



## Green Finance

An Innovative Approach to Fostering Sustainable Economic Development and Adaptation to Climate Change

## Imprint

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## GIZ Profile

The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH was formed on 1 January 2011. It brings together the long-standing expertise of the Deutscher Entwicklungsdienst (DED) GmbH (German development service), the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH (German technical cooperation) and InWEnt – Capacity Building International, Germany.

GIZ's purpose is to promote international cooperation for sustainable development and international education work. Working efficiently, effectively and in a spirit of partnership, we support people and societies worldwide in creating sustainable living conditions and building better futures. The services delivered by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH draw on a wealth of regional and technical competence and tried and tested management expertise. We offer demand-driven, tailor-made and effective services for sustainable development. To ensure the participation of all stakeholders, we apply a holistic approach based on the values and principles upheld in German society. This is how we facilitate change and empower people to take ownership of their own sustainable development processes. In doing this, we are always guided by the concept of sustainable development, and take account of political, economic, social and ecological factors. We support our partners at local, regional, national and international level in designing strategies and meeting their policy goals.

GIZ operates in many fields: economic development and employment promotion; governance and democracy; security, reconstruction, peacebuilding and civil conflict transformation; food security, health and basic education; and environmental protection, resource conservation and climate change mitigation. We also support our partners with management and logistical services, and act as an intermediary, balancing diverse interests in sensitive contexts. In crises, we carry out refugee and emergency aid programmes. As part of our services, we also second development workers to partner countries.

As a 100 % federally owned, public-benefit enterprise, we support the German Government in achieving its objectives in the field of international cooperation for sustainable development. GIZ operates in more than 130 countries worldwide and employs more than 17,000 staff members across the globe – some 70 % of whom are employed locally as national personnel. In addition there are around 1,110 development workers, 700 integrated and 455 returning experts, and 820 weltwärts volunteers.

## Introduction – The Relevance of Green Finance

While economic growth is regarded as a prerequisite for poverty reduction, traditional economic development processes are exerting significant pressure on the environment, thus undermining the natural basis for future development. Climate change and environmental degradation constitute two of the biggest challenges of our time. In order to meet these challenges, new ecologically sustainable development strategies, that lead to economic growth and increased social equity while preserving the environment and responding to the rapidly increasing problems related to climate change, must be pursued. The financial sector with its various actors plays a key role in supporting such *Green Growth* strategies that induce the required transformation process towards low-carbon and resource-efficient economies and that can tap substantial progression potential in developing and newly industrialised countries.

Empirical evidence shows that especially in developing and emerging economies ecologically sustainable and resource-efficient investments are often constrained by a lack of available funds. Also, financial institutions are frequently not aware of the

indirect impacts of their business activities on the environment, which results in the financing of ecologically problematic projects and leads to an underestimation of environment-associated credit risks. Furthermore, the provision of appropriate financial instruments for the mitigation of climate risks is insufficient in many countries at present. This is problematic insofar as the frequency of natural disasters and droughts is expected to increase significantly, even if the internationally stated goal of limiting global warming to no more than 2 degrees Celsius is achieved.

Pursuing *Green Finance* as a strategic approach to overcome existing shortcomings in relation to financing and risk mitigation allows the financial sector to make a major contribution in the transformation process towards *Green Economies*, and in the context of adaptation to climate change.

