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CLIMATE CHANGE ADAPTATION AND DISASTER RISK REDUCTION

A prerequisite for sustainable development

Overview

In its international co-operation, Welthungerhilfe follows the premise of sustainability. The early recognition of risks makes it possible to take the measures that will achieve and safe-guard the long-term improvement of the living conditions of marginalised persons in developing countries. Actions are based on perception. Political and socio-cultural risks, but also geographical and climate risks must be recognised during the project planning and management phases. Earthquakes, extreme weather events and climate changes jeopardise progress in the development.

Consequently, Climate Change Adaptation (CCA) and Disaster Risk Reduction (DRR) must be understood as a prerequisite for sustainable impacts in humanitarian aid and development co-operation.

This four-page “Impulse” can provide merely a brief overview of conceptual principles and approaches for risk reduction. Follow-up publications are planned to enlarge upon some of the individual aspects.

Relevance of CCA and DRR for Welthungerhilfe

Climate change has an enormous impact worldwide on natural resources and living conditions – and thus also on overcoming poverty and hunger. Climate change directly affects the availability of water, soil fertility and agricultural yields as well as indirectly affecting health, economic growth, income distribution and the demand for agricultural products.

Approximately three quarters of all natural disasters take place as a result of extreme weather-related events. Worldwide, these strike the neediest the most, because they have scarcely any resources available to guard against emergency situations and to counterbalance them. The developing countries are at the top of the list in terms of the expectation of marked changes in the climate. Be it through extreme weather conditions or the long-term loss of their livelihood (water availability, arable farm land): Climate change will bring about immense migratory movements and an increase in weather-related disasters.

The part played by altered land use (rain forest deforestation, wetland drainage) in global warming must not be overlooked. However, the burning of fossil fuels is its major cause. The groups targeted by Welthungerhilfe, predominantly people in rural areas of developing countries, cause hardly any greenhouse gas emissions. The efforts for adaptation must be supported more strongly than previously. Prevention is significant even in terms of financial aspects. Figures drawn from experience show: 1 euro invested in disaster risk reduction saves 7 euros needed for disaster response.

Climate change adaptation and disaster risk reduction are becoming the prerequisite for sustainable food security and poverty reduction.

A global challenge

In 2005, at the second UN Conference on Disaster Reduction, the global community adopted the Hyogo Framework for Action (HFA) which provides a link between disaster risk reduction and climate change adaptation and prioritises food and nutrition security, among other things, for the purpose of strengthening resilience. Strengthening disasters preparedness for effective response is only one of the five defined areas of activity.

With the OECD Policy Guidance on Integrating Climate Change Adaptation into Development Co-operation it was agreed in 2006 that the development co-operation should seriously integrate environmental issues into programmes and strategies for poverty alleviation with a specific statement on climate change adaptation.

The 17th Session of the Conference of the Parties to the UNFCCC decided in 2011 to negotiate an agreement by 2015 which would limit the temperature rise to below 2 °C and would take effect in 2020. Included in this process are the Nairobi Work Programme on Impacts, Vulnerability and Adaptation to Climate Change (NWP) as well as the Work Programme on Loss and Damages.

The developing countries are obliged to define national action programmes for the adaptation (NAPA) and integrate them into their development planning.

Welthungerhilfe has been asked to take these NAPA into consideration in their planning of national and regional programmes to the same extent as the national strategies for poverty alleviation (PRSP). Reducing disaster and climate risks is a fundamental concern for development co-operation.

Conceptual principles

The International Strategy for Disaster Reduction (ISDR) defines disaster as a serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or to cope using its own resources.

Disaster risk is defined as a function of natural hazards and vulnerability:

$$\text{Risk} = \text{Natural hazard and Vulnerability}$$

Consequently, the event in itself, e.g., a hurricane, is not already a disaster. The event's effect depends upon a society's vulnerability. An effective disaster reduction, in the best case, can ensure that an extreme natural event does not become a disaster.

We cannot control the origin of a natural hazard (tropical storm, earthquake, drought) with our efforts. We can, however, reduce the vulnerability. Consequently, everything that serves to reduce the vulnerability will contribute to reducing the risk that an extreme natural event may become a disaster. The creation and strengthening of local coping

and adaptation capacities are tasks of high priority. Also in this context, Welthungerhilfe strongly believes in "help towards self-help."

