



DEPARTMENT: AGRICULTURE

POLICY ON AGRICULTURE IN SUSTAINABLE DEVELOPMENT

A DISCUSSION DOCUMENT

8th Draft

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1. INTRODUCTION

1.1 THE CONCEPT OF SUSTAINABLE DEVELOPMENT

Sustainable development means different things to different people. In the past it was wrongly characterized as an environmental issue. The World Commission on Environment and Development's (WCED) definition of '*sustainable development*' is "*development that meets the needs of the present without compromising the needs of future generations to meet their own needs*". At the heart of the concept is the belief that social, economic and environmental objectives should be complementary and interdependent in the development process.

Sustainable development has three principal dimensions: economic growth, social equity and protection of the environment. Underlying the economic dimension is the principle that society's well being would have to be maximized and poverty eradicated through the optimal and efficient use of natural resources. The social aspect refers to the relationship between nature and human beings, uplifting the welfare of people, improving access to basic health and education services, fulfill food security needs and respect for human rights. The environmental dimension, on the other hand, is concerned with the conservation and enhancement of the physical and biological resource base and ecosystems.

Although sustainable development is a universal challenge, many practical responses can only be defined nationally and locally. Nations are challenged with developing and implementing strategies in sustainable development. All countries should promote sustainable development at the national level by, *inter alia*, enacting and enforcing clear and effective laws that support sustainable development. The strategies on sustainable development will be defined and limited by national needs, priorities and resources. Due to the complexity and dynamism of challenges facing humanity, strategies towards sustainable development need to evolve and improve with time.

The Department of Agriculture had, as part of its contribution towards sustainable development, embarked on a process of developing a *Policy on Agriculture in Sustainable Development*. This is part of the response to the commitments made by world leaders at the World Summit on Sustainable Development (WSSD) that was held in Johannesburg in 2002. The *Policy on Agriculture in Sustainable Development* forms part of the process of incorporating principles and objectives of sustainable development into the ethos of the agricultural sector of this country. It aims at integrating and harmonising the three pillars of sustainable development viz. social (people), environment (planet) and economic (prosperity). Its goals should be to ensure socially responsible economic development while protecting the resource base and the environment for the benefit of future generations. The policy recognizes the shared goals of government, farmers and conservationists and the need for all stakeholders to

work together to achieve a sustainable agricultural sector in South Africa. The success of this policy will depend largely on the support and participation of farmers, consumers, government departments, parastatals, the private sector, non-governmental organizations (NGOs), community-based organizations (CBOs) and other stakeholders.

1.2 AGRICULTURE IN SUSTAINABLE DEVELOPMENT

Agriculture plays a crucial role in sustainable development and in hunger and poverty eradication. The challenges faced by agriculture in sustainable development is in working out ways of bringing about a society that is materially sufficient, socially equitable, and ecologically sustainable and one that is not obsessed by growth only, but motivated by satisfying human needs and equity in resource allocation and use.

Sustainable agriculture must meet economic, social and ecological challenges. All these challenges are closely related. These features of sustainable agriculture should be considered as a package, and no single feature should predominate over the others. Sustainable agriculture needs to protect the natural resource base, prevent the degradation of soil and water; conserve biodiversity; contribute to the economic and social well-being of all; ensure a safe and high-quality supply of agricultural products; and safeguard the livelihood and well-being of agricultural workers and their families.

The main tools towards sustainable agriculture are policy and agrarian reform, participation, income diversification, land conservation and improved management of inputs. This policy document is an effort to identify the strategies, guidelines and practices that constitute the South African concept of sustainable agriculture. This is done in order to clarify the research agenda and priorities thereof, as well as to suggest practical steps that may be appropriate for moving towards sustainable agriculture.

1.3 GLOBAL RESPONSES TO THE CHALLENGES OF SUSTAINABLE DEVELOPMENT

South Africa is a signatory to a number of international agreements and conventions that require the matter of sustainable development and related issues are addressed in a responsible way. The multilateral and developmental agreements cited below create a framework for implementation of sustainable development. A list of key United Nations multilateral, environmental and developmental agreements that are directly or indirectly related to agriculture, in no particular order, is as follows:

A. Earth Summit, Rio de Janeiro, 1992

In 1992, the leaders of the world's nations met at the Earth Summit in Rio de Janeiro to set out an ambitious agenda to address the environmental, economic, and social challenges facing the international community. The leaders agreed on a set of principles. These principles are included in what is now known as Agenda 21. Agenda 21 is an action plan and blueprint for sustainable development that was one of five documents adopted by more than 178 governments at the United Nations Conference on Environment and Development (UNCED) in Rio.

