



Cassava planting, Polo village, Mbale District, Zambia. Photo: Irish Aid

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# ZAMBIA CLIMATE ACTION REPORT 2015

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Climate Policy | Irish Aid | September, 2016

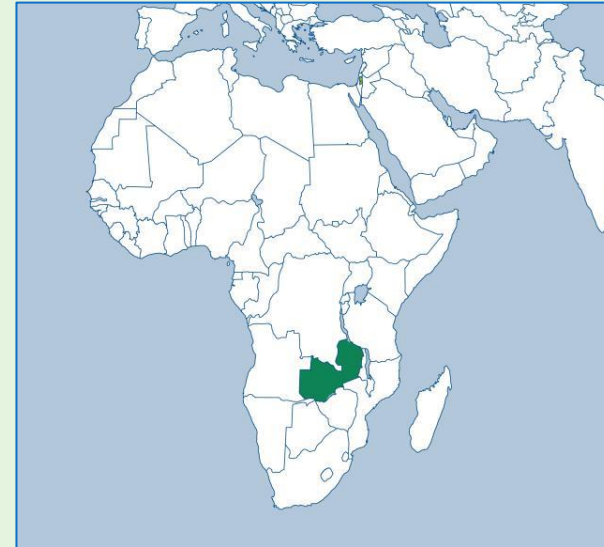
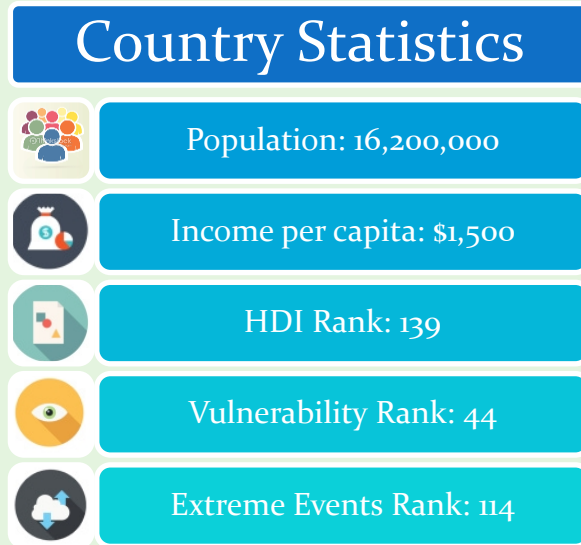
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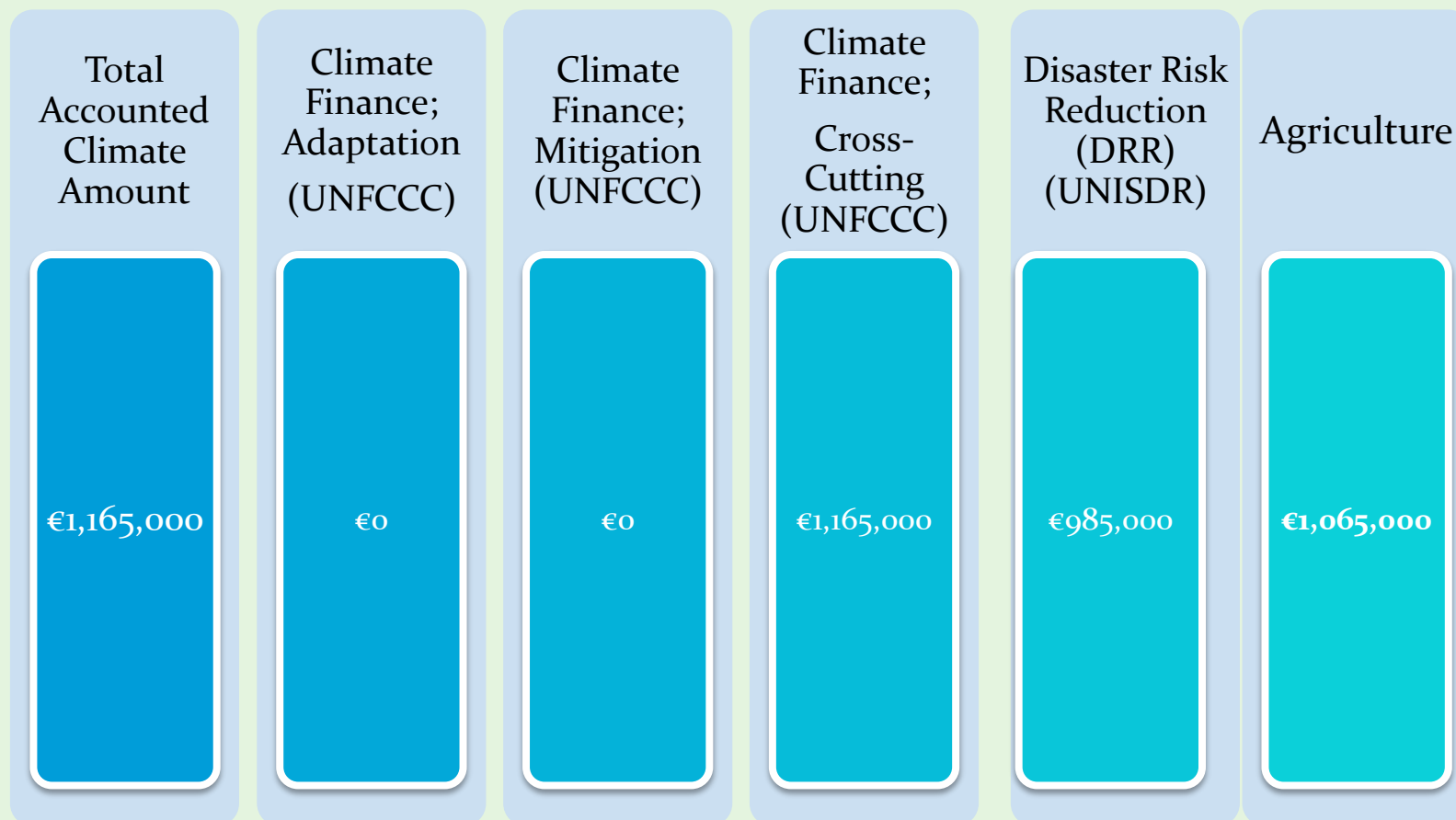
## COUNTRY CONTEXT