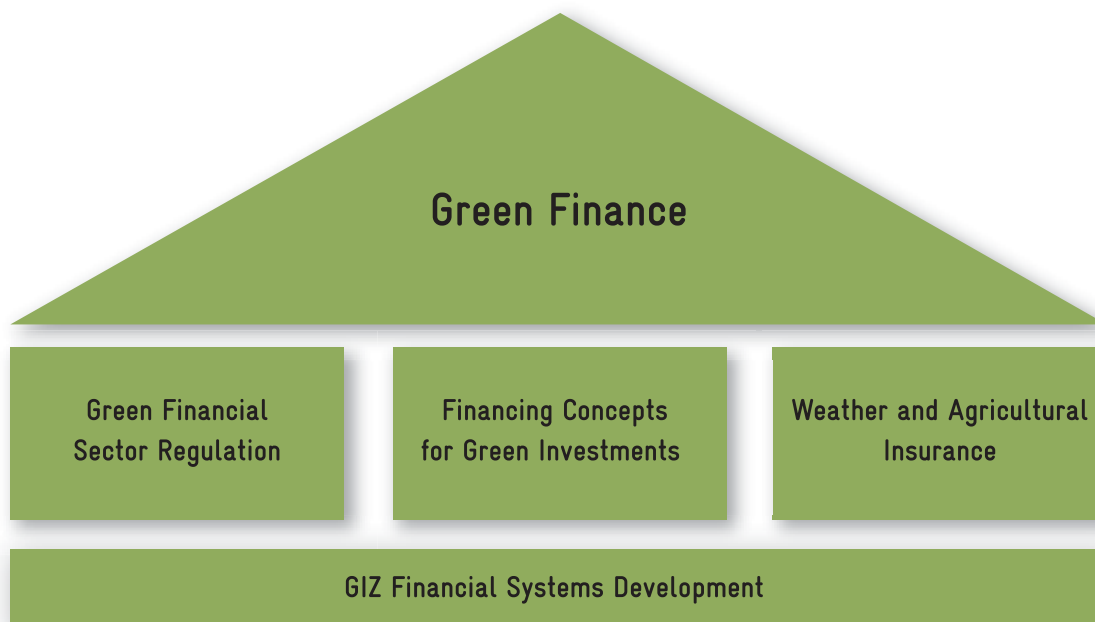
GIZ has a longstanding tradition of supporting the development of financial systems. On behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ) and the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU), GIZ is cur-

### ■ Definitions

**Green Economy:** A Green Economy is one whose growth in income and employment is driven by public and private investments that reduce carbon emissions and pollution, enhance energy and resource efficiency, and prevent the loss of biodiversity and ecosystem services.

**Green Growth:** Green Growth is a strategic approach to promote economic growth aimed at shaping established economic processes according to ecological principles and creating additional opportunities for employment and income generation while minimising the impact on the environment.

**Green Finance:** Green Finance is a strategic approach to incorporate the financial sector in the transformation process towards low-carbon and resource-efficient economies, and in the context of adaptation to climate change.



rently active in more than 40 countries, advising policymakers, central banks, regulators, microfinance associations and a wide range of financial service providers. GIZ's activities in Financial Systems Development are characterised above all by a holistic, multilevel approach. By strengthening the capacity of actors at all levels of the financial system, GIZ seeks to expand the frontiers of financial access and improve the stability and crisis resilience of the financial sector as a whole.

Recognising the importance of the financial sector's incorporation in the transformation process towards green economies, GIZ Financial Systems Development has introduced new advisory services for policymakers and financial intermediaries in the recent past, and has developed specific products and instruments to smooth the way for green growth and suitable climate change adaptation. Current activities focus on the promotion of green financial sector regulation, the build-up of capacities in financial institutions as well as the introduction of innovative financing concepts to increase the flow of funds into green investments, and the development of weather and agricultural insurance solutions.

The following pages offer a snapshot of our activities. For those seeking more detailed information, please contact [financial.systems@giz.de](mailto:financial.systems@giz.de).







## Promoting Green Financial Sector Regulation

An efficient and stable financial sector is an important precondition for the development of broader, deeper economies based on the division of labour. By agglomerating, allocating and monitoring capital, and by transferring, pooling and mitigating risks, financial institutions ensure the most productive use of available funds in an economy. Accordingly, banks and insurance providers through their financing and underwriting activities hold a unique position in an economic system that not only allows them to affect which types of business can be pursued, but that also enables them to influence the way in which this is done. Appropriate financial sector regulation that takes account of this special role, also in relation to environmental considerations, can speed up the successful incorporation of financial institutions into the transformation process towards low-carbon and resource-efficient economies.

Loan decisions by financial intermediaries sometimes have significant negative external consequences. This is notably the case when the loans

finance investments that are accompanied by considerable greenhouse gas emissions or other forms of environmental pollution. Therefore, requiring banks to consider the impacts of their financing decisions on the environment is an integral component in a systemic approach to foster green growth. Appropriate regulation not only governs financial intermediaries in their provision of funds for socially undesired investments, it also generates awareness for green business potential in banks. This stimulates the development of new green credit products and advisory services. At the same time green financial sector regulation supports the lasting stability of the financial system: banks that include environmental aspects in their credit screenings from the outset are much better able to assess risks caused by ecological changes (such as climate change) and to take account of them in good time. Moreover, the further development of existing regulations and the dismantling of obstacles to the introduction of innovative risk mitigation instruments are key prerequisites for increasing the implementation of market-based



strategies to adapt to climate change (index-based insurances, for example).

