Dóchas Working Group on Livelihoods, Food and Nutrition Security

Consultation paper on **Climate Smart Agriculture**






Dóchas
The Irish Association of Non-Governmental Development Organisations

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Introduction

The creation of the Global Alliance on Climate Smart Agriculture (GACSA) was welcomed by many as the forerunner of a new combined approach to addressing climate change and the expected increases in global food insecurity. However, there is a growing controversy regarding the interpretation of Climate Smart Agriculture (CSA) in the adaptation versus mitigation debate, and what this means for smallholder farmers in developing countries. In light of the foregoing, and of the Irish Government's recent signing up to the Alliance, we as members of the Dóchas Livelihoods, Food and Nutrition Security Working Group have come together to offer our view of CSA and propose core elements to contextualize it within the reality of smallholder farmers.

The Challenge

In an effort to contribute to the shaping of an effective post-2015 development agenda, several organisations in our sector have engaged in a series of internal and external discussions to devise ways in which to address new and emerging challenges to our programmes overseas.

We recognise the urgent need to increase agricultural productivity, while preserving the integrity of ecosystems and enhancing the resilience of local food systems. There is considerable discussion in the global arena with regard to the changing role of agriculture. There has been a welcome shift in policy rhetoric, to be reflected in practice, moving away from the old school green revolution approaches towards a method that promotes sustainable agriculture[1] and agroecological approaches[2] to smallholder family farming. These farmers live in resource-poor conditions and operate with few purchased inputs and limited technology. They represent 90% of all farms worldwide, and produce 70% of the world's food on less than a quarter of the world's farmland.

We also recognise that the incidence of food crises, which are caused by severe adverse weather conditions, natural hazards, environmental degradation (in response to energy and agricultural demands), economic shocks, conflicts, or a combination of these factors, has been increasing since the early 1980s. There have been between 50 and 65 food emergencies every year since 2000, up from 25 to 45 during the 1990s[3]. This high exposure of people's livelihood assets to a range of environmental hazards, coupled with the anticipated increase in the frequency and severity of extreme weather events due to climate change, is likely to lead to further losses of life and livelihoods in the next decades (Field, 2012). These hazards have a direct impact on

1. For the purpose of this paper, we refer to sustainable agricultue as: "the management and conservation of the natural resource base, and the orientation of technological and institutional change in such a manner as to ensure the attainment and continued satisfaction of human needs for present and future generations." (FAO 1989).
2. For the purpose of this paper, we refer to agroecology as an approah aimed at: "enhancing the services provided by living organisms taking the optimal advantage of natural resources, especially those which are abundant and free... to increase production in a sustainable and resilient way that will maintain and improve the ecosystem capital in the long term". (Ethienne Hainzelin, Enhancing the funding and provisioning of ecosystem services in agriculture: agroecological principles, presented at the FAO International Symposium on Agroecology for Food Security and Nutrition, Scientific Knowledge Session, 18 September 2014.
3. FAO, The State of Food Insecurity in the World. 2008.

agriculture and food security. They interrupt market access, trade and food supply to the cities; they reduce income, deplete savings, and erode livelihoods.[4]

The multiple threats to food and nutrition security and the clear link between shocks and hunger reveal the fragility of current food production systems and their vulnerability to disruptions. In order to break this cycle, it is necessary to protect livelihoods from shocks, and to transform food and agriculture production systems, making these more resilient and capable of absorbing the impact of, and recovering from, disruptive events, while ensuring sustainable development gains.

The conceptual framework of CSA has gained increased international attention as an approach that is able to address the converging agriculture, food security and climate challenge. At the same time, we realise that some concerns have surfaced over what the CSA rhetoric really means, what it can achieve and whether it can really benefit food systems in the face of climate change[5]. Policy makers, corporations, NGOs and farmers may welcome, promote or collaborate on CSA activities even though each of these groups may be talking about very different approaches.