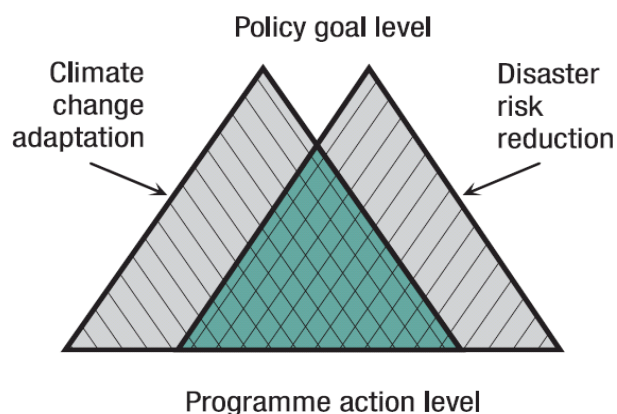
Vulnerability is understood to be not only the lack of material resources, but also a social condition marked by insecurity and helplessness. Overcoming social disadvantages is just as important as overcoming material poverty. The promotion of equal participation in social processes and poverty reduction are directly correlative to disaster risk reduction and climate change adaptation.

The concept of resilience is gaining in significance: it is aimed at increasing the capacity for learning from past disasters for better future protection and to improve risk reduction measures.

Disaster risk reduction encompasses the entire systematic and conceptual range of measures taken before a natural event occurs which are intended to limit its negative effects on society. The goal to minimise the risk of a disaster includes not only reducing the population's vulnerability, but also avoiding the creation of new threats, such as mudslides and erosion/landslides due to improper land use.

Measures for climate change adaptation are intended to help cope with the consequences of a changing climate and/or anticipate such changes. Adaptation aims to reduce the risks and the damage of present and future negative effects in a cost-effective way or to make use of potential advantages.

Even though climate change adaptation and disaster risk reduction pursue different political goals, on the action level there are clearly some common denominators.



Source: UN-ISDR

When it is a question of choosing measures to reduce the vulnerability or to strengthen the resilience, there is often the option of falling back on proven instruments and concepts of development co-operation. Beyond that, it is a matter of expanding on these and developing them further.

In 2001, Welthungerhilfe began its first “stand alone” projects of community-based disaster risk reduction with components such as risk mapping, early warning systems, rescue teams, local disaster risk reduction committees and the structural strengthening and securing of infrastructures. Meanwhile, the gradual integration of risk reducing planning became discernible in various project approaches: Greenhouses that can be dismantled before a hurricane or cyclone, erosion control and slope stabilisation to protect aquifers and irrigation systems in the valleys, the stabilization of bridges and river banks as flood protection in populated areas and on the routes to the marketplaces, the integration of subjects related to disaster risk reduction into school curricula. Disaster risk reduction has become a cross-cutting issue.

Climate change adaptation is a cross-cutting issue by definition. Whatever we plan on doing, we must adapt to climatic changes. Since all projects must be adapted, there is no such thing as a “climate change adaptation project” per se. Whether we are involved in agricultural production consultancy or urban horticulture, or in Water Sanitation Hygiene (WASH) projects, whether it is a question of watershed management or even reconstruction projects – all that we undertake we must do in such a way that it produces sustainable and positive effects. This requires risk assessment and climate proofing.

The Welthungerhilfe publication on climate proofing has been available since mid-2011; the process for incorporating this instrument in the project management cycle has been introduced. Knowledge gained from the risk assessment can be passed beyond the immediate project context to other stakeholders for further land use planning, for agricultural consulting or even for the observation or further development of relevant construction standards.

Planning with prognoses and uncertainties

It is widely known which areas are prone to earthquakes; when an earthquake will strike can currently not be predicted.

Meteorological events are being observed. The course of tropical storms and climatic phenomena like the effects of El Niño / La Niña are being tracked. Regional early warning systems have been set up. However, more efforts are required on the sub-national and community level to ensure that early warnings reach the threatened people and that they know how to react to the situation.

Whether droughts are recurrent meteorological events or the result of climate change, drought warnings are becoming more reliable and can be issued months before the droughts occur.

On the other hand, it will not be possible in foreseeable time to fall back on detailed analyses of the effects of climate change on a corresponding project area when planning projects: for now, the prognoses remain vague and uncertain. Nevertheless the concept of adaptation and proofing should not be abandoned, because there are ways and means to get closer to the anticipated climatic hazards and risks. Welthungerhilfe must draw on the existing scientific information and the prognoses regarding the effects of climate change and should align them with the empirical values gained by the target group.

Improved coordination with regional or national weather forecasts can clearly contribute to the adaptability of people within the scope of a project, such as perhaps in an agricultural context. Local early warning systems also serve to improve the data basis and the analytical capacities for the improvement of local and national climate prognoses.

Regional focus

In its work related to disaster risk reduction and climate change adaptation, Welthungerhilfe concentrates its efforts on the rural areas of the developing countries, including the district capitals in the respective project areas.