The overarching message as agreed by nations is that development should be *sustainable*. Agenda 21 and the conventions and agreements reached at the Earth Summit in 1992 together form a global programme of action for sustainable development. Although being a global plan, the successful implementation of Agenda 21 is the responsibility of governments and therefore calls for nations to develop national strategies, plans, policies and processes in order to strike a balance between social upliftment, economic prosperity and environmental conservation. International cooperation should support and supplement such national efforts.

B. *Climate* [United Nations Framework Convention on Climate Change (UNFCCC)], New York, 9 May 1992

Global Climate Change is probably the greatest environmental challenge facing the world this century. Although often referred to as 'global warming', Global Climate Change is more about serious disruptions of the world weather and climate patterns, including impacts on rainfall, extreme weather events and rising sea level, rather than just moderate temperature increases.

C. *Biodiversity* [Convention on Biological Diversity (CBD), Nairobi, 22 May 1992]

The objectives of this Convention are the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.

D. *Desertification* (United Nations Convention to Combat Desertification, UNCCD, 17 June 1994)

As defined by the UNCCD, desertification means land degradation in arid, semi-arid, and dry sub-humid areas. This process can result from various factors, including climatic variations and human activities.

E. *The International Treaty on Plant Genetic Resources for Food and Agriculture*, 2001

The International Undertaking on Plant Genetic Resources for Food and Agriculture (PGRFA) is a comprehensive international agreement on plant

genetic resources that provides the agricultural sector with a multilateral tool to ensure access to PGRFA, and to related knowledge, technologies and internationally agreed funding.

F. Millennium Development Goals (MDG) (Millennium Declaration, signed by 187 world leaders at the Millennium Summit on 8 September 2000)

World leaders agreed to the following Millennium Development Goals in an attempt to address the challenges facing the world:

- ❑ Eradicate extreme poverty and hunger
- ❑ Achieve universal primary education
- ❑ Promote gender equality and empower women
- ❑ Reduce child mortality.
- ❑ Improve maternal health
- ❑ Combat HIV / Aids, malaria and other diseases.
- ❑ Ensure environmental sustainability
- ❑ Develop a global partnership for development.

G. World Summit on Sustainable Development (WSSD), Joburg, 26 August - 4 September 2002

Ten years after Rio, Johannesburg emerged with the fresh mandate of accelerating implementation of the Rio principles or Agenda 21. WSSD provided an opportunity for countries to give real and practical meaning to sustainable development. South Africa hosted the World Summit on Sustainable Development in Johannesburg from 26 August to 4 September 2002 with an overriding theme of promoting action and pressing ahead on tackling major challenges around poverty and the environment. Governments committed themselves to increasing access to clean water and proper sanitation, to increase access to energy services, to improve health, agricultural conditions, particularly in drylands, and to better protect the world's biodiversity and ecosystems. The major outcome document, the Johannesburg Plan of Implementation, contains targets and timetables to take the action forward on a wide range of issues. The modalities for implementation of the sustainable development targets were finalized at the eleventh Commission for Sustainable Development (CSD 11).

1.4 REGIONAL RESPONSES TO THE CHALLENGES OF SUSTAINABLE DEVELOPMENT

A lot of debate, planning, programmes, roundtables, etc. have taken place in Africa in recent years as the continent was trying to rid itself of the stigma of little or no development, famine, conflicts, disease, drought, and many other calamities. The culmination of these initiatives was the birth of the “New Partnership for Africa’s Development” (NEPAD), launched in October 2001. NEPAD is a comprehensive integrated development plan that addresses key

social, economic and political priorities in a coherent and balanced manner. It also aims to place Africa on a path of sustainable growth and integration into the global economy. NEPAD gives high priority to agriculture and food security. An action plan for agriculture called *Comprehensive Africa Agricultural Development Programme* (CAADP) has been developed under NEPAD. The CAADP has been designed to promote interventions that best respond to the challenges faced by African agriculture.