Climate Smart Agriculture: A Definition

The concept of CSA was developed by the Food and Agriculture Organization of the UN (FAO) in 2010 as an integrated approach towards addressing the interlinked challenges of food security and climate change. The approach has three main objectives:

1. Increasing agricultural productivity in a sustainable manner, to support equitable gains in farm incomes, food security and development;
2. Adapting and building the resilience[6] of agriculture and food security systems to climate change at multiple levels; and
3. Reducing greenhouse gas emissions from agriculture (including crops, livestock and fisheries).

CSA invites us to consider these three objectives together but at different scales - from farm to landscape - and at different levels - from local to global - over both short and long time horizons, taking into account national and local priorities. CSA is an integrated approach that has the potential to reduce vulnerability from exposure to stresses associated with environmental change, promote economic viability and, at the same time, maintain the integrity of ecosystems. It focuses on agricultural ***productivity*** *with emphasis on the i****integrated management of natural resources*** *and on resilience - in particular on the temporal nature of* ***resilience***[7]. New climate risks require changes in agricultural technologies and approaches so as to improve the lives of those still locked in food insecurity and poverty and prevent the loss of gains already achieved. CSA approaches entail greater investment in: 1) managing climate risks; 2) understanding and planning for adaptive transitions that may be needed, - for example, into new farming systems or livelihoods; and 3) exploring opportunities for reducing or removing greenhouse gas emissions, where feasible. (FAO, 2014).

Although we, as a sector, are aware that increasing production - while at the same time reducing emissions - may seem a difficult objective, we believe that ***genuine climate-resilient sustainable agriculture approaches*** that are grounded in agroecological principles and are context specific, can, in fact, achieve this goal. Field-based evidence has shown us that these interventions work best if programmes aimed at enhancing household and community adaptation to climate change are accompanied by interventions aimed at improving governance - combining technological innovations with institutional

4. UNISDR, Disaster Risk Reduction: Global Review, 2007; IPCC, Climate Change 2007: Synthesis Report; UNISDR, Climate Change and Disaster Risk Reduction, Briefing Note 1, 2008
5. Action Aid, Clever name, losing game? How Climate Smart Agriculture is sowing confusion in the food movement, 2014; Cidse, Climate Smart Agriculture: the Emperor's new clothes? 2014, available at http://www.trocaire.ie/resources/policyandadvocacy/climate-smart-agriculture-emperors-new-clothes-cidse
6. For the purpose of this paper , we understand resilience as: "the ability of a system, community or society to resist, absorb, cope with and recover from the effects of hazards and to adapt to longer term changes in a timely and efficient manner without undermining food security or wellbeing" (Pasteur, K. 2011. From vulnerability to resilience: A framework for analysis and action to build community resilience. Rugby: Practical Action)
7. In order to reduce vulnerability, development strategies, including CSA, must be tailored to increase communities response to three capacities: absorptive – the ability to minimise exposure to shock; adaptive – the ability to quickly and effectively respond and adjust to changing conditions; and transformative – the ability to move beyond chronic poverty and insecurity through systemic change by building stronger support structures and creating more enabling environments (Béné et al. 2012. Resilience: New Utopia or New Tyranny? Reflection about the Potentials and Limits of the Concept of Resilience in Relation to Vulnerability Reduction Programmes. IDS Working Paper, Volume 2012 Number 405. CSP Working Paper Number 006. Institute of Development Studies (IDS) and Centre for Social Protection (CSP).

reforms, behaviour shifts and cultural change. There are many competing visions on how to achieve new models of agriculture that are also resilient, productive and resource-efficient. CSA entails equipping farmers to better use and manage their natural resources and adopt more efficient methods of producing, processing and marketing agricultural goods. Farmers have always adapted to changing climates and are, by their very nature, innovators. What they require is support in strengthening both their capacities and their ability to become more effective in applying innovative practices.


Thauzeni Theka, tomato and cabbage farmer, Mkhonde village - Lilongwe, Malawi

A CSA approach should be cognisant of the fact that extremely poor people often have few assets, gain poor returns on those assets, experience wide-ranging structural inequalities and are exposed to risks and vulnerabilities in many shapes and forms. In this sense its definition should make explicit reference to social inclusion.

