



Giliness Mungadetse from Kauma, Lilongwe, Malawi is one of 18 members of the Kauma Stove Production Group in Lilongwe. The ability to generate income in this way has made a big difference to the group's 12 women, as it has elevated their positions back home in the household. *Photo: Robin Wyatt*

MALAWI CLIMATE ACTION REPORT

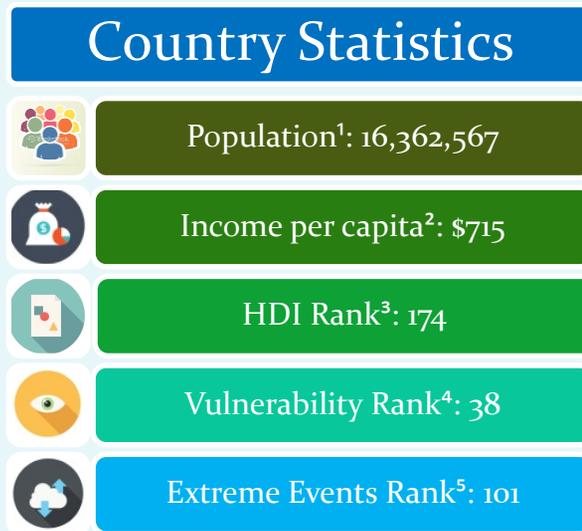
Resilience Policy Team | Irish Aid | November, 2015

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COUNTRY CONTEXT

Malawi is a landlocked country in southeast Africa of approximately 118,480 square kilometers with a population of about 16 million. Over 80% of the population depends on farming to survive. Annual temperature has increased by 0.9C degrees from 1960 to 2006 with a projected increase of between 1.1 to 3.0C degrees by the 2060s (McSweeney et al, 2010). The World Bank climate profile of Malawi states that Malawi is particularly prone to adverse climate hazards including dry spells, seasonal droughts, intense rainfall, riverine floods and flash floods. Furthermore, the World Bank refers to estimates that droughts on average cause GDP losses of almost 1% every year with much greater losses for extreme droughts (World Bank, 2014). Ireland has contributed approximately €7,501,414 in bilateral Climate Finance to Malawi in 2014.



Map of Malawi, Irish Aid, 2015

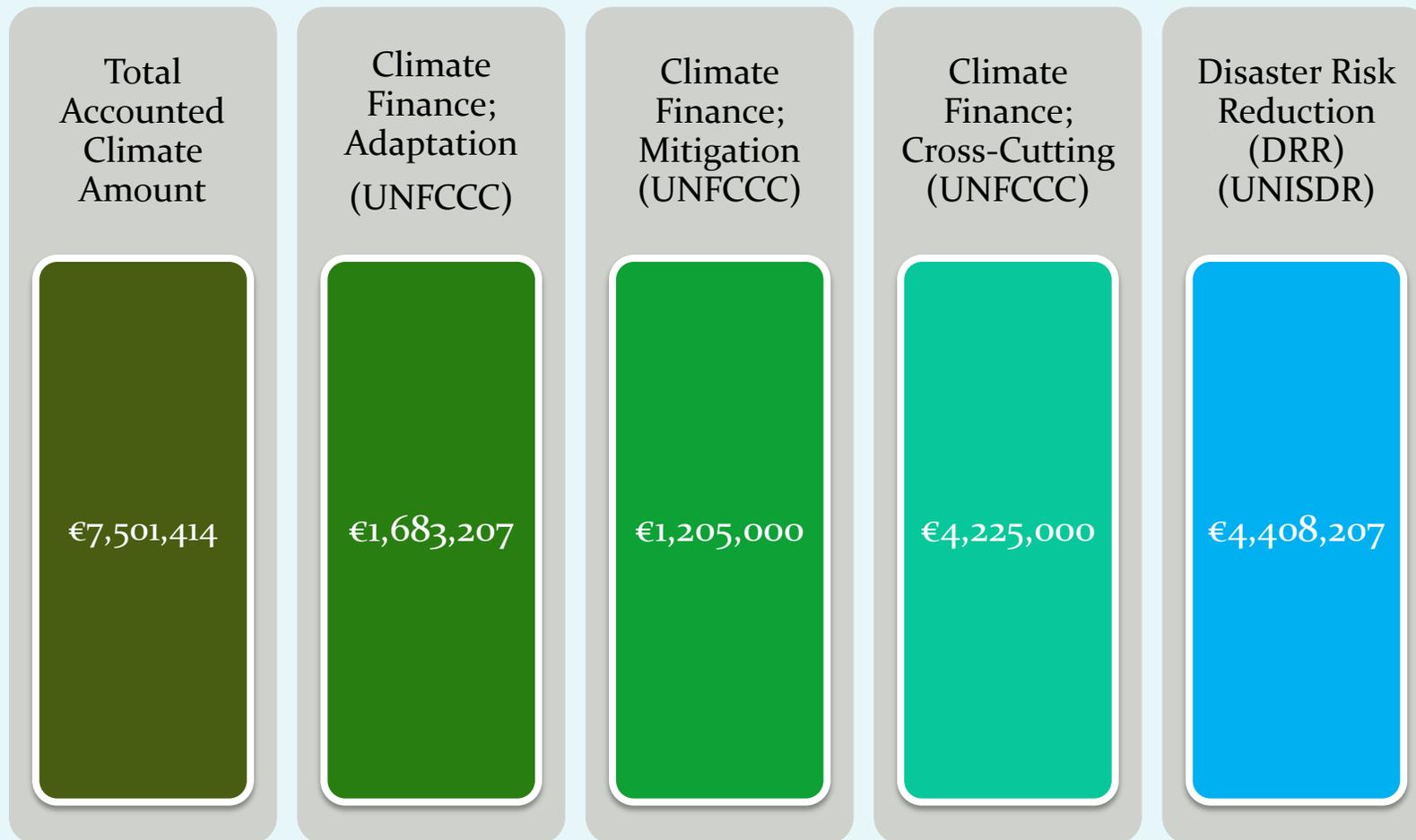
1 (The World Bank, 2015)