Zambia is a landlocked country located in Southern Africa with a population of approximately 16 million. The territory of Zambia covers 752,618 square kilometres. The average annual temperature in Zambia has increased by 1.3°C degrees from 1960 to 2006 and is projected to increase by 1.2 to 3.4°C degrees by the 2060s with more rapid warming in the southern and western regions (McSweeney et al. 2010).



Map of Zambia, Irish Aid, 2015

1. <http://data.worldbank.org/country/zambia>
2. <http://data.worldbank.org/indicator/NY.GNP.PCAP.CD?locations=ZM>
3. <http://hdr.undp.org/en/countries/profiles/ZMB>
4. <http://index.gain.org/country/zambia>
5. <https://germanwatch.org/en/download/13503.pdf>



In 2015, Ireland provided a total of €1,165,000 in climate finance. Projects and programmes funded through Ireland’s bilateral aid programme have a strong agricultural focus. Projects to improve the livelihoods, address food insecurity and build resilience of small scale farmers are being undertaken in Northern and Western Provinces. Agriculture related expenditure in 2015 amounted to €1,065,000. Climate Finance, Agriculture and DRR amounts should not be aggregated as some disbursements have multiple co-benefits and are marked for multiple environmental impacts. For more detail on these projects see pages 18 and 19 for the data and methodology behind these numbers see pages 18-19.

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

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Zambia is a member of the Least Developed Countries' (LDCs) Group.

### RECENT CLIMATE TRENDS IN ZAMBIA

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Average annual temperature has increased by 1.3°C from 1960 to 2006. The warming has been more rapid in winter. The frequency of hot days and hot nights has increased significantly with the average number of hot days and nights per annum having increased by 43 each from 1960 to 2003. Average annual rainfall over Zambia has decreased by an average rate of 1.9mm per month per decade since 1960 primarily due to decreases from December to February. There is no significantly discernable trend in the frequency of heavy rainfall events in recent years (McSweeney et al, 2010). Farmers in the east and south of Zambia have already noticed a generally shortened growing season (MTENR, 2007).