The Dóchas Working Group on Livelihoods, Food and Nutrition Security proposes that the Global Alliance on Climate Smart Agriculture include the following as core elements of a climate smart approach:

- Emphasis on ***adaptation*** and ***resilience*** for food producers
- Mitigation focus, in line with historical responsibility and the principle of Common but Differentiated Responsibility (CBDR) and respective capacities
- Meaningful climate, environmental and social safeguards
- Emphasis on smallholder/resource-poor farmers
- Emphasis on ***productivity*** and ***sustainability***
- An analysis of farming systems at a landscape level (i.e. watershed management approach)
- Accent on farming systems that promote ***agroecological principles***
- Promotion of ***diversified farming systems*** (crop-livestock integration; agro-forestry, intercropping, crop rotation, biodiversity)
- Reference to the need for adaptation and mitigation at all stages of the food chain (not only in production)
- Reference to the food-energy-water nexus
- Reference to sustainable agriculture, understood as approaches aimed at: increasing agricultural productivity per unit area; promoting economic viability; lowering environmental and/or social costs[8]
- Emphasis on community-based organisations (village-level institutions, by-laws etc.)
- Acknowledgment of the role of soil and ecosystem health
- Risk mitigation and adaptation strategies
- Reference to the creation of an ***enabling policy environment***.

With regard to mitigation in particular, we note that in addition to reducing greenhouse gas emissions, many CSA approaches also help in carbon sequestration. However, given the technical challenges of measuring sequestration, there is an on-going debate as to the stability of some carbon sinks, the viability of the carbon market, and issues over ownership of carbon credits.

Furthermore, we discourage interventions that, in the name of climate mitigation or CSA, have the potential to undermine local land rights and / or lead to 'green land grabs'.

8. The approaches here refer to production systems that share the agroecological principles but allow farmers with different socio-economic conditions to access certain 'modern' technologies, such a high yielding crop varieties, microdosing of fertilisers and herbicides and integrated pest management.

An Institutional Framework

Increased support for the Climate Smart Agriculture movement has led to the establishment of two separate, autonomous institutional CSA bodies aimed at operationalizing the triple wins of Climate Smart Agriculture: the Global Alliance for CSA and the Africa CSA Alliance. These initiatives have emerged in parallel to and independent of pre-existing global institutions and agreements governing the world's response to food insecurity (notably the FAO Committee on Food Security) and climate change (notably the UN Framework Convention on Climate Change). There are also a host of other voluntary initiatives, such as the G8 New Alliance for Food Security and Nutrition, Grow Africa/Asia, and the Business Alliance against Chronic Hunger.

The Global Alliance for Climate Smart Agriculture (GACSA), formally launched on September 24th, 2014, is a voluntary, multi-stakeholder, action-oriented coalition committed to the incorporation of climate-smart approaches within food and agriculture systems. Membership of the Alliance comprises (i) governments; ii) NGOs; iii) businesses; and iv) international development organisations. The Global Alliance will seek to improve people's food and nutrition security by helping governments, farmers, scientists, businesses, and civil society, as well as regional and international organizations, to adjust agricultural practices, food systems and social policies so that they take into account climate change and the efficient use of natural resources[9]. There is a lack of clarity with regard to the governance of the Alliance, including membership criteria, decision-making processes (particularly with regard to the participation and voice of small-scale farmers) and accountability mechanisms. Our group would strongly encourage efforts towards clarifying the above.

The Africa Climate Smart Agriculture Alliance (ACSAA) was convened by the African Union and NEPAD in June 2014. Its founding members comprise INGOs (CARE, Concern Worldwide, CRS, OXFAM, World Vision) and technical partners (CGIAR, FANRPAN, FAO and FARA). THE ACSAA adheres to the definitions of CSA detailed in the FAO CSA Sourcebook[10], but will focus primarily on scaling-up CSA agricultural practices for which member organisations have field experience and evidence of increased resilience to expected local climate change. The ACSAA will work within the framework of the Comprehensive African Agricultural Development Programme (CAADP) and individual government agricultural policy to support the uptake of these CSA practices and approaches by at least 6 million farming households by 2021. This will significantly contribute to the African Union's broader goal of supporting 25 million farm households by 2025.

While not formally aligned with the Global Alliance for CSA, the Africa CSA Alliance is available to provide guidance to African countries wishing to join the Global Alliance and share its experience at Global Alliance events.

