Position paper

Adaptation to climate change

Background

According to the projections of the Intergovernmental Panel on Climate Change (IPCC), climate change poses serious risks to human and natural systems, now and in the future.[1] Adaptation to climate change prevents or reduces the adverse consequences of climate change. In addition, adaptation can harness new potential that arises as a result of climate change – for example, because of a geographical shift in food production.[2] Adaptation is an important topic in the international negotiations and an issue of outstanding importance to developing countries that are particularly hard affected by climate change impacts. Some aspects of the financing of adaptation and the management of loss and damage caused by climate change are still the subject of controversial debate.[3] Discussion of the criteria for effective adaptation measures and how their effectiveness should be monitored is also ongoing. Outside these areas of debate, however, there is broad agreement that the consequences of climate change should be systematically considered in all areas of society. Adaptation is therefore often viewed as part of a comprehensive approach to climate risk management and transformative change in society and the economy. The scientists at the IPCC define climate risk as the potential impacts on (or consequences for) a particular material or immaterial asset – which may be a human life, an object of economic value or an ecosystem. This broad definition differs from the common definition of risk as the probability of occurrence and the extent of loss or damage. In the case of earthquakes and other 'classic' natural disasters, experts attempt to quantify the probability of occurrence and predict the level of damage. In relation to the consequences of climate change, however, the greater uncertainty that results from factors such as longer time frames and different mitigation scenarios means that this is often not possible. Climate risks arise from the interplay between vulnerability, exposure and climate-induced hazard.

In the Paris Agreement of 2015, the international community made, for the first time, a legally binding commitment to limit global warming to significantly less than two degrees Celsius and if possible to 1.5 degrees Celsius. But even with a shift to a low-carbon economy, developing and newly industrialising countries will experience extreme weather events such as droughts and floods and gradual changes such as rising temperatures and increasing water scarcity. Adaptation is therefore enshrined in the Paris Agreement as a goal that is equally important as mitigation. The adaptation goal involves an undertaking by the international community to improve adaptive capacity, enhance resilience and reduce vulnerability to the consequences of climate change. In addition, each country is required to engage in adaptation planning processes and submit details of the progress made in planning and implementation for regular international scrutiny. In the area of loss and damage, countries throughout the world are called upon to collaborate more closely on risk management issues. However, general liability obligations in connection with the historic emissions of industrialised countries are explicitly excluded. The climate financing pledged by industrialised countries of 100 billion US Dollars per year from 2020 is to be continued until 2025. Emerging countries are urged to contribute voluntarily. In the near future, new targets – which will take account of the contribution of emerging economies – will be defined for the post-2025 period.

At the heart of the Paris Agreement are the Nationally

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Determined Contributions (NDCs), on which implementation of the Agreement is based. The NDCs set out targets for greenhouse gas reduction and adaptation to climate change that the countries have defined themselves. All states have a duty to submit their targets to the Climate Change Secretariat at the UN and to undertake measures at national level to achieve them. States must also report regularly on their greenhouse gas emissions, adaptation measures, and progress made in implementing the NDCs and in climate financing. These reports provide the basis for a review of the progress made in implementing the Paris Agreement (global stocktaking), which will take place every five years.

Implementation of the NDCs will be a pillar of international climate policy for some time to come. GIZ is already involved in NDC-related work in partner countries via a variety of projects being implemented on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ) and the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB).

The Paris Agreement cannot achieve its aims without increased technical and financial cooperation between member states. It is for this reason that Germany, working with other countries, development banks and multilateral organisations, has launched a number of initiatives to promote implementation of the Agreement in developing countries.

• The global NDC Partnership promotes the specification and coordinated implementation of Nationally Determined Contributions in the fields of both mitigation and adaptation.

• The National Adaptation Plan (NAP) Global Network promotes national adaptation planning through advice, the exchange of ideas and coordination of donor programmes.