2 (The World Bank, 2015)

3 (UNDP, 2015)

4 (GAIN, 2013)

5 (Kreft, 2015)



Climate finance and DRR amounts should not be aggregated as some disbursements have multiple co-benefits and are marked for multiple environmental impacts. For the data and methodology behind these numbers see pages 21-23.

MALAWI, CLIMATE CHANGE AND THE UN FRAMEWORK CONVENTION ON CLIMATE CHANGE (UNFCCC)

Malawi is a member of the Least Developed Countries' (LDCs) Group. Malawi has a seat in the LDC Expert Group (LEG) and a seat on the board of the Adaptation Committee.

RECENT CLIMATE TRENDS IN MALAWI

According to McSweeney et al, 2010, average annual temperature has increased by 0.9°C from 1960 to 2006. Warming has been more rapid in summer. The frequency of hot days and hot nights in all seasons has increased significantly with the average number of hot days and nights per annum having increased by 30 and 41 respectively from 1960 to 2003. Year to year variability in rainfall is quite strong in Malawi and so there are no significantly discernible trends in rainfall patterns (McSweeney et al, 2010).

The World Bank climate profile of Malawi states that Malawi is particularly prone to adverse climate hazards including dry spells, seasonal droughts, intense rainfall, ravine floods and flash floods. Droughts and floods have increased in frequency, intensity and magnitude over the past twenty years. They identify floods and droughts as the leading cause of chronic food insecurity which is endemic in many parts of the country. The World Bank refers to estimates that droughts, on average, cause GDP losses of almost 1% every year with much greater losses for extreme droughts (World Bank, 2014).

Malawi is among the countries most prone to the adverse effects of climate change ranked among 16 countries of 'extreme risks' to climate change impacts in the world (Maplecroft, 2012). The Fifth Assessment Report (AR4) of the Intergovernmental Panel on Climate Change (IPCC) notes that climate change is beginning to impact freshwater ecosystems with elevated surface water temperatures evident in Lake Malawi.

PROJECTIONS OF FUTURE CLIMATE IN MALAWI

According to the World Bank climate profile of Malawi, the average annual temperature in Malawi is projected to increase by 1.1 to 3.0°C by the 2060s. All projections indicate substantial increases in the frequency of days and nights that are considered 'hot' in the current climate. Projections of rainfall are not consistent across models and thus do not indicate substantial changes in annual rainfall. Models consistently project increases in the proportion of rainfall that falls in heavy events. One study quoted by the World Bank's country profile suggests a possibility that rainy seasons will grow shorter which would lead to more frequent failures of the maize crop with significant implications for food security. Interventions for coping with recurring droughts will be necessary.

ADAPTATION

As a Least Developed Country, Malawi produced a National Adaptation Plan of Action (NAPA) in 2006. The NAPA documents national circumstances, vulnerabilities, and expected impacts from climate change in Malawi, as well as identifying and prioritising responsive actions. The NAPA also outlines the consultation, resources and information that were used to prioritise adaptation interventions for Malawi.

Malawi relies on rain-fed agriculture and has already experienced the impacts of climatic hazards such as drought and floods leading to poor yields or total crop failure, thus exacerbating problems of food security and malnutrition. Climate change is also expected to impact directly on human health by increasing the incidence of disease such as malaria, cholera and diarrhoea due to droughts, floods and increasing temperatures.

Hydro-electric power has been negatively impacted by droughts and floods but also by a build up of silt due to poor agricultural practices and deforestation. Floods and droughts have had negative impacts on fisheries leading to declining production and loss of biodiversity. Water supply and quality is negatively impacted by both drought and floods while forestry is negatively impacted by drought leading to loss of soil fertility and increased risk of forest fires. Climate change is expected to worsen these impacts in the coming years.

Through a process of consultation with public and private sector organisations including NGOs and civil societies as well as academics, 31 adaptation options were identified which were further prioritised and ranked using multi-criteria analysis. This led to a final list of 15 prioritised actions as follows;

1. Sustaining life and livelihoods for the most vulnerable communities;
2. Enhancing food security and developing community-based storage systems for seed and food;
3. Improving crop production through the use of appropriate technologies;
4. Increasing resilience of food production systems to erratic rains by promoting sustainable production of maize and vegetables in wetlands and along river valleys;
5. Targeting afforestation and re-afforestation programmes to control siltation and the provision of wood fuel , and for their benefits, such as sources of alternative cash income;
6. Improving energy access and security in rural areas (e.g., through extension of the rural electrification programme, energy-efficient stoves and the development of ethanol-based stoves);
7. Improving nutrition among rural communities (e.g., through the promotion of fish farming, rearing of small hooved animals and nutritional supplements for children and the sick);
8. Disseminating bed nets in high incidence malaria areas;
9. Developing food and water reserves for disaster preparedness and response;
10. Developing community-based wildlife ranching and a breeding programme for indigenous antelope; Nyala;

11. Developing and implementing strategies for drought preparedness, flood zoning and mitigation works;
12. Developing technologies to mitigate against climate change impacts;
13. Providing standby power generation facilities;
14. Managing forest fires in collaboration with communities; and
15. Developing small dams, and other storage facilities, to mitigate flooding, to harvest water and to initiate community based fish farming and breeding.