At a sub-regional level, South Africa is committed to working together with the other Southern African Development Community (SADC) member countries to achieve sustainable development and food security. A *Regional Indicative Strategic Development Plan* (RISDP) has been developed to deal with these issues.

2. PURPOSE

The purpose of this policy is to facilitate a co-ordinated approach towards achieving an ecologically, socially and economically sustainable agricultural sector in South Africa that supports the government's commitment towards poverty alleviation, food security and economic development. This emphasizes the creation of a prosperous agricultural sector while protecting the national biological and physical resource base, as well as enhancing human health and well-being.

3. PROBLEM STATEMENT

South Africa as a country faces a number of challenges that affect its sustainable development. The achievement of sustainable agriculture in South Africa is hindered by numerous factors like poor rural infrastructure, globalization, natural resource constraints, shortage of skills, climate change, etc. The challenges facing this country are grouped into the three pillars of sustainable development namely, social, economic and environmental aspects. The absence of a coherent national policy framework to address these issues is, however, cause for concern.

Social challenges to sustainable development include a high unemployment rate, poverty, food insecurity, crime, growing incidence of HIV / AIDS, homelessness, etc. The population in South Africa is estimated at 45 million and is growing at about 2% per year. If this trend in population growth persists there will be nearly 82 million people living in South Africa by the year 2035, and these people will be dependent on the same level of natural resources, which are already under pressure. In both rural and urban centres, many people do not have access to a reliable water supply and sanitation, electricity, and other services. About 19 million people or just fewer than 50% of the total population of South Africa are regarded as poor. Most of the poor live in rural areas. Close to 14 million people

in South Africa are said to be food insecure. Unemployment rates are estimated at about 30%. Although the education system has been reformed and all South Africans now have access to education, approximately 7.5 million people are functionally illiterate. These, and other factors, contribute to the high crime rates currently being experienced in the country.

Agricultural practices, however, can have negative effects on human health and education. For example, overexposing adults and children to dangerous chemicals and harmful forms of child labour are significant problems. In addition to exposure to dangerous chemicals, children may suffer long working hours, lack of access to education, very low or no pay, and injury due to heavy loads and dangerous machinery. Pesticides and fertilizers used in agriculture can contaminate water. Misuse of pesticides can have immediate and health effects on farmers and consumers. Persistent pollutants can cause harm to ecosystems both locally because of their chemical properties, and at great distances where they are applied.

Unsafe food, especially due to microbial contamination, is a major problem for domestic consumers and is emerging as a key issue in international markets. Globalisation has increased the risk of spread of pests, and diseases throughout the world. This is due to increased movement of agricultural products among countries through trade. With increasing demand for meat and milk products, the link between livestock diseases and human health will be increasingly important. About half of the 1,700 organisms causing diseases in humans are naturally transmitted from animals.

Women are responsible for half of the world's food production. They are the mainstays of the agricultural food sector, labour force, and food systems. However, women's fundamental contribution is continually under-appreciated and under-supported. These circumstances should be reversed because sustainable rural development through agriculture cannot be achieved without the full participation of women.

Environmental challenges for sustainable development in agriculture are mostly those linked to natural resources (land, water and biodiversity). South Africa is not richly endowed with agricultural resources, and has inherent limitations of the natural resource base. South Africa has a total surface area of 122 million ha, of which almost 86% is used for agriculture, 74% being natural veld and 14% arable land. About 1,3 million hectares (ha) are under irrigation. Rainfall is generally low, erratic, unevenly distributed and unreliable. Nearly 91% of the country is arid, semi-arid and dry sub-humid. South African soils are characterised by low fertility. Land degradation is the most important environmental problem affecting many areas of South Africa. The main effects of soil degradation are soil impoverishment and greater susceptibility of vegetation to drought. Factors that have contributed to this, particularly in the commercial sector, are monoculture cereal production, intensive tillage, and limited crop rotation. Excessive fuel wood

collection, inappropriate land use, population density and overgrazing are the main causes of soil degradation in the communal areas, on the other hand. Several processes are contributing to declining quality of land resources. Soil erosion is responsible for about 50 per cent of land degradation, while irrigated land in some areas has been damaged by water-logging or salinity. Extreme poverty and hunger push people onto marginal lands and more fragile ecosystems characterized by drought stress and low soil fertility. Yield growth has slowed down and environmental stress increased.