### PROJECTIONS OF FUTURE CLIMATE IN ZAMBIA

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The average annual temperature is projected to increase by 1.2 to 3.4°C by the 2060s with more rapid warming in the southern and western regions. All projections indicate substantial increases in the frequency of days and nights that are considered 'hot' in the current climate. Most projections of rainfall do not indicate substantial changes in national annual rainfall but indicate decreases in rain from September to November and increases in rain from December to January. The National Adaptation Programme of Action (NAPA) of Zambia predicts a decrease in rain for southern and central regions (Regions I and II), and an increase of rain in the Northern regions (Region III). All studies find that the proportion of rainfall that falls in heavy events is projected to increase.

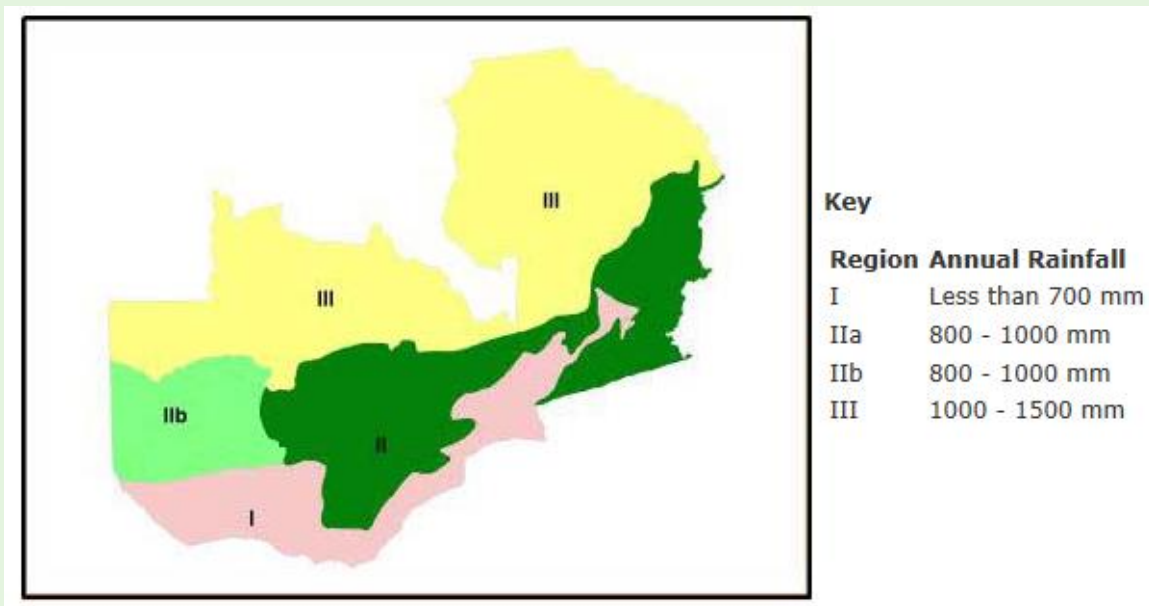
### ADAPTATION

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As a Least Developed Country, Zambia produced a National Adaptation Plan of Action (NAPA) in 2007. The NAPA documents national circumstances, vulnerabilities, and expected impacts from climate change in Zambia, as well as identifying and prioritising responsive actions. The NAPA also outlines the consultation, resources and information that were used to prioritise adaptation interventions. The primary concern for the Government of Zambia is to "protect its people, infrastructure, and other national assets against disasters and climatic hazards such as drought and floods".

