Introduction

- CSA is defined as agriculture that sustainably increases productivity, resilience (adaptation), reduces/removes greenhouse gases (mitigation), and enhances the achievement of national food security and development goals.

- Interest in CSA is in response to growing evidence of a significant increase in the global mean state of the climate or in its variability, and expected further increases if greenhouse gas emissions are not controlled (IPCC, 2007).

- While SA is actively involved in responding to climate change challenges, it is not clear to what extent CSA and its basic principles are understood and implemented by the different role players in the country.
Objectives

- This CSA scoping study was undertaken in order to establish the following:
  - the status of CSA understanding and implementation in SA at different levels
  - the current CSA Policy framework in South Africa in terms of effectiveness and equity.
Study Methodology

- The study consisted of consultation of existing literature and interviewing key CSA stakeholders in South Africa.

- Key CSA stakeholders who were consulted include the following:
  - National Departments of Environmental Affairs (DEA); Agriculture, Forestry, and Fisheries (DAFF), Water Affairs (DWA); and Rural Development and Land Reform (DRD LR).
  - Provincial Departments of Agriculture, Environmental Affairs, and Agrarian Reform;
  - State Owned Research Institutions: the National Research Foundation (NRF); Agricultural Research Council (ARC), Water Research Commission (WRC), Council for Scientific and Industrial Research (CSIR), and selected Universities.
Study Methodology

- Farmer organizations: Grain Producers Association of South Africa (Grain SA); KwaZulu-Natal No Till Club; National African Farmers Union of South Africa (NAFU-SA); and the Red meat Producers Organisation of South Africa (RPO).

- Private sector: Wine and Fruit Industries; South African Sugar Industries; Monsanto.

- Selected development partners – Food and Agricultural Organization of the United Nations (FAO); United Nations Development Programme (UNDP); European Union (EU) Delegation in South Africa; and the United States Agency for International Development (USAID).

- Civil Society Organizations: Biowatch and Surplus People’s Project (SPP).
Awareness of CSA in South Africa

SA has articulated a response to the challenge of climate change in the form of a “National Climate Change Response Policy” (NCCRP) (DEA, 2011).

The NCCRP describes climate response strategies for different sectors of the SA economy including the Agriculture, Forestry and Other Land Use (AFOLU) sector, and it highlights the need to:

- invest in and improve research into water, nutrient and soil conservation technologies and techniques,
- develop climate-resistant crops and livestock,
- increase agricultural productivity in line with the National Development Plan (NDP) and post-2015 Sustainable Development Goals (SDGs),
- develop ownership, and financing models to promote the development of climate-smart agriculture that lowers agricultural emissions, is more resilient to climate changes, and boosts agricultural production".

Awareness of CSA in South Africa

- The DAFF, which is the main role player in the AFOLU sector, gazetted the Climate Change Sector Plan for Agriculture, Forestry and Fisheries (CCSP) as Notice 7 of 2013, inviting comments and inputs.

- The CCSP provides a broad basis for CSA activities and programmes.

- Some Civil Society Organizations like Biowatch are questioning the generally accepted understanding of CSA.
  - CSA is framed in very general and wide terms that can accommodate almost any ‘new’ technology and institutional structure.
  
  - Their fear is that the climate change crisis could be used opportunistically to create new commercial gaps for the big players in the agriculture marketplace.

  - Framing CSA within a commercial framework misses the point and does not question the basic structural imbalances and development paradigm that created this problem in the first place.
Key CSA programmes and projects that are being implemented in South Africa

- Programmes and projects being implemented by the DAFF

  - **Climate Change Programme**
    - Raising awareness, policy development, development of sector mitigation and adaptation plans, conducting vulnerability assessments countrywide, identifying and coordinating climate-related research projects and capacity-building for the sector

  - Agricultural Greenhouse Gas Inventory was published in 2011.