Degradation of natural resources (land, water, and biological diversity) threatens the livelihoods of the poor, particularly in rural areas, where they rely heavily on them. Increasing poverty, in turn, limits the range of available options with regard to the sustainable management of these finite resources. The challenge is made more difficult by the increasing population densities and the effects of climate change.

South Africa is regarded as having the third largest biodiversity in the world. However, species extinction rates in this country are high due to unsustainable farming practices, deforestation, high population growth and industrial development. Some species are under threat from over-collection for medicinal, ornamental, and horticultural purposes. Invasion by alien species of plants and animals is also a major problem in South Africa. Alien organisms can replace large numbers (even whole populations) of native animals and plants, and alien plants often use greater quantities of scarce water resources.

South Africa's available freshwater resources are already almost fully utilized and under stress. At the projected population growth and economic development rates, it is unlikely that the projected demand on water resources in South Africa will be sustainable. Water will increasingly become the limiting resource in South Africa, and supply will become a major restriction to the future socio-economic development of the country in terms of quantity and quality. At present many water resources are polluted by industrial effluents, domestic and commercial sewage, acid mine drainage, agricultural runoff and litter. Agriculture is based on extensive use of non-renewable resources like fossil fuels and mineral deposits. Food production consumes considerable amounts of fossil fuel. This has led to an increase in pollution of both air and water as well as related problems such as global warming.

Economic challenges to sustainable development include slow economic growth, globalisation, mechanization, excessive reliance on foreign direct investment, job losses, etc. South Africa's economy is highly dependent on natural resources for food and energy production, inputs to manufacturing, and to absorbing wastes and pollutants. To achieve sustainable development, it must be recognized that the economy and the environment are co-dependent, i.e. that economic instability leads to environmental degradation, and responsible environmental management makes economic sense.

Rural areas face a deteriorating stock of rural infrastructure and inadequate levels of services, reducing the competitiveness of rural producers outside local markets and restricting their access to current market information. Rural areas lack good roads and bridges, small-scale irrigation systems, post-harvest storage facilities, processing and market facilities, clinics, electricity and telecommunication facilities. Rural areas also have poor financial markets. As a result, the poor find it difficult to cope with risks of various sorts and cannot afford to purchase important inputs such as fertilizer, chemicals and farm machinery or to hire additional labour even when it would be profitable to do so.

South Africa has relatively poor systems for knowledge generation and dissemination. Research on technologies and production methods that can provide sustainable increases in agricultural production and improved management of natural resources among poor populations, is seriously under-funded. This includes most forms of pro-poor technology development and most approaches to farm development that do not depend on the increased use of purchased inputs—such as integrated pest management and measures to raise the organic matter content of soils or to improve fertilizer use efficiency. National agricultural research and extension systems have lost some of their effectiveness and capacity to respond better to the technology needs of small farmers.

Globalization has resulted in increased competition for our agricultural products both on export markets and locally. Free movement of agricultural products between countries has increased sanitary and phytosanitary risks, particularly the outbreak of exotic pests and diseases. Outbreaks of foot-and-mouth disease, Karnal bunt and larger grain borer are cases in point. Climate change has resulted in increased incidence of prolonged droughts. This poses a big problem because most of South Africa's agricultural production is rain-fed.

Market access by many farmers is hindered by constraints such as inadequate physical infrastructure, sanitary and phytosanitary barriers, unstable market opportunities related to production variability, relatively small markets, lack of current market information and trading skills. International trade is hampered by unfair competition due to subsidies and other barriers used by the developed countries.

All the challenges highlighted in this section, point to the fact that unless measures for intervention are put in place, the welfare of future generations of this country is at risk. The South African government recognizes this challenge and is working tirelessly to ensure a sustainable future for agriculture in the country. This policy is an attempt to set the framework for such interventions. The Department of Agriculture is committed to achieving sustainable, equitable and efficient agricultural development.

4. CURRENT MEASURES FOR RESPONDING TO CHALLENGES FACED BY AGRICULTURE

South Africa has entrenched constitutional commitments to protecting the environment and for sustainable development. Section 24 of the Bill of Rights provides everyone with the right '*to an environment that is not harmful to their health or well-being*'. The Bill of Rights calls for the protection of the environment to the benefit of present and future generations, through reasonable legislative and other measures. The constitution also provides for the restitution of land rights.