The highest priority actions from the list above were then assessed for urgency and developed into high priority, urgent projects for Malawi. Each project contains a number of adaptation actions which could be separately implemented depending on resources. The urgent adaptation projects for Malawi are as follows;

- a) Improving community resilience to climate change through the development of sustainable rural livelihoods;
- b) Restoring forests in the Upper and Lower Shire Valleys catchments to reduce siltation and associated water flow problems;
- c) Improving agricultural production under erratic rains and changing climatic conditions;
- d) Improving Malawi's preparedness to cope with droughts and floods; and
- e) Improving climate monitoring to enhance Malawi's early warning capability and decision making and sustainable utilization of Lake Malawi and lakeshore areas resources.

More details on these projects is available in Malawi's NAPA report.

NATIONALLY APPROPRIATE MITIGATION ACTION BY MALAWI

Based on its Second National Communication to the UNFCCC, Malawi produced a Nationally Appropriate Mitigation Action (NAMA) which was submitted in March 2012. It describes the intention of Malawi to invest in a list of identified mitigation actions, subject to provision of financial, technological and capacity building support by developed countries and multilateral and international institutions to Malawi. The NAMA lists thirteen mitigation actions in agriculture, six in waste, seven in energy and land-use combined, two in land-use change and forestry (LULUCF), and nine in industry. The following is a sample selection of those activities;

- Build capacity for national carbon accounting;
- Changes in agricultural practices and systems that include conservation agriculture;
- Enhance participatory agricultural research and technology development;
- Agricultural advisory service and information systems focusing on participatory extension approaches;
- Promote Microfinance schemes;
- Develop/enhance climate information systems and early warning mechanisms;

- Mainstream win-win adaptation and mitigation strategies and actions through appropriate incentives;
- Build capacity to develop, implement and monitor agricultural NAMA;
- Up-scale best practices that enhance climate change adaptation and mitigation;
- Construction of controlled and sanitary landfills;
- Processing of solid and liquid municipal and agricultural waste into energy and organic fertilizer;
- Promotion of renewable energy technologies such as biogas digesters and photovoltaic (PV) lamps;
- Promotion of efficient cooking stoves;
- Afforestation and conservation of existing forests;
- Build capacity for regulation and management of industrial emissions and market based instruments.

RESOURCES:

IPCC 5th Assessment Report (2014), Working Group II Impacts, Adaptation and Vulnerability: <http://ipcc-wg2.gov/AR5/>

Maplecroft (2013); Climate Change and Environmental Risk Atlas 2012; http://maplecroft.com/about/news/ccvi_2013.html

UNDP climate change profile for Malawi: <http://www.geog.ox.ac.uk/research/climate/projects/undp-cp/index.html?country=Malawi&d1=Reports>

World Bank Profile, Malawi Dashboard (2014); http://sdwebx.worldbank.org/climateportalb/home.cfm?page=country_profile&CCCode=MWI&ThisTab=Dashboard

Malawi Ministry of Mines, Natural Resources & Environment (2006); National Adaptation Programme of Action (NAPA); <http://unfccc.int/resource/docs/napa/mwio1.pdf>

Malawi Ministry of Mines, Natural Resources & Environment (2012); Submission on Nationally Appropriate Mitigation Action; https://unfccc.int/files/bodies/awg-lca/application/pdf/malawi_submission_on_namas.pdf (available at 18 July 2014)

REPUBLIC OF MALAWI'S INTENDED NATIONALLY DETERMINED CONTRIBUTION (INDC)

The Republic of Malawi's INDC covers both mitigation and adaptation activities that Malawi intends on implementing from now until 2040.

Mitigation: As reported in Malawi's INDC, the 2006 IPCC Guidelines for the preparation of National GHG Inventories reports that the main sectors contributing to GHG emissions in Malawi are; energy, industrial processes and product use (IPPU), agriculture, forestry and other land use (AFOLU), and waste.

Between 2015 and 2040, total annual greenhouse gas (GHG) emissions are expected to increase from the current level of approximately 29,000 Gg CO₂ equivalent to approximately 42,000 Gg CO₂ equivalent, approximately a 38% rise.

The INDC reports that at present, there is significant uncertainty about future emissions, particularly beyond the year 2020. Estimates provided suggest that between 14,000 and 16,000 Gg of CO₂ equivalent will be saved per year by 2030 if a robust low emission development path is adopted. Some of these uncertainties pertain mainly to internal economic and political factors. Others relate to the fact that as a least-developed country the pace and scope of future emissions growth and the nation's overall pursuit of low-emissions development does depend on the provision of international capacity building, technology transfer and financial assistance.

If all unconditional and conditional mitigation activities are implemented, the per capita emissions of Malawi are expected to reduce from 1.4 t CO₂e in 2010 to approximately 0.7 to 0.8 t CO₂e in 2030 compared to expected business as usual (BAU) emissions of approximately 1.5 t CO₂e in 2030. The BAU emissions represent projected future emissions in the absence of further climate policies or other measures. It reflects assumptions about e.g. population growth and economic development.