Rising temperatures and decreasing rainfall are expected to have a negative impact on agriculture in the southern regions (Regions I and II). The growing season is expected to shorten meaning that some crops such as maize would not mature. This would have serious implications for food security in those regions. Rising temperatures and associated decreases in rainfall are expected to have negative impacts on cattle numbers due to

availability of forage. Households in the southern province are dependent on cattle for their livelihood and thus are very vulnerable to climate impacts. Climate change is also expected to impact on fisheries with reduced breeding and even reduced biodiversity in the long-term. Floods are another expected impact of climate change with very negative consequences in terms of destruction of crops, destruction of infrastructure, siltation and sedimentation on rivers and streams (with negative impacts on fisheries), displacement of people and increased incidence of epidemics such as malaria. Other diseases that are sensitive to temperature and climate are dysentery, cholera and respiratory infections. The energy and water supply sectors are impacted by climate change, with the southern province in particular being vulnerable to water shortages during drought periods. Urban areas can also be impacted due to poor management of water resources. Energy supply is impacted due to the important role of hydro-power in the national electricity supply. Climate change is also expected to impact negatively on wildlife and biodiversity e.g. through increased forest fires, reduced forage, and poor quality fodder. Forests which previously regenerated quickly after deforestation or degradation, e.g. Miombo Forest, have been slower to recover due to the impacts of climate change.



Zambia agro-ecological regions I, IIa, IIb and III.

FAO Website: Zambia;

<http://www.fao.org/ag/agp/AGPC/doc/Counprof/zambia/figure14.htm>

A multi-stakeholder consultation was used to prioritise and rank potential interventions using economic, environmental and social indicators with equal weighting. The prioritised adaptation actions for Zambia were identified as follows:

- Strengthening of early warning systems to improve services for preparedness and adaptation to climate change in all the sectors (agriculture, health, natural resource, and energy)
- Promotion of alternatives sources of livelihoods
- Adaptation to the Effects of Drought in the context of Climate Change in Agro-Ecological Region I of Zambia
- Management of critical habitats
- Promote natural regeneration of indigenous forests
- Adaptation of land use practices (crops, fish, and livestock) in light of climate change
- Maintenance and provision of water infrastructure to communities to reduce Human-Wildlife Conflict
- Eradication of Invasive Alien Species
- Capacity building for improved environmental health in rural areas
- Climate-proofing sanitation in urban areas

More detail on these projects and activities is available online in an annex to the NAPA.

**Resources:**

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

McSweeney, C., New, M. & Lizcano, G. 2010. UNDP Climate Change Country Profiles: Zambia. Available: <http://country-profiles.geog.ox.ac.uk> [Accessed 18 July 2014].

Zambia Ministry of Tourism, Environment & Natural Resources, MTENR (2007); National Adaptation Programme of Action (NAPA); <http://unfccc.int/resource/docs/napa/zmbo1.pdf> [Accessed 18 July 2014].

## ZAMBIA'S INTENDED NATIONALLY DETERMINED CONTRIBUTION (INDC)

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Zambia's INDC includes both mitigation and adaptation components up to 2030.