Approaches

Actions are based on perception. Project planning must pick up on a target group’s perceptions in a participative process. Its perception of risk factors can be used to build upon. How do they interpret the shifting precipitation patterns? How do they react to them? How do the phases of seedtime, cultivation and harvest time change? And how do work patterns and investment risks change as a result? What traditional coping strategies are being practiced? Are these still adequate in view of the changing climate? The successful achievement of positive outcomes and impact requires participative planning. The target groups take on the role of protagonists for independent development processes.

Welthungerhilfe can initiate and support development processes and contribute to change, overcoming hunger and poverty. To decrease the vulnerability, the organisation can draw on tried and tested practices for rural development and disaster risk reduction. It is also important, however, to take into account insights gained and action approaches developed in the more recent past. Some of these approaches are presented below:

Based on local risk mapping, threatened and vulnerable areas (areas susceptible to flooding and landslides) can be identified

and this understanding can be taken into consideration in land use planning. Thus the construction of schools and warehouses etc. can take place on safe surfaces or in areas that can be secured.

Following the results obtained from risk assessments, it is possible to determine to what extent existing infrastructures like bridges, riverbank stabilisation, and roads etc. must be reinforced. Storm proof storage houses, roads protected from landslides and reinforced bridges make for safe transport routes and marketing.

Community-based early warning systems with precipitation and water level gauges as well as radio stations make it possible to take precautionary measures for flood protection.

The establishment and training of local disaster risk reduction committees and providing them with a link to national institutions ensure that in the case of an extreme event the resources will be available to deal with emergency situations as they arise.

As a result of climate change, precipitation and evaporation levels change; glaciers melt and lose their water storage function; groundwater levels drop. The reduced availability and quality of water has a negative impact on the supply of drinking water, on food and nutrition security and on human health. With systems in place for collecting rainwater and water retention reservoirs, surface water can be made available and reserves can be set up for the drier months. Groundwater resources can be protected by means of headwater management, including reforestation, seepage and water retention.

In agriculture, the attention must be focussed on efficient irrigation systems and the improvement of the soil water regime as well as on resource- and climate friendly methods of cultivation, the selection of adapted varieties and, if necessary, modified production systems. With the increased participation of target groups in the value chains, agricultural sources of income can be protected and diversified.

An adequate food supply beyond the value chain also includes the appropriate application and utilisation of nutritional concepts in the family, in connection with the climate-friendly use of domestic energy. More efficient use of the biomass (wood, charcoal, dung) will help reduce deforestation and CO₂-emissions and prevent respiratory diseases caused by open smoke.

Ecosystems influence climate on a local, regional and global level. Protection and the sustainable management of water- and carbon storing ecosystems (forests, moors) make a contribution to decreasing the negative impact of climate change and increasing the resilience to climate change. In the developing countries, many disadvantaged population groups depend to a great extent on the services provided by the ecosystem of the tropical forests. The concept of the Ecosystem-based Adaption (EbA) attempts to take this into

consideration. EbA incorporates the traditional skills and practices of indigenous peoples and local communities. Buffer zone management within the context of nature reserves can improve the circumstances of the people living there and thus reduce the pressure on the core areas of the protected zones. Poverty reduction is linked with the protection of ecosystems and biodiversity.

In order to avoid unintentional negative effects on the environment during the reconstruction phases following disasters, the "Green Recovery and Reconstruction" approach was developed, which takes into consideration risks to the natural habitat and the environmental compatibility and focuses the attention in planning on the selection of construction materials and construction methods as well as on efficient water and sanitation management, among other things.

Within the context of reducing risks caused by climate change and extreme natural phenomena, micro financing systems (saving, micro credits, micro insurance, money transfers) are increasing in significance; an orientation framework to that effect has been available since 2011.

Source material

www.welthungerhilfe.de:

- Welthungerhilfe, The Challenge of Climate Change, 2010
- Welthungerhilfe, Climate Proofing, 2011
- Welthungerhilfe, Sustainable Food and Nutrition Security under Changing Climatic Conditions, 2011
- Welthungerhilfe, Orientation Framework Microfinance, 2011
- Welthungerhilfe Strategy 2012 – 2014

Further links:

- [BMZ, Disaster Reduction, Information Brochure 3/2010](#)
- Ecosystem-based Adaption: www.msdata.iucn.org/downloads/iucn_eba_brochure.pdf
- Intergovernmental Panel on Climate Change: www.ipcc.ch
- OECD Policy Guidance on integrating Climate Change Adaption into Development Co-operation: www.oecd.org/dataoecd/26/34/42747370.pdf
- United Nations Development Programme: www.undp-adaptation.org/portfolio
- UN Framework Convention on Climate Change: www.unfccc.int
- UN Strategy for Disaster Reduction - ISDR, Briefing Note 2, Adaptation to Climate Change, 2009: www.unisdr.org

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