Thauzeni Theka's tomato and cabbage farm, Mkhonde village - Lilongwe, Malawi

9. Global Alliance for Climate Smart Agriculture, Action Plan, Sept 2014.
10. FAO, Climate Smart agriculture Sourcebook, 2013.

Case Studies

The following case studies are an illustration of field work contributing to the sustainable increase in agricultural productivity and the enhancement of food systems' resilience (as per our definition of CSA on p.3). Our strategy is to build district-level supporting structures to address the root causes of vulnerability and to do so at community-level, in such a way as to maximise individual entrepreneurship and increase the capacity of communities to manage these challenges successfully.

Sustainable Environmental Rehabilitation - Trócaire

Title and location: The Sustainable Environmental Rehabilitation Project (SERP), in the Boyo catchment in the districts of Azernet, Lemo, Analemo and Angacha, Ethiopia

Number of beneficiaries: 32,000 households

Kashi Assefa Mhari (50) stands on his land at the irrigation site in Lehama village, Tigray, north Ethiiopia, developed by Trocaire partner ADCS (Adigrat Diocese Catholic Secretariat) with support from Trocaire

Key types of intervention/approaches

Trócaire has identified low-input local systems as being best suited to meet the needs of the most vulnerable households which are directly dependent on natural resources. Systems which reduce small farmer and pastoralist dependence on aid and inputs fit Trócaire's transformative approach and response to climate change. This is pursued by supporting community and household capacity to adapt to climate change, manage risk and, importantly, link this to structural and institutional change at the meso, national and international level, addressing both the causes and the consequences of climate change. Trócaire's approach seeks to apply agro-ecological principles and a landscape approach to complement our heretofore individual farm targeting strategy for increasing resilience. The following case study from Ethiopia illustrates the complementary work of on-farm and wider-than-farm approaches. It supports structural changes at the wider-than-farm community level through Farmer-Led Integrated Watershed Management so as to increase ecological and organisational resilience. This complements work undertaken at household level to increase and diversify agricultural productivity and incomes, and thus increase food and economic resilience.

The project seeks to increase agricultural productivity and household income whilst, at the same time, reversing the process of ecological degradation through the introduction of Farmer-Led Integrated Watershed Management (FLIWM) in the Lake Boyo catchment. The major interventions, aimed at achieving a positive impact on the environment, include: creating soil and water conservation structures such as soil bund; ensuring existing soil bund maintenance; cutting drains, water ways and check dams; constructing sack check dams, stone check dams and brush wood check dams; enhancing the productivity of existing agricultural and livestock management systems; increasing food security and income for women in 32,000 households as a result of improved livelihood diversification opportunities; and strengthening local institutions (government and community-based), together with improving women's access to services.

Drip Irrigation - Gorta-Self Help Africa

Title and location: Drip Irrigation in Kouritenga Province, Burkina Faso

Number of beneficiaries: 440 smallholder farmers (207 women and 233 men)

Key types of interventions/approaches

The greatest potential for increase in crop yields is to be found in rainfed areas where many of the world's poor are living and where managing water is the key to such increases - particularly in the light of increasingly erratic and unreliable rainfall. Market


Farida Saidou, member of women's group, Burkina Faso

gardening irrigation systems in rural Burkina Faso typically involve carrying water from wells using buckets and watering cans which are labour intensive in terms of time and effort, and a burden which most frequently falls on women. There is considerable water consumption, wastage, evaporation rates and mineral fertilizer losses involved in using this method. The inefficient use of local water resources reduces crop yields and leads to the unnecessary waste of low water reserves. Soil moisture stress is one of the most important constraints to food production in much of Sub-Saharan Africa.

To address this and reflecting our priorities in promoting the sustainable intensification of agriculture, Gorta-Self Help Africa between 2012 and 2014 ran a drip irrigation systems project in Kouritenga Province for 440 smallholder farmers (207 women and 233 men) a research-based approach to demonstrate their effectiveness, efficiency and value for money, compared to the traditional watering can method. Results from the two-year project demonstrated a 30% reduction in water usage, 73% reduction in labour and an increase in yields from 12% to up to 203%.