• The InsuResilience initiative aims to provide an additional 400 million poor people with access to insurance against extreme weather events by 2020.

Implementation of the national adaptation goals under the Paris Agree-ment poses major challenges. Experience of similar processes has shown, for example, that national environ-mental action plans or National Adaptation Plans of Action (NAPAs) in developing countries have often been over-dependent on the mobilisation of international funds. Instead of focusing on national development processes and results-oriented financial planning, governments strove to send out signals that would satisfy donor interests.[4] This resulted in the conception of many individual measures of very limited scope and sustainability. The ministries of environment in charge of the process often lack both the support of high-level policy makers and other line ministries and the institutional capacities needed if adaptation is to be systematically integrated in the political programming of all the ministries involved. In addition, many countries are without reliable information on climate risks and do not have the necessary experts in this field. Even existing activities that make an effective contribution to adaptation and risk reduction are often not identifiable as such, because they do not explicitly state climate aspects in their conceptual design and monitoring. Civil society and private-sector stakeholders have in the past been insufficiently well informed about the consequences of climate change and insufficiently involved in the implementation of adaptation targets. In addition, there is a lack of bankable adaptation projects that enable national, international, private and public funds to be used where they are needed.

Our positions

In this context, GIZ takes the following positions:

■ **Climate change requires plans and decision-making in the face of greater uncertainty.**
Climate projections cannot predict the future precisely. Neither can climate risk and vulnerability assessments. Nevertheless, these tools help to shed light on causal relationships and provide important facts, figures and data for decision-makers. Although not all the consequences of climate change can be calculated, we have sufficient knowledge to act.

■ **Adaptation strengthens individuals, organisations and societies.**
Climate change poses new challenges for society and individuals. The routines, rules and structures of organisations need to change. Key factors in this are risk competence and the ability to learn. Risk competence entails a basic ability to handle statistical and climate-related information, and knowledge of people's behavioural patterns.[4]

■ **The transition to a climate-resilient society requires an organising state that bases its actions on sustainability and gives citizens a stronger voice in decision-making.**
In a world of scarce resources and competing political

priorities, adaptation to climate change needs a clear mandate and clear priorities. Sustainability-oriented forces in business, science and society are key stakeholders in the transformation process. Effective international cooperation and supportive global governance structures that encourage national action are indispensable.[5]

■ **Each adaptation option should be based on an explicit adaptation hypothesis.**
The crucial difference between adaptation measures and traditional solutions is the 'adaptation hypothesis' – the plausible assumption of how an activity contributes to adapting to climate change impacts or harnessing associated potentials. A measure may qualify as an adaptation measure if it can be shown that it fulfils a clear adaptation-related purpose and successfully contributes to the reduction of climate-related risks. Formulating an adaptation hypothesis is an essential step in all sound results monitoring and necessary for reporting a project internationally as a contribution to the adaptation targets of the Paris Agreement. It is also a precondition of access to climate finance. Furthermore, studies show that international cooperation projects that address adaptation achieve better results if they are based on a vulnerability or risk assessments.

■ **Adaptation safeguards development in all areas of society and should be mainstreamed systematically.**
The Paris Agreement emphasises the importance of integrated approaches in implementation of the NDCs. All countries are required to conduct a national adaptation planning process. This process forms the backbone for implementation of the adaptation targets in the NDCs and enables countries to access climate finance. Adaptation activities are still frequently designed and implemented as standalone environmental projects. For adaptation to succeed, the consequences of climate change should be systematically considered in the planning and implementation of policies, programmes and public and private investment. This applies to all levels of planning and all vulnerable sectors.

■ **The successes of adaptation planning and implementation should be systematically measured and aggregated.**
Monitoring and evaluation of adaptation is necessary in order to ensure that ultimately the measures do in fact contribute to the reduction of vulnerability, exposure or risk in relation to the consequences of climate change. In addition, this collated information is needed for reporting at international level so that information on the appropriateness and effectiveness of adaptation measures and the progress made towards achievement of the global adaptation target can be provided for the purposes of the global stocktaking every five years.