GIZ provides assistance to policymakers in various ways to foster the incorporation of the financial sector in the transformation process towards green economies. We support central banks, legislators and financial regulators in the design of national green banking policies to promote environmentally aware financing and investment. Together with other international development cooperation institutions, GIZ assists both financial market authorities and the banking industry in developing and implementing social and environmental risk management standards. Furthermore, we engage in the design of sector strategies to raise awareness for environmental issues among financial actors and support the development and introduction of environmental reporting standards for banks. GIZ Financial Systems Development experts also assist policymakers in the establishment of regulatory frameworks that stimulate the evolution of innovative insurance solutions as one component of national climate change adaptation strategies.



### ■ Project Example: China

Among all provinces in China, Inner Mongolia Autonomous Region (IMAR) ranked first in GDP growth for the period 2002–2009. As a major energy supplier in the country, IMAR relies heavily on exploiting natural resources in its economy, which has done much harm to the environment. As a consequence the government of IMAR is currently not only focusing on decent GDP growth, but in an effort to reduce damage to the environment it is also aiming to increase resource and energy efficiency among local enterprises.

On behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ), GIZ uses a systemic approach to support the IMAR government in promoting the implementation of China's national green credit policy, thereby contributing to the achievement of the targeted goal. GIZ facilitates policy dialogue and mutual understanding among the various stakeholder groups through the establishment of an interdisciplinary expert platform that consists of government authorities, associations, and financial and academic institutions. Furthermore, GIZ supports strategy and policy development at the IMAR Financial Office in relation to the introduction of innovative financing concepts for green investment. It also provides assistance to local financial institutions in building capacities to adequately implement social and environmental risk assessments through training sessions and through the development of industry-specific credit screening guidelines, for instance for the mining sector.





## Implementing Innovative Financing Concepts for Green Investment

As a consequence of strong economic growth over the past thirty years, developing and emerging economies account for a substantial proportion of global overexploitation of natural resources and excessive emissions of greenhouse gases by now. The often inefficient use of energy and raw materials, in particular, gives rise to significant consequential economic and environmental costs. At the same time it is expected that precisely the less-developed regions of the world will be particularly severely affected by global warming in the form of a greater frequency of natural disasters and droughts, and their associated problems.

Given the need to adapt to climate change and to maintain future growth opportunities without undermining the economic foundation through environmental degradation, a massive scale-up of green

investments is required. This includes for example the expansion of the use of renewable energy and the introduction of efficiency-enhancing technologies, but also the installation of agricultural irrigation systems and the adoption of disaster prevention measures. However, in almost all developing and newly industrialised countries there is a bottleneck when it comes to mobilising capital for investment by the private sector in these fields. This can be attributed to a lack of awareness of the enormous financing needs and to inadequate technical capacities in financial institutions. Many banks, for instance, are not familiar with the earnings and risk structure of green investments, which makes them reluctant to grant the necessary loans or to offer suitable financing products. Developing and offering innovative financing concepts through commercial, SME and microfinance banks is therefore an essential prerequisite for bridging the







### ■ Project Example: India

India's energy supply is not able to keep pace with the high economic growth rates in the country. This results in persistent power shortages and frequent power cuts. In order to minimise import dependency in the conventional energy sector, the Indian Government is increasingly focusing on strategies for enhancing energy efficiency and utilising renewable sources. The main emphasis here is on MSMEs, because of their great importance for the Indian economy and in light of their huge potential for increases in efficiency. Energy efficiency in particular is often neglected by MSMEs due to limited access to technical know-how and appropriate financial products.

On behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ) GIZ is tapping into these potentials by providing industrial MSMEs in selected regions of India with access to advisory services, training and financing schemes that enable them to implement energy efficiency measures. This allows the companies to increase their competitiveness and simultaneously reduce their negative impact on the environment.

The project pursues an integrated approach to scale up energy efficiency measures in the sector by developing and implementing a specific energy efficiency loan concept with the Small Industries Development Bank of India (SIDBI) and the State Bank of India (SBI) that is complemented by training on sustainability measures for MSMEs. In this way it makes a contribution to growth and environmental sustainability in the Indian MSME sector.

current financing gap and boosting the level of green investment. Accordingly, financial institutions need to be put in a position to provide credit products that are tailored to green investments for large and medium-sized companies as well as small businesses and households. In this way, the enormous potential for raising resource efficiency and energy efficiency that undoubtedly exists in developing and newly industrialised countries can be tapped at all levels.