There are several initiatives that are aimed at improving or regulating various aspects of agriculture. Some of these initiatives are outlined below:

A. White Paper on Agriculture, 1995

The mission of the *White Paper on Agriculture, 1995* is ensure equitable access to agriculture and promote the contribution of agriculture to the development of all communities, society at large and the national economy, in order to enhance income, food security, employment and quality of life in a sustainable manner.

B. Discussion Paper on Agricultural Policy, 1998

In view of the contribution of agriculture to the national economic policy objectives articulated in the Reconstruction and Development Programme (RDP), and later encapsulated in the Growth, Employment and Redistribution (GEAR) strategy, the objectives of agriculture are: economic growth; reducing income inequalities, especially along racial lines; and eliminating poverty.

C. Implementation Framework for the LandCare Programme, 1999

The overall goal of the LandCare Programme is to optimize productivity and sustainability of resources to attain food security, job creation and a better quality of life for all. LandCare is a community-based programme supported by both the public and private sector through a series of partnerships. It is focused on the conservation of the natural resources (soil, water and vegetation) through sustainable utilization and the creation of a conservation ethic through education and awareness.

D. Land Redistribution for Agricultural Development, 2000

Land Redistribution for Agricultural Development (LRAD) is designed to provide financial assistance to black South African citizens to access land specifically for agricultural purposes. The strategic objectives of the sub-programme include: contributing to the redistribution of the country's agricultural land; improving nutrition and incomes of the rural poor who want to farm on any scale; de-

congesting overcrowded former homeland areas; and expanding opportunities for women and young people who live in rural areas.

E. The Strategic Plan for South African Agriculture, 2001

The pivot of agriculture in sustainable development in South Africa is *Strategic Plan for South African Agriculture*, which was adopted by government, and organized agriculture. The strategic goal of the sector plan is: "*to generate equitable access and participation in a globally competitive, profitable and sustainable agricultural sector contributing to a better life for all.*"

The Strategic Plan for South African Agriculture is aimed at addressing key problems and challenges facing the sector through three core strategies:

- ❑ Enhance equitable access and participation in the agricultural sector;
- ❑ Improve global competitiveness and profitability ; and
- ❑ Ensure sustainable resource management.

F. The Integrated Sustainable Rural Development Strategy

The main role of the Department with regard to the Integrated Sustainable Rural Development Strategy (ISRDS), is to ensure food security and as well as contributing towards economic growth in rural areas through job creation and facilitation of development of agri-businesses. This is due to the fact that agriculture is the main economic activity in the rural areas.

G. Integrated Strategy on Food Security and Nutrition Programme (ISFSNP), 2002

This strategy is aimed at ensuring physical, social and economic access to sufficient, safe and nutritious food by all South African at all times to meet their dietary and food preferences for an active and healthy life.

H. Legislation Impacting on Sustainable Development

Each of the following legislation, *inter alia*, impacts on sustainable development:

- ❑ *Fertilisers, Farms Feeds, Agricultural Remedies and Stock Remedies Act, 1947 (Act No. 36 of 1947)*. The Act provides for the registration of fertilisers, farm feeds, agricultural remedies, stock remedies, sterilising plants and pest control operators. The Act further regulates the importation, sale, acquisition, disposal or use of fertilisers, farm feeds, agricultural remedies and stock remedies. This legislation has both environmental and social impacts through pollution, and negative impact on human health in used injudiciously.
- ❑ *Livestock Brands Act, 1962 (Act No. 87 of 1962)*. The Act provides for an identification system for stockowners. This is important for traceability,

minimizing stock theft and the monitoring of animal diseases. This legislation has economic impact through minimizing risk of theft and disease surveillance.