■ **Climate change demands fundamental shifts in the conservation and use of endangered ecosystems.**
This involves, for example, an increased focus on measures to conserve biological diversity, reduce stressors such as overuse and pollution, and relocate species. Ecosystem-based adaptation makes an important contribution to tackling the consequences of climate change.

■ **Urban regions should receive particular support in adapting to climate change.**
Cities are under particular threat from many of the hazards associated with climate change. In addition, municipal authorities are the most important stakeholders in the implementation of national adaptation policies. It is therefore particularly important to ensure that the capability of service providers, the participation of those affected and access to technical and financial resources are improved at this level.

Our recommended actions

GIZ considers the following the most important recommendations for action:

■ **Climate information: 'Everything should be made as simple as possible, but no simpler' (Albert Einstein).**
(1.) **The greater the uncertainty, the more one should simplify.** For example, flood risks can be projected relatively precisely, but changes in precipitation involve far more uncertainty. In urban areas that are at risk of flooding, it is therefore worth spending time and money on the calculations associated with different adaptation options, while in other areas no-regret measures are the best solution.
(2.) **The larger the number of alternatives, the more one should simplify.** This is because the estimation error in complex calculations increases with an increase in the number of variables to be taken into account.
(3.) **The greater the availability of data, the greater the suitability of complex methods.** Comprehensive climate projections and satellite images of land use of adequate quality are now available free of charge from international databases. On the other hand, many developing countries lack reliable, up-to-date information on

climate change impacts, population distribution, economic activities and their inhabitants' behaviour.

■ **All countries are recommended to perform a National Adaptation Plan (NAP) process.**
The NAP process is a programmatic approach that coordinates adaptation activities, consolidates the interaction between sectors and facilitates the mainstreaming of adaptation at all levels. A vital factor in a successful NAP process is the broad participation of decision-makers from all areas of society. It is particularly important that affected companies and local scientists are involved from an early stage. All bilateral projects and programmes in the field of adaptation to climate change should contribute to implementation of the adaptation targets in the NDCs via the NAP process.

■ **Adaptation options and strategies should be selected on the basis of vulnerability or climate risk assessments.**
Climate risk assessments help to identify hot spots and adaptation options and evaluate their effectiveness. They also provide information for affected individuals and organisations and facilitate a transparent, participatory process. GIZ's Vulnerability Sourcebook is an internationally recognised resource for use in preparing vulnerability assessments.

■ **Adaptation measures should be developed and implemented as part of a comprehensive climate risk management system.**
Climate risk management covers not only the mitigation of greenhouse gases but also the management of unavoidable economic and non-economic loss and damage as a result of climate change. For example, options for reducing, transferring and coping with loss and damage should be examined and applied if adaptation alone is insufficient.

■ **Measurable implementation results should be at the core of adaptation activities.**
The permanent legacy of successful policies and strategies is their conversion into tangible improvements for the people affected. This is the benchmark against which international cooperation is measured continuously. Adaptation therefore requires accurate monitoring and evaluation (M&E) as a precondition for management, accountability and learning. To monitor its adaptation projects and programmes, GIZ uses tried and tested methods and approaches that are constantly being refined. It also makes this knowledge available for the development of national M&E systems in partner countries.

[1] IPCC (2014). Climate Change 2014: Synthesis Report
[2] IPCC (2014). Summary for policymakers. In: Field. Climate Change 2014: Impacts, Adaptation, and Vulnerability.
[3] See the position papers on climate financing and climate-induced loss and damage.
[4] Gerd Gigerenzer (2013). Risiko: Wie man die richtigen Entscheidung trifft [Risk: How to take the right decisions]
[5] WBGU (2011). World in Transition: A Social Contract for Sustainability.

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