By providing customised advisory and training concepts, GIZ supports the building of expertise among financial intermediaries in all market segments so that the capacities needed to establish product design and risk evaluation adapted to green investment will be directly embedded in the relevant institutions. In addition, Financial Systems Development experts support the development of new financing concepts that expand traditional credit technology to include innovative elements. These include approaches that take account of the potential of international carbon trading within the context of project financing or specially designed financing solutions to promote green value chains, the latter opening up additional potential for sustainable growth in our partner countries.



## Utilising Insurance Solutions for Weather Risk Management

Due to their geographic location, many tropical and sub-tropical developing and emerging economies are particularly vulnerable to extreme weather events. Consequently, there is a rising need to develop know-how and capacities to adapt to climate change or to provide emergency aid in the wake of catastrophic events. Especially low-income households – with the majority depending on (subsistence) agriculture as a source of livelihood – are disproportionately affected by the financial risks posed: natural disasters often push people back into severe poverty. Furthermore, extreme weather events destroy infrastructure, put a heavy burden on enterprises and financial institutions and might therefore hinder dynamic economic development for a long period of time. Effectively managing weather risks therefore plays a major role in sustainably

improving people's living conditions and economic growth perspectives.

Weather risks can be managed in several ways. An effective, integrated risk-management strategy should consider different approaches and identify the most beneficial combination of risk reduction and adaptation measures. While the former mainly involve investments in infrastructure or new technologies, adaptation approaches include tailored insurance solutions as a risk transfer mechanism to help mitigate financial losses due to extreme weather events. Weather-related insurance products that are most common in agriculture are usually index-based rather than indemnity-based. This means that payouts are tied to a trigger value, such as a certain amount of rainfall as a measure of either flood or drought. The

### ■ Project Example: Philippines

Many countries in South-East Asia are greatly exposed to extreme weather events such as torrential rain and strong wind. These weather conditions pose a financial risk to microfinance institutions, such as credit cooperatives, which offer loans and insurances to people: if member borrowers lose their livelihoods and assets in a storm and become unable to repay their loans, the credit cooperative faces significant liquidity problems that may lead to insolvency. On behalf of BMZ GIZ in a strategic alliance with Munich Re aims at the development of insurance services against the effects of extreme weather events to enhance the financial stability of credit cooperatives and other microfinance providers in the Philippines. A core objective is to pass these insurance benefits to low-income clients of these institutions.

Together with the umbrella organisation Cooperative Life Insurance and Mutual Benefit Services (CLIMBS), Munich Re and GIZ have developed the index insurance product CLIMBS Catastrophe Protection Policy. For every municipality, a trigger system has been calculated for extreme weather events that usually occur every 5, 10 or 20-years. If an event with a certain level of wind speed or rainfall is measured in the respective municipality, this triggers a payout to the affected cooperative. The cooperatives in turn commit themselves to offering emergency loans to help afflicted member households to recover from weather shocks. These efforts to protect low-income households and cooperatives from adverse financial shocks are complemented by the GIZ Microinsurance Innovations Program for Social Security (MIPSS) that advises cooperatives and their members on the development and promotion of microinsurance in the Philippines.





insured will receive a lump-sum payment if the trigger is reached in a certain geographic area without the insurance company assessing each individual loss. This substantially reduces administrative costs – one of the main challenges in the development of insurance products in the context of low-income markets: claims can be issued without lengthy and costly verification processes. At the same time, tying the benefit to an objective trigger reduces the opportunities for fraud. Although insurance solutions for weather-related risks are high on the political agenda in many countries, implementation experience is still rare. In particular, the introduction of market-based insurance solutions covering correlated risks without the involvement of government subsidies has not been successful in many cases so far.

Under the mandate of BMZ and BMU, GIZ supports the development of innovative index-based weather insurance products in several partner countries. These products can be directed at individuals, enterprises, microfinance institutions or local administrative bodies. After thoroughly assessing the need for and feasibility of possible insurance solutions, GIZ supports the public and private stakeholders in the development of insurance markets that are in a position to offer sustainable protection against the financial impacts of weather-related shocks. This includes macro-level advice on the regulation and supervision of insurance products, capacity development for the insurance industry including insurance companies and distribution channels, and insurance literacy campaigns for low-income clients.