- ❑ *Fencing Act, 1963 (Act No. 31 of 1963)*. The Act specifies fencing standards and regulates the relationship between neighbours regarding construction and maintenance of fencing. This legislation has economic impact through minimizing risk posed by spread of diseases from one area to the other.
- ❑ *Plant Breeders' Rights Act, 1976 (Act No. 15 of 1976)*. Any variety for which a Plant Breeders' Right is sought must comply with the provisions of the Plant Improvement Act (Act No. 53 of 1976). The variety must also be "new", i.e. newly developed or bred. This legislation has economic impact through protection of intellectual property rights of breeders.
- ❑ *Plant Improvement Act, 1976 (Act No. 53 of 1976)*. The aim of this Act is to ensure the availability of high quality propagating material to all users. This legislation has economic impact by contributing to high productivity through ensuring the availability of propagation materials of high quality.
- ❑ *Livestock Improvement Act, 1977 (Act No. 25 of 1977)*. This Act is aimed at development and importation of animal breeds of high quality. This legislation has economic impact by contributing to high productivity through ensuring the availability of animal breeds of high quality.
- ❑ *Agricultural Pests Act, 1983 (Act No. 36 of 1983)*. This Act provides for measures to prevent the introduction and establishment of pests. The act ensures that import of controlled goods is done in such a way those exotic pests and diseases are not imported and established in South Africa as well as preventing their spread to other countries. This legislation has both environmental and economic impacts by minimizing risks posed by possible spread of pests and diseases, and thus protection of the agricultural from adverse effects of these pests and diseases.
- ❑ *Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)*. The Act provides for the control over the utilization of the natural agricultural resources of South Africa in order to promote the conservation of the soil, the water sources and the vegetation and the combating of weeds and invader plants. This legislation has environmental impact by promoting sustainable use of natural resources in order to ensure long-term productivity of the plant production sector.
- ❑ *Animal Diseases Act, 1984 (Act No. 35 of 1984)*. This Act provides for development and enforcement of measures for the prevention and control of diseases and parasites to promote animal health. This legislation has economic impact by minimizing risks posed by possible spread of diseases and parasites, and thus protection of the agricultural from adverse effects of these diseases and parasites.
- ❑ *Liquor Products Act, 1989 (Act No. 60 of 1989)*. This Act provides for the control on the sale, as well as import and export of liquor products. This legislation has both the economic and social impacts by ensuring the quality and safety of liquor products.

- ❑ *Agricultural Product Standards Act, 1990 (Act No. 119 of 1990)*. The Act, among other things, provides for control on the sale of agricultural products by ensuring that they comply with certain minimum quality standards. This legislation has both the economic and social impacts by ensuring the quality and safety of agricultural products.
- ❑ *Genetically Modified Organisms Act, 1997 (Act No. 15 of 1997)*. The Act provides measures to promote the responsible development, production, use and application of genetically modified organisms (GMOs). This legislation has both the environmental and social impacts by ensuring the safety of GMO products as well as minimizing possible negative impacts of these products on the environment
- ❑ *Meat Safety Act, 2000 (Act No 40 of 2000)*. This act is aimed at promoting meat safety, establishing and maintaining national standards in respect of abattoirs and export control. This legislation has both the economic and social impacts by ensuring the quality and safety of meat.

5. POLICY TO ADDRESS THE PROBLEMS

Addressing the challenges facing agriculture requires co-ordinated responses that draw on the strength of all stakeholders. They must be addressed within coherent national strategies for agriculture, in partnership with the provincial departments of agriculture, other government departments, farmers, the private sector and civil society. This requires putting in place appropriate policies, legislation, programmes and institutions, as well as mobilizing resources at the national, provincial and local levels.

5.1 POLICY OPTIONS FOR THE DEPARTMENT

Sustainable development requires policy changes in many sectors and coherence between them. It entails balancing the economic, social and environmental objectives of society – the three pillars of sustainable development – integrating them wherever possible, through mutually supportive policies and practices, and making trade-offs where it is not possible. The policy options presented below are cross cutting, emphasizing the interwoven nature of human, economic and natural resource considerations. These are:

5.1.1 ADDRESSING SOCIAL ISSUES (PEOPLE)

In addressing the social challenges it is important that focus be placed on food security, poverty, unemployment, health and equity.

5.1.1.1 FOOD SECURITY

Agriculture plays a crucial role in sustainable development and in hunger and poverty eradication. Agricultural productivity growth can bring about swift and

sustainable reductions in hunger and poverty. Increasing agricultural productivity remains one of the most effective ways to combat hunger and poverty.