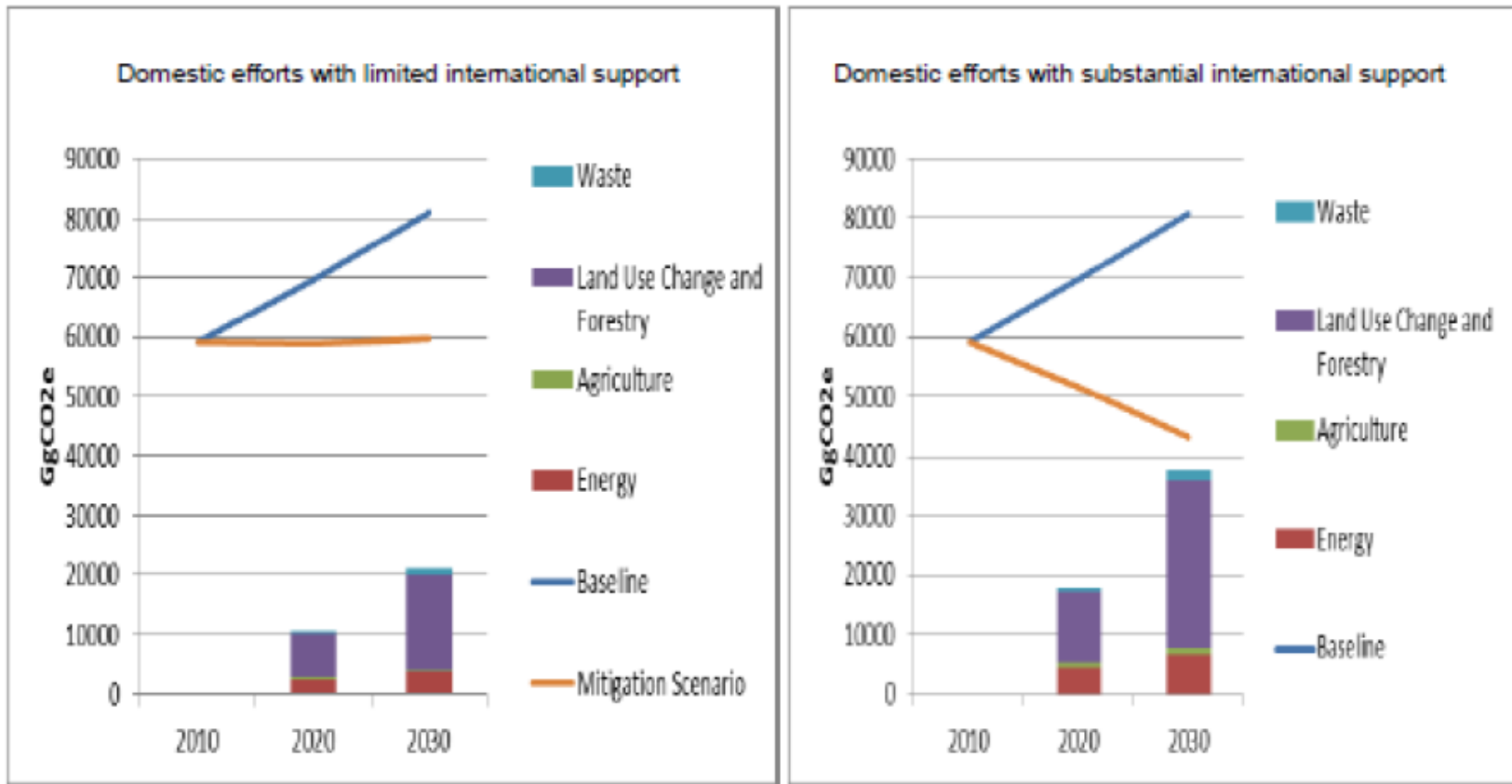
**Mitigation:** According to Zambia's INDC, the extent and magnitude of contribution of their GHG reduction will depend on the availability of resources from domestic efforts with limited international support and domestic efforts with substantial international support, as shown in Figure below. Implementation of the domestic efforts with substantial international support is conditional upon strong commitment of international climate, bilateral and multilateral finance in addition to provision of domestic resources. It is expected from this scenario that by the end of 2030, an estimated 38,000 Gg CO<sub>2</sub>eq could be mitigated, compared to 20,000 Gg CO<sub>2</sub>eq under the domestic efforts with limited international support. This translates into a reduction potential of 25% and 47% respectively against 2010 as the base year.

**Adaptation:** Zambia places significant importance and priority on adaptation to the effects of climate change in order to enhance the resilience of its population, ecosystems, infrastructure, productive and health systems. The key socio-economic sectors identified as most vulnerable to climate change impacts include: agriculture, water, forestry, energy, wildlife, infrastructure and health. All the adaptation actions have strong synergies with mitigation actions.

**Monitoring and Evaluation:** Since the INDC is a part of the national development and planning process for climate change issues, it will be monitored and evaluated according to the existing monitoring and evaluation frameworks. Further, this will be done in a wide consultative and participatory manner. In addition, since INDC is a planning tool, it will be reviewed and updated as part of the national planning process.

**Fair and ambitious:** Zambia considers her INDC fair and ambitious enough to contribute to low carbon and climate resilient economy by 2030 in accordance with its special national circumstance and desire to become a high middle income and prosperous nation by 2030. Zambia is a low contributor to global greenhouse gas emissions. In developing the INDC, Zambia considered the general principles and provisions of the Convention especially those related to Common But Differentiated Responsibilities and Respective Capabilities (CBDR) and equitable access to atmospheric space.