## Microcredits for Thermal Insulation, Tajikistan

### The Scenario

The mountain region of the Pamirs extends from Afghanistan in the west to the south of Kyrgyzstan in the north and the borders of China in the east. Most of the Pamirs, however, cover the Gorno-Badakhshan Autonomous Region (GBAO) in eastern Tajikistan. Since independence in 1991 Tajikistan, the poorest of the Central Asian republics, has faced a sustained energy crisis. The situation is particularly difficult in the high mountain areas, which are poorly served with infrastructure and where heating private houses is an important issue of quality of life and sometimes even of survival. In the Soviet era the population of Pamir grew strongly and was supplied with fuel and food from the outside. Today, some 90 % of the region's fuel needs have to be covered using locally available raw materials such as wood and dung. This is considerably more than is ecologically sustainable in Pamir and is causing the rapid destruction of its natural resources and the loss of biodiversity.

The low energy efficiency of private and public buildings has been identified as a major driver for the high demand in heating material. The pressure on natural resources could be reduced and the quality of life improved if houses were properly insulated. Thermal insulation is aimed at reducing the transfer of heat out of the building. As a result, inside temperatures are more constant and less energy is needed for keeping the building warm.

### Our approach

A reduction in the consumption of fuel (primarily wood) leads to a reduction of either financial expenditure or labour needed in the process of fuel procurement, so the saved money or time can be used for other purposes – ideally for making investments and creating additional income sources. Higher and more constant indoor temperatures can be expected to contribute to a reduction of health risks and to a more comfortable life, especially in winter.

In Tajikistan, loans and project financing are usually only available for business purposes, education, labour migration and other comparable investments. However, thermal insulation can also be regarded as an investment as it helps save money in the future: households have to spend money in the beginning but will save money later thanks to reduced fuel consumption and fewer health risks. Like other investments, thermal insulation can be financed via micro credits.

Supported by the GIZ projects on behalf of BMZ Sustainable Management of Natural Resources in Gorno-Badakhshan and Support for Microfinance Services in Rural Regions, the microfinance institution Madina developed the micro loan product Warm Comfort for thermal insulation between 2008 and 2009. In the beginning GIZ tested suitable technologies for thermal insulation and standardised them. At the same time GIZ informed the general public in workshops about the advantages of thermal insulation and the possibility to finance it by micro credit. Construction workers were trained to guarantee high quality work and the first installation processes were accompanied by GIZ experts. Furthermore GIZ prepared the staff members of the MFI on the further dissemination of the product. In addition to its usual products, the MFI now offers micro loans for thermal insulation of up to 500 US dollars.

Especially in rural areas, where income is often seasonal and not regular, many households do not have sufficient financial resources available at the right time to afford thermal insulation measures. For such households, a micro loan for thermal insulation is often the optimal solution. A special feature of the Madina product is the close dovetailing of financial services and the intended use of the loan: besides managing the loan the microfinance organisation also offers technical support to the client by giving recommendations for thermal insulation measures and organising the provision of insulation materi-



als and a trained workforce. Instead of receiving the loan in cash, Madina's clients are directly provided with the required construction materials, windows, doors and services so that high quality insulation is guaranteed and little work remains to be done by the household members themselves. Besides this, as the microfinance organisation purchases materials for its clients in large quantities, individual clients also benefit from discounts. After the thermal insulation is installed, clients will consume less fuel in following seasons, thus saving financial resources so that the investment pays off relatively quickly.

Thanks to the micro loan, clients do not have to pay a large sum of money at once but have up to one year to repay the loan. With a flexible repayment schedule, the micro loan makes it possible to implement the thermal insulation measures during the construction season in summer, but to repay most of the money during the harvest season in autumn, when enough financial resources are available.

## Results

By the end of summer 2010 some 350 buildings had been insulated through the newly provided micro loans, leading to a 40-60 % reduction in energy consumption for the respective households. Besides the positive impacts on the environment, the investment also pays off from the customers' point of view: thanks to the energy savings the loans are usually amortised within two winter seasons. As a consequence of the positive initial results, Warm Comfort is currently being disseminated at the national level. The MFIs Haqiqi-Jahon, Rushdi Ishkashim and Rushdi Vodii Zerafshan have been offering the micro loan product in various regions of Tajikistan since 2011.

