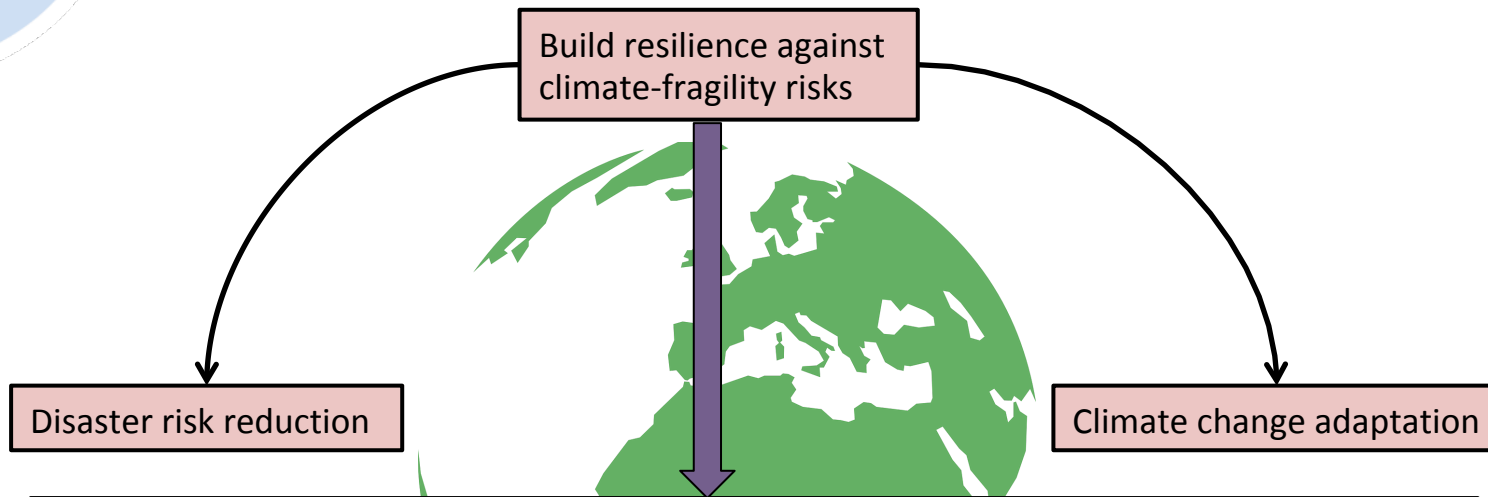
Ad 2.

Reframe vulnerable people not as passive victims but as capable of preventing disasters and adapting to climate change within their own communities. Bottom-up approaches promote locally-appropriate measures, empower people to change their own lives.

Ad 4.

Communication about climate change needs to be made accessible in order to engage vulnerable people without compromising scientific credibility. Emphasis should be on presenting knowledge in a community's own language, through innovative media, and in understandable non-scientific terms.





Rüttinger et al. (2015):

- Identify climate-fragility risks and generate actionable conclusions.
- Develop resilient food systems, and mitigate the risks posed by food insecurity by better information, by keeping markets operating during crisis and by market access.
- Integrate disaster risk reduction, peace building, and climate change adaptation.
- Ensure that transboundary waters become points of peaceful cooperation, through stronger institutions, better dissemination of knowledge and encouraging cooperation between governments in transboundary river basins.
- Build local resilience to climate-fragility risks.

In addition, German Advisory Council on Global Change (2007):

- Support adaptation strategies for developing countries. Adapt water resources management to climate change and avoid water crises. Focus should also be on gearing agriculture to climate change.
- Stabilize fragile states and weak states that are additionally threatened by climate change. Specifically, fragile states' capacities to manage environmental risks must be maintained and reinforced, and if necessary re-established, even under difficult political and economic conditions.
- Manage migration through cooperation and further developing international law.
- Expand global information and early warning systems, to mitigate adverse effects and make a major contribution to conflict and crisis prevention.