Adaptation: Malawi's INDC identifies priority sectors and thematic areas for climate change adaptation activities, based on national development priorities: agriculture (crops, livestock, fisheries), water resources, health, infrastructure, land-use planning, transport, population and human settlements, disaster risk management, forestry (wildlife), energy and gender.

Monitoring and Evaluation: A monitoring and evaluation (M&E) framework for the Malawi INDC has been established. M&E activities will be undertaken by the Ministry of Finance, Economic Planning and Development in collaboration with the Ministry of Natural Resources, Energy and Mining and ministries from other sectors.

The Government of Malawi have stated that they will require external technical and financial support to put in place a tailor-made INDC tracking system to monitor short, medium and long-term implementation.

Fairness, equity and ambition: Levels of GHG emissions in Malawi amount to 0.04% of the total global emissions in 2015. The Malawi Government, through this INDC, has expressed its intentions to contribute towards global efforts to reduce GHG emissions. Implementing all unconditional and conditional mitigation activities is expected to reduce the per capita emissions of Malawi from 1.4 t CO₂e per capita in 2010 to around 0.7 to 0.8 t CO₂e per capita in 2030 compared to expected business as usual emissions of around 1.5 t CO₂e per capita in 2030.

MALAWI'S NATIONAL ENERGY POLICY

The Republic of Malawi is currently drafting a National Energy Policy which the Embassy of Ireland have contributed to in terms of bio-mass and Malawi's goal to achieve a carbon neutral economy by 2035.

Malawi's national electrical energy system is unreliable and inaccessible to over 99% of the rural population (Gamula et al, 2013). Households account for 83% of the total energy consumption, with industry comprising 12%, transport comprising 4% and the service sector comprising 1% (Gamula, et al, 2013).

Apart from power blackouts the most costly and damaging environmental impact associated with energy production is the high level of biomass consumption. Firewood is immensely important for household energy requirements; providing 95% of rural household energy supply and 55% of urban households energy supply. Charcoal constitutes approximately one third of the urban household energy supply. Evidence suggests that forestry resources are degrading at an alarming fast rate – 2.6% per annum (Yaron et al) and forest degradation for wood fuel (firewood and charcoal) is a significant problem in the catchment areas surrounding Lilongwe, Blantyre, Limbe and Zomba.

To tackle this issue, the Government of Malawi has embarked on a number of programmes and projects to improve the standard of living in rural areas. These investments are driven towards an eventual energy switch. Despite such programmes being carried out, currently less than 1% of the rural population has access to electricity, and the country's average electricity access rate stands at a very low 9% compared to a Sub-Saharan Africa average of 25%.

Technologies have been developed and are currently being developed or improved to reduce fuelwood usage, reduce carbon emissions and thus, reduce exposure to smoke. Relative to the traditional three stone fire the *Chitetezo* and *Philips* stoves decrease fuel use by 34% and 61% respectively. The *Chitetezo* and *Philips* stoves also decreased Carbon dioxide exposure by 45%, relative to the three-stone fire. Furthermore, the *Chitetezo* stove offers modest improvements in fuel use and emissions at a low price point (Pam Jagger, UNC-CH Forest Use, Energy and Livelihoods Lab Carolina Population Center CLIOMA Lilongwe, Malawi September 2014).

INNOVATIVE STOVES ADOPTION APPROACH THROUGH THE SOCIAL CASH TRANSFER (SCT) PROGRAMME IN MALAWI

91% of the population of Malawi do not have access to the national electricity grid. Malawi's National Energy Policy highlights that 93% of all energy needs in Malawi is presently being met by biomass use, particularly firewood and charcoal. This significant and increasing biomass demand, approximately 10 million metric tonnes of timber per annum, is exerting a lot of pressure on Malawi's forests and land cover. Globally, Malawi is one of the countries with the highest rates of deforestation, estimated at 2.8% per annum. This is having significant environmental and climate related effects on the population of Malawi.

In response to the issue of deforestation, Irish Aid, in collaboration with the Government of Malawi and Concern Universal are actively promoting the adoption and utilisation of improved cook stoves in Malawi with a target of rolling out two million energy efficient stoves by 2020. The programme encourages sustainable management and utilisation of natural resources and the integration of **climate change adaptation** and mitigation measures in programmes to build resilient societies. This is crucial for reducing widespread poverty and improving livelihoods especially for the poorest and most vulnerable sections of society who depend on natural resource ecosystems.

Irish Aid also supports the Government of Malawi with their implementation of their national Social Cash Transfer Programme (SCTP), in Balaka, one of the country's 28 districts. The social cash transfer programme contributes to **building household's resilience to climatic, economic and other shocks**. The SCTP delivers monthly cash transfers through the use of electronic banking systems to the poorest 10% of households. Most of these households are headed up by the elderly, women, people with chronic illness and orphaned children. These households are identified through community participatory methods. The SCT programme in Balaka reaches 8,400 households and aims to stabilise household finance **and build resilience to climatic and other shocks**.

Concern Universal, with support from Irish Aid, is piloting an approach for cook-stove adoption through the SCT programme. Under this programme, all SCT households can avail of a free improved cook stove or Chitetezo stove through a voucher system. Rural-based womens' groups are the main producers of Chitetezo clay stoves, using local materials, to create one stove at a cost of approximately €1, with a market price of €2. It is estimated that for every 1,000 stoves produced, 16 jobs are created.

The sustainability of the programme is also considered through the qualification and auditing of stoves for carbon finance. Concern Universal has previous experience of applying for carbon credits through their stove intervention programmes and has worked with targeted communities in delivering social infrastructure through the generation and use of carbon finance. There are a number of options for the carbon finance generated from the programme. It can either be invested into community infrastructure, be a direct payment to households (through the SCT electronic payment system) or invested in clean energy solutions (e.g. solar energy systems) for poor rural households.