# Innovative Insurance Products for the Adaptation to Climate Change, Ghana

## The Scenario

Ghana is very vulnerable to climate change. By 2100, the mean daily temperature is expected to increase by three degrees Celsius and rainfall to decline by between 9 % and 27 %. Its effects – higher temperatures and higher frequency and intensity of droughts and floods as well as other extreme weather events – pose risks for the poor and vulnerable, whose livelihood depends mainly on subsistence farming: 51 % of the labour force is employed in the agricultural sector. Apart from technological advances, climate conditions remain a key factor for agricultural productivity. So far, Ghana has only limited capacities to adapt to climate change and mitigate the associated socio-economic costs. Agricultural finance is a major constraint for Ghana's predominantly small farmers. Financial institutions generally regard agriculture as being too risky. Farmers experience a lack of access to credit that hampers the adoption of improved

crop production technologies. Due to the expected climate changes described above, riskiness in agricultural business will further increase. Agricultural insurance is not only a way for agricultural businesses to mitigate the costs of weather risks directly. It has also proved to be a means of increasing small farmers' access to loans in other countries such as India or the Philippines by insuring the loan portfolios of financial institutions lending to the agricultural sector. Although the (micro-) insurance sector in Ghana has been growing in a stable environment supported by the National Insurance Commission (NIC), no insurance company was offering agricultural insurance products before the introduction of the project.

## Our approach

In collaboration with the NIC, the GIZ-supported project Innovative Insurance Products for the Adaptation to Climate Change (IIPACC) was initiated in December 2009 to help Ghana in tackling the socio-economic costs and risks associated with climate change. The project is funded by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU).

The aim of IIPACC is to facilitate the development and introduction of innovative demand-oriented and economically sustainable agricultural insurance solutions to protect farmers, agro-processors, rural and financial institutions, input dealers and others in the event of crop failure due to extreme weather events. In order to create such a market for agricultural insurance, the project focuses especially on capacity development for all relevant stakeholders, including the Ghana Insurers Association and its members, financial institutions, the Ghana Meteorological Agency, and farmers and their associations.

The regulatory, market and climatic conditions for implementing agricultural insurance products were analysed in a feasibility study conducted between March and August 2010. For the first time, the influence of weather on production was examined in detail for different crops, such as maize, banana, cocoa and rubber. Based on the results of the study it was decided by all stakeholders that the introduction of agricultural insurance will require a joint effort by the public and private sectors.

As a first step, a steering committee was set up in September 2010 to provide policy and strategic planning in the process of introducing agricultural insurance in Ghana. The committee consists of high-level representatives from the public and private sectors, chaired by the National Insurance Commission. To manage the underwriting of agricultural risks, a number of non-life insurance companies organised in the Ghana Insurers Association decided to form an agricultural coinsurance pool in order to offer these products jointly and to share the associated risks. As a consequence, a Technical Ma-

agement Unit (TMU) was established in March 2011 to manage the development, marketing and underwriting of agricultural insurance on behalf of the coinsurance pool.

Based on this steering and implementing structure, the Ghana Agricultural Insurance Programme (GAIP) was officially launched in June 2011 with the introduction of the first agricultural insurance product in Ghana: a drought index insurance product for maize in the three northern regions. Reinsurance is being provided by Ghana Re and the international reinsurance company Swiss Re. The product has two clientele bases. (1) It is sold to individual crop farmers directly, who will receive a benefit in the event of a drought. (2) At the meso level, the product is sold to commercial and rural banks that provide credit to farmers as well as input suppliers or agribusinesses. These rural institutions can buy the insurance product to cover their financial portfolios: crop failure due to drought will trigger a payout from the coinsurance pool and therefore cover default rates by the affected farmers. The improved risk protection is expected to increase agricultural lending from financial institutions and pre-financing of inputs by suppliers. This will therefore foster investment in agriculture that increases productivity and strengthens the adaptive capacities of the agricultural sector in Ghana.

## Results

The introduction of the first drought index insurance product for maize has been well received among stakeholders in Ghana. For the crop season in 2011 two rural banks in the north of Ghana decided to be the pioneers to take up this product and cover their weather-related financial risks. In addition, a research organisation provided this product to a number of farmers to research further into underinvestment in farms in northern Ghana. In total 1,073 farmers have been covered by these three institutions. Several commercial banks, NGOs and farmers' associations have already expressed their interest for the 2012 crop season. For the future, IIPACC will support GAIP in expanding crop insurance products to other regions and also cover crops other than maize.





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