Strategies for policy development:

- ❑ Ensure that agricultural, food security and nutritional objectives are integrated into broader national development policies and plans;
- ❑ Increasing the food and feed value of staple crops of the poor;
- ❑ Enhancing food security, agricultural productivity, and income generation;
- ❑ Improving access to production resources like land, finance, agricultural inputs, and information to a broader section of the population;
- ❑ Reducing post-harvest losses;

5.1.1.2 POVERTY

Agriculture can make significant contributions to reduction of poverty levels in South Africa. It is the sector from which most of the rural poor derive their livelihoods, and both rural and urban people obtain most of their food.

Strategies for policy development:

- ❑ Develop policies that are geared towards avoiding destabilizing food prices;
- ❑ Develop programmes aimed at facilitate market access for small-holder and emerging farmers;
- ❑ Develop programmes aimed at providing poor people with opportunities for generating income;

5.1.1.3 HEALTH

Agriculture has important impact on health status of the nation. Adequate nutrition is indispensable to attaining good health. An adequate supply of food is a key determinant of adequate nutrition.

Strategies for policy development:

- ❑ Develop education and awareness programmes on food safety.
- ❑ Promote the production and consumption of indigenous foods;
- ❑ Facilitate development of awareness programmes on nutrition;
- ❑ Promote good practices with regard to handling and utilization of pesticides, herbicides, fertilisers, vaccines and other agro-chemicals;

5.1.1.4 UNEMPLOYMENT

Agriculture is the main source of overall economic growth and poverty reduction in rural areas. This sector is also the main employer in rural areas. Programmes should be developed to focus on improving the wellbeing of rural people and

creation of employment opportunities. Creating the opportunities to allow the poor to escape poverty and hunger through sustainable agricultural development is one important intervention in the fight against high unemployment currently experienced in rural areas of this country.

Diversification in the rural economy could unlock new potential and expand rural economies. Expansion should not be limited to value adding of the same commodities, but should concentrate on the development of new opportunities and enterprises in agricultural production and service provision that could revolutionalise rural industrialisation.

Strategies for policy development:

- ❑ Improve private and public partnerships in supporting rural agricultural entrepreneurial development, through agro-processing and other value adding initiatives for niche, rural products;
- ❑ Promote programmes that encourage innovative entrepreneurial development for rural agricultural produce, by creation of market opportunities and availability of information;
- ❑ Transfer sustainable technologies for agricultural entrepreneurial development to rural communities through strong national agricultural research programmes;
- ❑ Develop programmes aimed at increasing employment options for rural people;
- ❑ Facilitate the creation of new employment opportunities for off-farm employment, through both backward and forward linkages;
- ❑ Promote value addition of primary agricultural products in rural areas; both to create employment opportunities and to reduce harvest losses;
- ❑ Develop programmes aimed at promoting the development and support of agricultural based SMMEs

5.1.1.5 EQUITY

There is a need to increase the participation of the broad society in agricultural sector. Measures need to be put in place to promote and support the participation of women, the youth and disabled in this sector.

Strategies for policy development:

- ❑ Develop programmes aimed at empowering women, youth and the disabled; and supporting their full participation in the agricultural industry;
- ❑ Ensure that policies and programmes promote women's equal access, to and full participation in, decision-making at all levels, mainstreaming gender perspectives in all policies and strategies. The status of women should be improved in agricultural development matters;

- ❑ Facilitate equitable access to public information to support decision-making related to agricultural development and resource management;
- ❑ Integrate communities and local groups in sustainable management of resources for agricultural production;
- ❑ Empower communities and allow them to make informed decisions in meeting essential food, water and energy needs while conserving the resources and environment.
- ❑ Improve support to under-privileged farmers' organizations, co-operatives and similar institutions to enable them to extend their mandate to deal with issues of capacity building for their members and broader communities;
- ❑ Ensure that policy formulation and implementation are guided by principles of accountability, transparency and broad-based public participation to promote the empowerment of people living in poverty and their organizations.
- ❑ Develop programmes aimed at the marginalised and enable them to increase access to productive resources and public services and institutions;
- ❑ Facilitate equitable access to technology and its transfer in appropriate language, level of communication, and transfer medium in order to align it with the needs of targeted communities and their levels of understanding;
- ❑ Enhance access of agricultural produce of all farmers, to existing markets and develop new markets, in order to promote their incorporation into the economic mainstream;
- ❑ Facilitate access to an open, equitable, predictable and non-discriminatory multilateral trading and financial and credit support system that benefits all farmers;
- ❑ Develop programmes to expand the fruit, wine and flower sectors to emerging farmers to incorporate them into the economic mainstream;
- ❑ Promote participation of previously disadvantaged groups, including women, youth and the disabled, in facets of plant production sector thus ensuring sustainability and food security for all;