Aluby Abu receiving social protection money in Chulu village in the north of Balaka District Malawi. *Photo: Irish Aid.*

TRANSFORMATIVE ENGAGEMENT NETWORK (TEN): BUILDING RESILIENCE AGAINST HUNGER AND CLIMATE CHANGE IN SMALLHOLDER FARMING COMMUNITIES THROUGH TRANSFORMATIVE ENGAGEMENT

Irish Aid and Higher Education Authority supported the ‘Transformative Engagement Network’ (TEN) Project under the Programme for Strategic Cooperation (2012-2015). This project, between four universities, two in Zambia (Mulungushi University & Zambian Open University), one in Malawi (Mzuzu University) and one in Ireland (NUI Maynooth), aims to transform the nature of the engagement between the various stakeholders impacted by or concerned with climate change and food supply. The project is particularly focused on exploring ways to insert the voice and concerns of the most vulnerable food producers into climate change debates.

The TEN project prioritises the inclusion of perspectives from different players concerned with climate change and hunger, in particular the perspectives of those living and working at the local community level. The project attempts to combine the western socio-scientific knowledge found in universities, development agencies and government bodies with the local knowledge of smallholder farmers. Smallholder farmers are often the most excluded but are the most critical in terms of adaptive success, and this is a major challenge which the project seeks to address.

Thirteen Masters students from Mzuzu University developed research projects through the Transformative Community Engagement network which focused on climate change and hunger through a variety of topics. Chikondi Butao Banda focused on *‘The influence of traditional cultural beliefs and modern religious values on the adaptive capacity of smallholder farmers in Bolero, Malawi’* for his research which mapped out traditional cultural practices and modern religious values, and demonstrated their influence on adaptive capacity to climate change in Bolero, Malawi. Results reveal that in adapting to climate variability and change, respondents apply both modern religious values and traditional cultural beliefs and practices, though with varied magnitude.

Stanislaus Richard Yangazu Banda’s research focused on the *‘Assessment of Conservation Agriculture Adoption in Bolero, Rumphi District of Malawi’*. The study assessed factors that influence farmers’ adoption of Conservation Agriculture (CA) and the challenges that farmers face in implementing CA in Bolero Extension Planning Area (EPA). The overall analysis of factors showed that out of eight predictor variables, five variables (gender, marital status, education, income and land ownership) were significant predictors of farmer’s adoption. The research also found out that the following factors were the main challenges that farmers face to adopt CA: a strong culture of ridge-based cultivation, Stover mining, livestock problem and multiplicity of maize Stover usage, scarcity of CA herbicides, long break-even points of CA benefits and lack of clear guidelines for a specific CA practice.

Irish Aid have now developed a link with the TEN network through the [Climate Change and Development Learning Platform](#) where TEN students from Malawi can upload their research and discuss with interested members.

KEY PARTNER COUNTRY'S BILATERAL PROJECTS AND PROGRAMMES

HUMANITARIAN ASSISTANCE - EMERGENCY CASH TRANSFER PROGRAMME

The objective of the Emergency Cash Transfer Programme is to save lives, build resilience, including climate resilience, and protect the livelihoods of 242,774 food insecure families. These families were affected by floods and drought in the cropping season in 22 traditional authorities of Dowa, Mchinji, Dedza, Ntcheu, Lilongwe, Salima, Machinga, Zomba, Mulanje and Nsanje districts.

DEVELOPMENT OF THERMAL ELECTRIC GENERATOR (TEG) STOVES

Irish Aid previously funded development by Trinity College Dublin (TCD) of a thermal electrical generator (TEG) based on a clay cooking stove. The technology was extensively field tested in a collaboration between TCD and Concern Universal. The field tests showed that the TEG cooking stoves met their objective in providing low cost energy access for the households in the field tests. This project, by TCD with Concern Universal, is for the development of a prototype and medium-scale deployment in rural Malawi with the ultimate aim for the technology of national roll-out. By providing low cost energy access with low or zero carbon emissions, this project supports climate change mitigation. This will then greatly contribute to the energy requirement for rural off-grid communities at low or net-zero carbon emissions.

CONCERN UNIVERSAL ACCELERATING UPTAKE OF IMPROVED COOKSTOVES

A disbursement from the Embassy of Ireland, Malawi was transferred to Concern Universal for rolling out of the National Cookstoves Programme in 2014. The programme proposes to reach a target of 2 million low emission and energy efficient stoves by 2020. In addition, the project aims to provide technical support and carbon financing services to other organizations and both local and national stakeholders.

As a result of the emissions saved from reduced burning of biomass in fuel efficient stoves and consequent reduced emissions from deforestation and degradation, this project contributes towards climate change mitigation. Due to the reduced pressures on woodland and forests for biomass harvesting this project also contributes towards biodiversity.

ENHANCING COMMUNITY RESILIENCE (ECRP)

The goal of the 'Enhancing Community Resilience' project is to help eradicate extreme poverty and hunger in Malawi, whilst enabling households to build resilient, sustainable and profitable livelihoods. The programme reduces existing and future risks caused by natural hazards and climate change and strengthens the capacity of vulnerable communities to cope with current risks and adapt to new ones. ECRP aims to reach 600,000 people in eleven vulnerable districts in central and southern Malawi to build their capacity to increase resilience to climatic risks.