  - South African Risk and Vulnerability Atlas was completed and is available online
Key CSA programmes and projects that are being implemented in South Africa

- Programmes and projects being implemented by the DAFF
  - *Sustainable resource management and use*
  - The National Land Type Survey was conducted so as to assist and guide land-use planning and decision-making at national level as well as at provincial and local level.

- Natural-resource spatial information is available on the internet-based Agricultural Geo-Referenced Information System (Agis)

- *LandCare programme*
  - Community-based and government-supported approach to promote the sustainable management and use of agricultural natural resources

- Sub-programmes on WaterCare, VeldCare, SoilCare and JuniorCare
Key CSA programmes and projects that are being implemented in South Africa

- Programmes and projects being implemented by the DAFF
  - National strategy on agro-ecological agriculture
    - Refers to the practice of agriculture where production is maximized whilst minimizing the use of external inputs and avoiding the pollution of natural resources.
    - It is a whole-systems approach to food, feed, and fibre production that balances environmental soundness, social equity, and economic viability.
Key CSA programmes and projects that are being implemented in South Africa

- Programmes and projects being implemented by DEA

- National carbon sinks assessment study
  - Commissioned in February 2013, and its objectives were to:
    - (i) understand the status and dynamics of the national carbon sinks,
    - (ii) understand potential climate change mitigation opportunities,
    - (iii) explore policy considerations as a result of the study

- The Green Economy
  - Nine key focus areas were identified to facilitate moving the country towards a green economy:
    - Green buildings and the built environment, Sustainable transport and infrastructure, Clean energy and energy efficiency, Resource conservation and management, Sustainable waste management practices, Agriculture, food production and forestry, Water management, Sustainable consumption and production, Environmental sustainability.
Key CSA programmes and projects that are being implemented in South Africa

- Programmes and projects being implemented by DEA

- **Climate Action Now**
  - This Climate Change Awareness Campaign was launched during COP17 (2011)
  
  - The objectives of the Campaign are to: build awareness of the causes and effects of climate change, mobilise SA businesses, households and stakeholders to take action on climate change, and, to unite government, business, labour, and civil society to save the future by taking action on climate change now.
Key CSA programmes and projects that are being implemented in South Africa

- Programmes and projects being implemented by Fruit and Wine industries

- *Confronting Climate Change Initiative*

  - The objectives of the initiative are to:
    - provide an information resource for the industry to better understand the relevant direct and indirect climate change impacts
    - generate a carbon footprint measurement tool to facilitate reduction of carbon emissions along the supply chain in order to satisfy the growing demand for carbon-efficient business processes

- A *carbon calculator tool* was successfully launched in September of 2009, and the protocol is available online (http://www.climatechangefruitandwine.co.za)
Key CSA programmes and projects that are being implemented in South Africa

- Research and capacity building
- **National Research Foundation (NRF)**
  - (i) Innovation for Adaptation and Resilience initiative under the NRF’s Global Change Grand Challenge programme,
  - (ii) Science and Technology for poverty alleviation and local/regional innovation including sustainable rural development,
  - (iii) Research & Technology Fund (RTF),
  - and (iv) Southern African Science Service Centre for Climate Change and Adaptive Land Management (SASSCAL).

- **Water Research Commission (WRC)**
  - Climate change projects in two of its five key strategic areas (KSA), namely KSA1 – Water Resources and Management and KSA4 - Water Utilisation in Agriculture
CSA Policy Framework in South Africa

- Policies and Institutions relevant to CSA in South Africa

- Institutional Arrangements
  - Institutional arrangements currently in place are those for responding to climate change in general

- National Committee on Climate Change (NCCC) and the Intergovernmental Committee on Climate Change (IGCCC) chaired by DEA.

- Other members of the IGCCC include the Departments of Science and Technology (DST), Department of Education (DOE), Department of Trade and Industry (DTI), Department of Social Development (DSD), Department of Human Settlements (DHS), Department of Transport (DoT), Department of Water Affairs (DWA)
CSA Policy Framework in South Africa

- Policies

- The CSA policy in SA is still being formulated by DAFF and good progress has been made in that the CCSP, which is the precursor to this policy has been completed.