CCAFS Climate Analogues Software (Sahel) - Concern Worldwide

Title and location: CCAFS Climate Analogues Software, Chad and Sudan

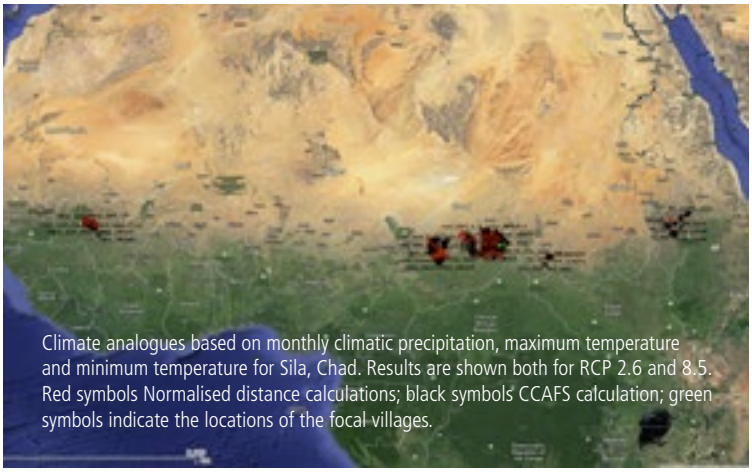
Number of beneficiaries: 88,000 people in Eastern Chad and 83,000 in Western Sudan

Type of intervention/approaches

Someone, somewhere, is probably already experiencing the climate that you will experience in 15 years. If you can predict what your climate will be like in 2030 you can look for "analogue sites" where communities have already adapted to these conditions. These sites should provide clues to the strategies required in order to adapt to climate change, particularly for long-term investments, such as tree plantations. In Chad and Sudan, Concern Worldwide and ICRAF are testing the use of the CCAFS Climate Analogue Software to locate sites currently experiencing the climate that farmers may experience in 2050, and provide them with a basket of options for adaption. An online version of CCAFS Climate Analogue Software is available at http://analogues.ciat.cgiar.org/climate/.

For Chad, the analysis was undertaken in 71 villages (88,000 people) in the Sila Region, using the output from 24 General Circulation Models (monthly precipitation, maximum temperature, minimum temperature, and bioclimatic variables) for two radiative forcing values (RCP 2.6 and 8.5), with climatic distance measured by both the CCAFS method and a normalising method to reduce the influence of extreme values.

Once analogue sites are identified, information gathered from local field studies or databases can be used and compared so as to provide data for further studies, propose high-potential adaptation pathways, facilitate farmer-to-farmer exchange of knowledge, validate computational models, test new technologies and/or techniques, and enable us to learn from history. In addition to finding analogue sites, the research will combine the outputs with vegetation and species distribution maps to shortlist tree species, varieties and provenances that have a high probability of withstanding future climatic conditions in Sila.


Climate analogues based on monthly climatic precipitation, maximum temperature and minimum temperature for Sila, Chad. Results are shown both for RCP 2.6 and 8.5. Red symbols Normalised distance calculations; black symbols CCAFS calculation; green symbols indicate the locations of the focal villages.

Dóchas gratefully acknowledges the support of Irish Aid. The ideas, opinion and comments in this publication are entirely the responsibility of Dóchas and do not necessarily represent or reflect Irish Aid policy.

Irish Aid
An Roinn Gnóthaí Eachtracha agus Trádála
Department of Foreign Affairs and Trade

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Thank you to all contributors.

The Dochas Livelihood, Food and Nutrition Security Working Group provides a dynamic platform for technical and policy exchanges among its member organisations on approaches and experiences in the field of livelihoods, nutrition and food security. The Group aims to capitalise on the expertise of its members and their strategic partnerships with Irish civil society and with Southern organisations and networks to strengthen the effectiveness of Irish actors' contributions to national and international processes and debates.

Dóchas is the Irish Association of Non-Governmental Development Organisations. It provides a forum for consultation and co-operation between its members and helps them speak with a single voice on development issues.

For more information, please contact **info@dochas.ie**

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