PILOT PROGRAMME TO EXPLORE RESILIENCE ENHANCING ENERGY SOLUTIONS FOR FISHING COMMUNITIES

This pilot programme is aimed at testing and developing a distribution model for state-of-the-art, clean and energy-efficient, solar-powered, night fishing lights for fishermen on Lake Malawi. The lights are aimed to replace the kerosene lamps currently used for night fishing. At the same time, the project will mainstream alternative clean energy technologies such as solar-driven lighting & phone charging, energy efficient cook stoves and solar dryers for fish and vegetables in the three pilot communities in Nkhudzi Bay, Salima and Totu Island. The programme utilizes community entrepreneurs to ensure the initiative's sustainability.

STRENGTHENING COMMUNITY DISASTER RESILIENCE

The Strengthening Community Disaster Resilience (SCDR) programme is planned to run over a period of four years and is being implemented by the Evangelical Association of Malawi. The programme targets 4,000 vulnerable households living in flood and drought prone areas in Chikhwawa, Malawi. The programme aims to strengthen community-based disaster and climate change resilience through food security, livelihood diversification, environmental management and integration of disaster risk reduction and climate change adaptation into policies and developmental planning. The programme is purposely situated within the Hyogo Framework for Action and uses the framework as a means to align and organise diverse activities.

In terms of implementation, the programme includes specific initiatives in food security and livelihood diversification. Activities undertaken include; small scale irrigation, conservation agriculture, seed production of drought tolerant and short-cycle crops, training in conservation agriculture, establishment of community grain and seed banks, improved storage, dietary diversification, community based natural resource management committees, afforestation, non-agriculture forest activities, fuel efficient stoves, early warning systems and the training of targeted groups in flood management.

Through these activities, the programme aims to strengthen community-based disaster and climate change resilience of targeted households, in addition to informing national level policy development.

BALAKA SOCIAL CASH TRANSFER (SCT)

The Government of Malawi scaled up the Social Cash Transfer Programme (SCTP) to the Balaka district as a response to chronic food insecurity and high poverty rates. Balaka SCT is an innovative programme that is aimed at providing regular and predictable transfers through electronic means to 8,381 ultra-poor and labour constrained households in Balaka District.

The purpose of this programme activity is to build evidence on the potential of Social Cash Transfer Programming (SCTP) in building resilience and reducing chronic recurrent food insecurity in vulnerable districts. A key component of the programme will be identifying impacts that the SCTP has on Balaka District on recurring disasters, particularly from increasingly frequent droughts. It is proposed to assess the potential of SCTP to reduce vulnerability of the poorest 10% of the population in the District and to reduce the impact of climate induced disasters. The programme is primarily focussed on addressing chronic food insecurity and high poverty with climate resilience as a secondary component. The Programme commenced in December 2012 and will run up to December 2016.

RESEARCH AND PILOT WORK TO ADVANCE SUSTAINABLE BIO-MASS

This research and pilot work is aimed at providing the necessary evidence-base to inform Malawi's future efforts in producing and supplying sustainable bio-mass to its urban population in a way that is beneficial to the surrounding rural population. People's energy needs is a key driver of deforestation and environmental degradation. Therefore, this research has relevance both within the energy sector as well as in mitigation and biodiversity efforts.

AGROFRESTRY FOOD SECURITY PROGRAM (AFSP PHASE II)

The second phase of the Agroforestry Food Security Program (AFSP II) aims to contribute towards the uptake of climate-smart agriculture in Malawi. Climate-Smart Agriculture has three main pillars: sustainable intensification that ensures food security; building resilience through climate change adaptation; and a reduction of greenhouse gas emissions (mitigation) through agro-forestry innovations. Agro-forestry innovations are namely:

- 1) fertiliser trees and conservation agriculture to build an evergreen agriculture that enhances accumulation of soil organic matter thus enhancing crop productivity and resilience to climate risks;

- 2) fruit trees to improve household nutrition, health and income;
- 3) Fodder trees to improve milk yields for smallholder dairy farmers to enhance nutrition, health and income; and
- 4) woodlots for firewood and timber production.

This project was designed, with input from government departments, to be closely aligned with Malawi's National Adaptation Programme of Action (NAPA), Nationally Appropriate Mitigation Action (NAMA), and the Agriculture Sector Wide Approach Programme (ASWAP).

AGRICULTURE SECTOR WIDE APPROACH SUPPORT PROJECT (ASWAP)

The objectives of this Agriculture Sector Wide Approach Support Project (ASWAP) are to improve the effectiveness of investments in food security and sustainable agricultural growth and strengthen the natural resource base in agricultural lands. In order to strengthen the natural resource base, the project aims to double the area under sustainable land management as a basis for securing ecosystem services and sustainable agricultural productivity.

The programme supports institutional capacity building in districts for planning, agricultural policy, land administration and financial management. The programme also supports capacity building of smallholder farmers in *inter alia* nutrient management and conservation agriculture techniques, diversified crops including agro-forestry and expansion of farmer advisory services. It also provides support to market based agricultural risk management strategies including payment of weather derivative contracts and insurance premiums to cover agricultural production and studies on macro and micro-weather insurance schemes.

The programme supports sustainable water management such as rainwater conservation and early warning systems for droughts and floods. By supporting conservation agriculture and agro-forestry, this project protects and enhances sinks and thus contributes to climate change mitigation and combats land degradation. By supporting and researching agricultural weather-based risk management, early warning systems and sustainable water management, this project also supports long term adaptation to climate change. Risk management and early warning systems also contribute to Disaster Risk Management. Ireland has placed particular emphasis on the integration of drought resistant legume seed, principally ground nuts, pigeon peas and beans, into the national agricultural systems, to improve soil fertility management and nutritious food production.