- The Agricultural land reform policy framework was put in place to address the problem of landlessness resulting from racist land laws that were in place during the colonial and apartheid eras.

- Three components - restitution, tenure reform and land redistribution.
CSA Policy Framework in South Africa

- The Agricultural land reform policy framework
- Relevant policies and programmes under this framework are as follows (Madizwamuse, 2010)
  - White paper on Agriculture, 1995
  - Land care programme
  - Land Redistribution for Agricultural Development (LRAD), 2001
  - Comprehensive Rural Development Programme (CRDP) – 2013
  - Policy on Agriculture and Sustainable Development
  - National Agriculture Research and Development Strategy
Effectiveness of the Policies and Activities

- The policies reviewed are robust and comprehensive but their successful implementation remains to be realized.

- The LRAD, for example, is not on track in terms of achieving its stated goal of transferring 30% of all agricultural land to black African farmers over a 15 year period (Madizwamuse, 2010).

- Hope is now pegged on the CRDP framework and policy, which is aimed at accelerating the transfer of land to blacks.

- For those in possession of land, implementation of CSA is also impeded by land tenure arrangements:
  - Most smallholder farmers in SA operate on land that is under the communal tenure system where land rights are not secure.
Effectiveness of the Policies and Activities

- Insecure land tenure arrangements are limiting access to land and undermining interest and commitment to farming in Zanyokwe Irrigation (Mnkeni et al., 2010)

- At least 3 types of tenure systems - freehold (landowners), quitrent (pay rent to magistrate) and right to occupy (communal under traditional leadership)

- A review of the land tenure policies is essential to bring a sense of ownership and investment in new technologies such as those promoted by CSA
Effectiveness of the Policies and Activities

- A number of DAFF policies effectively conflict each other with respect to CSA.

- Promotion of some aspects **Agro-ecological agriculture** seem to be in conflict with efforts that are aimed at high productivity and facilitation of smallholder and emerging farmers to be commercially-oriented.

- Agro-ecological agriculture promotes minimum reliance on external inputs, such as fertilisers, and new varieties of crops, which is in contrast to promotion of best management practices.

- A policy on **organic agriculture** is also nearing finalisation.

- Fears are that farmers may be left confused if these programmes are not properly targeted or co-ordinated.
Effectiveness of the Policies and Activities

- A similar conflict relates to the **Mechanization support policy** for household food security

- This policy regulates the rolling out of mechanization support, including ploughs, discs, to some two million deserving households in South Africa

- It is in conflict with the promotion of CA, which has different machinery requirements

- The policy needs to be reviewed in order to accommodate the machinery needs of aspiring or practicing CA farmers.
Effectiveness of the Policies and Activities

- **The Land Care programme** is in response to the Conservation of Agricultural Resource Act (CARA) through the Extended Public Works Programme (EPWP).

- It has been effective in reversing soil and land degradation through support provided to community initiatives.

- **The National Agricultural Research Strategy** has been very effective in generating knowledge that is relevant to CSA.

- Its weakness at this point seems to be lack of coordination among the different role players involved in CSA or CSA related research.

- This weakness may be overcome through the establishment of a national network for CSA, as planned by DAFF.
Impact of Policies and Activities on Gender and Social Equity

- Two of the stated objectives of the LRAD policy are to:
  - expand opportunities for women and young people in rural areas with the intention of improving gender equity, and
  - overcome the legacy of past racial and gender discrimination in ownership of farmland

- Unfortunately, very few women benefitted from the little land that has been transferred so far (Madizwamuse, 2010)

- The LandCare programme has contributed significantly to green job creation, poverty eradication, food security and a better life for all

- It also contributed to social and gender equity since most of the beneficiaries were previously disadvantaged and because emphasis is placed on gender balance when employing local people
Impact of Policies and Activities on Gender and Social equity

- Agro-ecology is based on the principles of food sovereignty.