Extent and magnitude of contribution of Zambia's GHG reduction with scenarios for limited and substantial international support

## CASE STUDY: IMPROVED ACCESS TO SEED AND A SECOND HARVEST LIFTS A FAMILY OUT OF EXTREME POVERTY

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Sylvester Mukuka lives in Kalende village of Mwelawamangu ward in Luwingu district, Zambia. His household joined the Local Development Programme in 2014. His farming family have received support from the programme for two farming seasons. The Mukuka family initially received 10Kg Mbereshi beans seed and 10Kg Kabulangeti beans from the *seed pass back* under the Programme. Mr Mukuka also attended the trainings in crop production provided by Self Help Africa and the Ministry of Agriculture in 2014.

With improved access to seed and increased knowledge and best practice, Mr Mukuka's household has expanded the hectares of beans which they are cultivating from 0.5 Ha in the 2014/2015 farming season to 1.5 Ha in the 2015/2016 farming season. The household has benefitted from new technologies introduced under the programme, in particular the integration of the Functional Landscape Approach and Conservation Agriculture techniques.

*"As a result of improved access to seed my family was able to harvest and sale 735Kg of Mbereshi beans in 2015. We sold the beans at K6 per Kg to local traders and raised K4, 410 which I used to pay brick makers to mould over 1000 mud bricks. I also bought 20 iron roofing sheets for the new family house I am building",* a confident Mr Mukuka told the SHA programme district coordinator, Edward Meleki.

The Mukuka household attributes its success to having access to good seed on time and being able to have a **second harvest as a result of the knowledge gained from trainings on the Functional Landscape Approach and Conservation Agriculture**. Adoption of these concepts has had evident positive impact on the Mukuka household.

*"I want to be growing different crops now, even in dry season using the wetlands and Compost"*Sylvester said.



Mr. Sylvester Mukuka with 2 of his children, stands amid husks of shelled beans (2016 harvest) and his new house which is under construction. Photo: Self Help Africa

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

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Irish Aid and the 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. Combining the western socio-scientific knowledge found in universities, development agencies and government bodies with the lived knowledge of small-holder farmers, who are among the worlds most excluded but are most critical in terms of adaptive success, is a major challenge that the project attempts to address.

Ten Masters students from Zambia Open University and twelve from Mulungushi University developed research projects through the Transformative Community Engagement network which focused on climate change and hunger through a variety of topics. Samakao Misheck focused their research on ‘*Income Diversification as a means of building resilience against climate change: A case study of Mulungushi Farm Block*’. The aim of the study was to establish if income diversification is a means of building resilience to climate change among smallholder maize farmers. This study revealed that only 98% of farmers were aware of climate change and they perceived it principally as reduced rainfall. 79% of smallholder farmers had diversified their income from the growing of maize into other income sources. Forms of diversification were discussed and recommendations made for strengthening this element of food and livelihood security.

Kabange Masenga conducted ‘*An examination of the role of gender in climate change adaptation in Monze District of the Southern Province of Zambia*’. Responses of 30 men and 30 women were used to investigate factors that influenced the adoption of climate change adaptation strategies, and the role of gender in this. No overall significant differences were detected between the frequencies of male and female responses to: perceived forms of climate change; perceptions of the major causes of climate change; or adaptation strategies practiced. However, there was some evidence that more women tended to think of climate change more in terms of availability or shortage of food in the household, while men tended to think of it more in terms of its effects on crops and livestock.

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

## KEY PARTNER COUNTRY BILATERAL PROJECTS AND PROGRAMMES

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### INTEGRATED RESEARCH IN DEVELOPMENT FOR IMPROVED LIVELIHOODS IN NORTHERN PROVINCE

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The goal of this project is to contribute to improved livelihoods, health status, food and nutritional security of poor households in the Northern Province with a particular focus on women and vulnerable groups linked to the Irish Aid Local Development Programme in Mbala and Luwingu districts. Some of the research questions addressed include: What are the opportunities to improve food and nutrition security through integration of aquaculture crops, livestock and forest; what role do forests play in the performance of wetland based capture fisheries; and how do forests contribute to the ecosystem services necessary to maintain agricultural productivity? This project builds capacity for the integration of biodiversity and eco-system service concerns into local planning and development and supports the protection of carbon sinks.