PROMOTING SELECTED CONSERVATION AGRICULTURE
TECHNIQUES AND SUSTAINABLE CROP PRODUCTION PRACTICES IN
SMALLHOLDER FARMING SYSTEMS, NATIONAL SMALLHOLDER
FARMERS' ASSOCIATION OF MALAWI (NASFAM)

The overall objective of this project is the promotion of principles and practices of conservation agriculture for smallholder farmer in the context of climate change and escalating fertilizer prices in order to achieve sustainable agricultural production. These practices thereby aims to achieve sustainable food and cash crop production while reversing the impacts of environmental degradation. This project specifically aims at: increasing awareness and adoption of conservation agriculture; building capacity to support adoption of conservation agriculture; documentation and adoption of best-practices; increased nitrogen fixation in soil; water conservation, agro-forestry, and promotion of the use of organic matter as fertilizer; and empowering smallholder farmers to have an increased policy influence.

NASFAM describes conservation agriculture as an ecologically sound means of helping achieve food security and as resource-saving production that strives to achieve acceptable profits while simultaneously conserving the environment. Conservation agriculture contributes both to mitigation of, and adaptation to climate change. Through minimal soil disturbance and maintenance of soil cover, conservation agriculture also combats land degradation.

Capacity building for conservation agriculture is an important dimension of this project with training of trainers (1,500 NASFAM farmer trainers), training of 60 field officers, use of demonstration plots, development of conservation agriculture resource centres, and field days all planned. The aims of conservation agriculture, in contrast to other modern agricultural methods, are to achieve mitigation and adaptation to climate change and preservation of soil.

ROOTING OUT HUNGER PHASE II

The Rooting Out Hunger Phase II project, in collaboration with the national Root and Tuber Crops Innovation Platform (RTCIP) and other key stakeholders, aims to develop a country-wide programme to transform the production and utilization of a number of key crops in southern Malawi. The program focuses specifically on the production and uptake of sweet potato, potato, and cassava and the expansion in the seed and production value chains of orange flesh sweet potato (OFSP). OFSP's flexible planting times, harvest times, drought resistance and relatively short maturing period means that it is more resilient to climatic variability than others. This project aims to conduct diagnostic studies of sweet potato, potato, and cassava value chains in Malawi through identification of entry points for research and development support. Through this research, it should be possible to

transform these value chains for enhanced nutrition, improved incomes and climate resilience.

LOCAL DEVELOPMENT SUPPORT PROGRAMME

The aim of the Local Development Support Programme is to contribute to a reduction in the levels of poverty and vulnerability in Malawi. The programme focuses on a number of areas including food and nutrition security; agribusiness; water and sanitation; disaster risk reduction; and cross-cutting issues including gender, environmental management, rights and capacity building.

The programme supports priority activities in disaster preparedness and management plans identified in the district for Dedza, Ntcheu, Balaka, and Phalombe and to support implementation of priority activities identified in environmental outlook reports and plans. The programme supports Village Natural Resource Management Committees (VNRMCs), in the efficient use and management of natural resources and the rehabilitation and management of essential ecosystems and ecological processes. As part of this, the programme promotes soil and water conservation and management as well as sustainable agricultural practices. In addition, the programme implements important key activities highlighted in Malawi's National Adaptation Plan of Action (NAPA).

MALAWI SEED INDUSTRY PROGRAMME, ICRISAT

Improved seeds provide a package of technologies that once unlocked through agronomy, secure farmers' livelihoods against food and nutrition insecurity and climate change. This project is an extension of, and builds on, the Malawi Seed Industry Development Project (MSIDP) whose objective was to increase smallholder crop productivity and incomes by using improved certified seed. The objectives of the extension are to strengthen (i) the seed supply chains of selected legumes and cereals; and (ii) productivity enhancing research for development.

IRISH AID FUNDING TO IRISH CIVIL SOCIETY PROGRAMME PARTNERS IN MALAWI

The following disbursements by Irish Aid were identified as relevant to climate change, environment and/or disaster risk reduction by the beneficiary CSOs but are not included in Ireland Climate finance reports;

- Irish Aid disbursed €174,194 to support Self Help Africa to increase smallholder skills and knowledge to benefit nutritionally and economically from intensified and diversified agricultural production;
- Irish Aid disbursed €396,900 to support Concern Worldwide to increase and diversify agricultural production leading to improved nutritional security for the extreme rural poor and ensure Civil Society organizations and local communities have increased capacity to provide an enabling environment for improved income and access to markets for extremely poor rural households;
- Irish Aid disbursed €388,080 to support Concern Worldwide improve resilience to shocks of the extreme poor and to build the capacity of institutions to mitigate against hazards;
- Irish Aid disbursed €345,599 to support Trócaire to increase food availability and income security for 4,131 Male Headed Households and 5,294 Female Headed Households in six Districts of central and southern Malawi over a 5 year period;
- Irish Aid disbursed €277,155 to support Trócaire in increasing resilience to climate change and variability of 9,425 subsistence farming households in central and southern Malawi;
- Irish Aid disbursed €275,450 to support GOAL to improved access, availability and utilisation of food and reduced vulnerability to disasters in Nsanje and Balaka Districts;
- Irish Aid disbursed €245,526 to support GOAL to increase and improve availability of and access to diversified income sources in targeted communities in Nsanje and Balaka;
- Irish Aid disbursed €44,195 to support GOAL to strengthen institutions and influence policy in Nsanje and Balaka to create conditions for implementation of programmes that lead to improved access, availability and utilisation of food, and diversification of income sources;
- Irish Aid disbursed €8,419 to support GOAL with environmental programming in Malawi.