- Biowatch reports that it has had a very positive impact in terms of gender equity in that it empowers women especially to be in control of their seed and livelihoods.

- It also enhances social equity as it does not leave farmers at the mercy of the global seed and fertiliser market.
Challenges to implementing CSA in South Africa

- Shortage of productive land and infrastructure;
- Limited comprehensive adaptive research;
- Lack of capacitated, motivated, committed and dedicated extension staff to promote the implementation of research results at grass roots;
- Lack of good and interested leadership in the communities;
- Limited case studies demonstrating the benefits of CSA technologies such as CA to facilitate adoption by the majority of farmers.
  - Such case studies are numerous in other parts of the world, but not in South Africa.
Opportunities that remain untapped

- There are several untapped opportunities whose unleashing could result in accelerated adoption of CSA.

- One such outstanding opportunity is use of the Incentive and Market Based Mechanisms (IMBM)s, such as Payment for Ecosystems Services (PES) and the Carbon Market.

- It consists of rewarding farmers who are able to reduce the carbon and water footprints of their farms through adopting CSA technological packages such as CA.

- Funding for this programme could come from funding instruments already established by DEA, such as the Green Economy and Green Fund.
Opportunities that remain untapped

- The Western Cape Department of Agriculture has already made some progress in this regard through two pilot projects it has carried out:
  - Conversion of its research farms into sustainable units - a carbon footprint for each of its research farms was determined and projects are now planned to mitigate the footprint.
  - Fruitlook project - enabled the provision of real-time information to fruit farmers on the actual water use on a weekly basis paving the way for instituting measures to reduce the water footprint on each orchard.

- These approaches can be used to estimate the mitigation impacts of adopted technological packages on the carbon and water footprints of farms, which can then be used as a basis for implementing IMBM.

- The South African Wine and Fruit Industries (SAWFI) developed the carbon calculator tool ([http://www.climatechangefruitandwine.co.za](http://www.climatechangefruitandwine.co.za))
Opportunities that remain untapped

- Development of the carbon calculator tool was in response to pressure from international retailers and supermarket chains on supply chains to account for reduced emissions, which implied loss of future markets for those who will fail to comply.

- The government could consider making it a mandatory requirement for high value agro-industries to develop carbon calculator tools so that the country builds capacity in this regard.

- Such a mandatory requirement has the potential of fast-tracking the uptake of CSA in the established and emerging commercial agriculture sectors.
General Conclusions and Recommendations

- There is considerable awareness of CSA in SA, though the generally accepted understanding of CSA is being questioned by Civil Society organizations like Biowatch.

- DAFF needs to engage all stakeholders in order to get a common understanding of CSA that is acceptable to all.

- This will go a long way in getting buy-in and unreserved support for CSA by different stakeholders.
General Conclusions and Recommendations

- The CSA policy in SA is still under development though its precursor, the CCSP, has been completed and gazetted.

- The main impediments to successful implementation of CSA are landlessness and poverty among potential and practicing farmers.

- There is lack of coordination of CSA research and outreach activities.
  - It is recommended that the planned Alliance/Network for CSA in SA is tasked with seeing to it that these tasks are coordinated.
General Conclusions and Recommendations

- A lot of knowledge relevant to CSA has been generated in South Africa
  
  - It is recommended that this knowledge be summarized in the form of a handbook for CSA, for use by farmers, extension officers and training institutions.

- It is recommended that the NRF be encouraged to create a funding instrument dedicated to CSA research to fast-track generation of CSA knowledge and technological packages

- Institutions teaching agriculture should be requested to include CSA in the teaching curricula and those engaged in research to prioritize and include CSA in their institutional research strategies.

- Extension officers need to be re-trained to equip them with CSA technological packages.