### LOCAL DEVELOPMENT PROGRAMME IN NORTHERN PROVINCE (AIMED AT IMPROVING LIVELIHOODS, FOOD AND NUTRITION STATUS OF THE TARGETED SMALL HOLDER FARMERS; INCLUDING RESILIENCE TO CLIMATE VARIABILITIES)

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The primary goal of this programme is to improve the livelihoods, health status, food and nutrition security of poor households in Northern Province, with a particular focus on women and vulnerable groups. It aims to increase household food and nutrition security while improving knowledge in integrated soil management practices. It is intended that appropriate farming practices, such as conservation agriculture, will result in sustainable land-use and increased productivity while maintaining eco-system services. Training is provided in climate-smart crop, livestock and aquaculture production, and sustainable use of wetlands. The programme also aims to mainstream disaster risk reduction in all its activities including through capacity building, and establishment of disaster management committees.



Roadside market, Northern Province, Zambia. *Photo: Irish Aid*

## UN DELIVERING AS ONE

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The strengthening of national systems for climate resilience and disaster risk reduction and response is one of five priority outcome areas for the UN Development Assistance Framework in Zambia. Climate change is also seen to be a factor in other outcome areas, due to impacts on agriculture and business, and increased incidence of malaria and water borne diseases. Interventions include: strengthening information management and early warning systems for better planning preparedness; integrating climate change risks into programming and policies particularly for land-cover; natural resource management, raising awareness of environmental issues in the general population; building capacity on energy efficiency and renewable energy in government, revising agriculture, land and forestry policy to reflect climate change, and building capacity for non-Overseas Development Aid carbon-financing.

### ADDRESSING DROUGHT INDUCED FOOD INSECURITY IN WESTERN PROVINCE, ZAMBIA

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The project supports the Zambian Government's National Policy on Disaster Management by minimising negative effects of disaster and restoration of livelihoods and other life support systems of affected communities

The aim of this project is to contribute to food security and livelihood protection in smallholder agriculture households affected by the long dry spell in Western Province. The objective is to improve access of targeted households to food and increase the levels of agricultural production, through strengthening disaster management structures, and ensuring that extremely poor households are able to harvest from their farms for 2015/2016 season through farm input support and technical training. The technical training includes conservation farming practices that ensure good crop performance even in the face of poor rain patterns. A total of 4,400 households (22,000 people) are reached with these activities.

## IRISH AID FUNDING TO IRISH CIVIL SOCIETY PROGRAMME PARTNERS IN ZAMBIA

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The following disbursements by Irish Aid were identified as relevant to climate change, environment and/or disaster risk reduction by the beneficiary Civil Society Organisations (CSOs) but are not included in Ireland Climate Action Reports;

- Irish Aid provided €211,950 to Concern Worldwide for its work in Zambia targeted at extremely poor farm families and vulnerable groups to increase the capacity of communities to manage hazards;
- Irish Aid provided €415,000 to Concern Worldwide to improve nutrition amongst households through availability of and access to a supply of diverse and micronutrient-rich foods and encouraging consumption of at least 4 or more food groups during the hunger season;
- Irish Aid provided €330,080 to Self Help Africa for its work to increase smallholders' skills and knowledge to benefit nutritionally and economically from intensified and diversified agricultural production, and to develop organisational capacity to support enterprise development;
- Irish Aid provided €71,370 to Self Help Africa to develop scalable proven good practice approaches for integrating farmers in value chains and for its documentation and dissemination.



## MAPPING OF BILATERAL EXPENDITURE

Project/ Programme	Recipient	2015 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
Integrated Research in Development for improved Livelihoods in Northern Province	Small scale farmers in Northern Province	160,000	1	1	0	0	1	0	1	1	1	50%	80,000	0	0	80,000
Local Development Programme in Northern Province	Small scale farmers in Northern Province	1,630,000	1	1	2	0	1	1	1	1	1	50%	815,000	0	0	815,000
+UN delivering as one	UNDP	200,000	1	1	0	0	0	0	0	0	0	50%	100,000	0	0	100,000
Addressing Drought Induced Food Insecurity in Western Province	Small scale farmers in Western Province	340,000	1	1	2	0	1	1	0	0	0	50%	170,000	0	0	170,000

## METHODOLOGY

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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 Marker<sup>1</sup> 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.

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<sup>1</sup> 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.