MAPPING OF BILATERAL EXPENDITURE

Project/Programme	Recipient	2014 Disbursed / provided	CC Mit	CC Ad	CBD	CCD	Agri	DRM	CB	TT	Forestry & Agroforestry	Total Climate Accounting Weight	Total Accounted Climate Amount	Mitigation Total	Adaptation Total	Cross- cutting Climate Change
Humanitarian Assistance - Emergency Cash Transfer Programme	Save the Children	1,000,000	0	1	0	0	1	2	1	1	0	50%	500,000	0	500,000	0
Development of TEG Stoves	TCD	120,000	2	0	1	0	0	0	1	1	1	100%	120,000	120,000	0	0
Concern Universal Accelerating Uptake of Improved Cookstoves -	Concern Universal	200,000	2	0	1	0	0	0	1	1	1	100%	200,000	200,000	0	0
Enhancing Community Resilience (ECRP)	DFID	400,000	1	2	0	0	1	2	1	1	1	100%	400,000	0	400,000	0
Pilot Programme to explore Resilience Enhancing Energy Solutions for Fishing Communities	RENAMA	35,000	2	1	0	0	0	0	1	1	0	100%	35,000	35,000	0	0
Strengthening Community Disaster Resilience	Evangelical Association of Malawi	270,000	1	2	1	1	1	2	1	1	1	100%	270,000	0	270,000	0
Balaka Social Cash Transfer (SCT)	Malawi Government	776,414	0	1	0	0	0	1	1	1	0	50%	388,207	0	388,207	0

Project/Programme	Recipient	2014 Disbursed/ provided	CC Mit	CC Ad	CBD	CCD	Agri	DRM	CB	TT	Forestry & Agroforestry	Total Climate Accounting Weight	Total Accounted Climate Finance	Mitigation Total	Adaptation Total	Cross-cutting Climate Change
Research and Pilot Work to advance sustainable bio-mass	Total Land Care (TLC)	100,000	2	1	1	0	0	0	0	0	0	100%	100,000	100,000	0	0
Agroforestry Food Security Program (AFSP Phase II)	International Center for Research in Agroforestry (ICRAF)	500,000	2	1	1	1	2	0	2	2	2	100%	500,000	500,000	0	0
Agriculture Sector Wide Approach Support Project (ASWAP SP MDTF)	World Bank	3,500,000	1	1	1	0	2	1	2	1	1	100%	3,500,000	0	0	3,500,000
Conservation Agriculture Techniques	National Association of Smallholder Farmers in Malawi (NASFAM)	250,000	2	1	0	1	2	0	1	0	1	100%	250,000	250,000	0	0
Rooting out Hunger Phase II	International Potato Center (CIP)	250,000	1	1	0	0	2	0	1	1	1	50%	125,000	0	0	125,000
Local Development Support Programme,	Concern Universal	1,200,000	1	1	1	1	1	1	1	0	1	50%	600,000	0	0	600,000
Malawi Seed Industry Programme, ICRISAT	International Crop Research Institute	250,000	0	1	0	0	2	0	0	0	0	50%	125,000	0	125,000	0

METHODOLOGY

The Organisation for Economic Co-operation and Development (OECD) Development Assistance Committee (DAC) Rio Marker methodology underpins the UNFCCC climate finance figures totals quoted on page four and in the table above. The Rio Marker definitions were employed to identify and score disbursements as climate mitigation, adaptation or cross-cutting relevant. The Rio Markers and the anticipated Disaster Risk Management Marker¹ work on a three-score system. Activities can be identified with;

- Principal marker of 2
- Significant marker of 1
- Or not targeted; 0.

The choice of principle, significant or not-targeted relates to hierarchy of objectives, goals and intended outcomes in the programme or project design. A principle marker is applied if the marker policy is one of the principle objectives of the activity and has a profound impact on the design of the activity. A significant marker is applied if the marker policy is a secondary objective, or a planned co-benefit, in the programme or project design. The zero marker is applied to show that the marker policy was not targeted in the programme or project design. If this is unknown, the marker is left blank.

The mapped climate finance in this report includes financial support both for activities scored as 'principal' (2) and for activities scored as 'significant' (1). This report categorises disbursements as adaptation where the scoring against the adaptation marker exceeds the scoring against the mitigation marker and vice versa. Where scoring is equal (and >0) under both adaptation and mitigation markers, the disbursement is counted as cross-cutting. In reporting bilateral climate finance we place a different weight on support for principal and significant activities. In aggregating finance for principal and significant activities, 'principal' activities are weighted with a coefficient of 100% and 'significant' activities are weighted with a coefficient of 50%. Where an activity has both adaptation and mitigation benefits, or is cross-cutting, it is weighted according to its highest score i.e. weights in mitigation and adaptation are not aggregated.

¹ An OECD DRR marker definition is not yet agreed. Therefore we employed a simple approach by only marking or counting those projects or programmes where objectives and/or plans explicitly included and specified disaster risk management or disaster risk reduction components. Projects or programmes where early warning systems, or risk mitigation for natural hazards were specified in the activity documentation were also considered to be relevant to DRM.