5.1.2 ADDRESSING ENVIRONMENTAL ISSUES (PLANET)

Land, water and biodiversity are the primary natural resources that drive agriculture, food production and rural development. The availability and optimal utilization of land, water and biodiversity are central to development, food security and poverty reduction. The integration of the principles of sustainable development into national policies and programs will go a long way in reversing the loss of natural resources. The sustainable utilization of the natural resources is regarded as a prerequisite for development and needs to form the basis for policy interventions.

5.1.2.1 MANAGEMENT OF SOIL RESOURCES

Effective soil management is needed to minimise and reverse significant soil structural degradation, as well as salinity or acidity problems that exist in many

parts of South Africa. It is also important to enhance the production capacity of soil by addressing the decline in soil organic matter through the promotion of conservation tillage practices, and combating nutrient depletion through appropriate inputs and best practice cultivation.

Strategies for policy development:

- ❑ Encourage implementation of land management plans that are based on sustainable use of renewable resources and on integrated assessments of socio-economic and environmental potential;
- ❑ Develop and promote an integrated approach in land use planning and management to maintain the integrity of ecosystems;
- ❑ Promote the principles of ecological agriculture to help conserve ecological processes that support life by recycling essential elements, cleansing water, regenerating soils, etc.;
- ❑ Ensure effective and efficient use of soil fertility improvement practices with minimal or no damage to the environment;
- ❑ Promote conservation tillage practices to address the decline in soil organic matter;
- ❑ Adopt integrated approaches combining increased use of organic manure, mineral fertilizers, hybrid seeds, irrigation or mechanization for optimal productivity rather than each applied in isolation;
- ❑ Implement the principles of the United Nations Convention to Combat Desertification in order to arrest land degradation, including access to information to improve monitoring and early warning related to desertification and drought;
- ❑ Promote best practices by establishing networks and disseminate successful technologies on land conservation and rehabilitation;
- ❑ Ensure full participation and involvement of communities, especially women and youth, in sustainable management of land resources;
- ❑ Adopt indigenous conservation and rehabilitation practices and farming systems;
- ❑ Adopt the Landcare ethos in South Africa;

5.1.2.2 WATER USE EFFICIENCY

Sustainable use of water in agriculture should be accompanied by better husbandry of soils, fertilizers, improved plant varieties, etc. Increasing the efficiency of water use in agriculture and improving irrigation system performance in a sustainable manner is a key goal for agricultural development. Efficiencies can be improved through a combination of both technical and managerial means. Efficiency could be further increased through promotion of small-scale irrigation, water conservation, secure water rights for users and user group management of systems where appropriate.

Water use efficiency in agriculture can be optimized through irrigation management, including rehabilitation of existing schemes using appropriate

technologies as well as development and promotion of innovative water harvesting techniques under rain-fed conditions.

Strategies for policy development:

- ❑ Enhance in a sustainable manner the productivity of land and the efficient use of water resources in agriculture, and aquaculture, especially through indigenous and local community-based approaches;
- ❑ Prevent water pollution to reduce health hazards and protect ecosystems through effective irrigation technologies and mitigation of the effects of groundwater contamination;
- ❑ Improve prevention and protection measures to promote sustainable water use and to address water shortages through integrated water resources management and water efficiency plans, including water harvesting under rain-fed conditions;
- ❑ Integrate river basin, watershed and groundwater management, and introduce measures to improve the efficiency of water infrastructure to reduce losses and increase recycling of water and water harvesting;
- ❑ Promote scientific understanding of the sustainable use, protection and management of water resources to farmers and encourage knowledge-sharing and integration with indigenous knowledge systems, to advance long-term sustainability of water resources;
- ❑ Promote and create incentives and awareness programmes for agricultural enterprises and farmers to monitor and manage water use and quality, inter alia, by applying such methods as small-scale irrigation and wastewater recycling and reuse;
- ❑ Expand agro-forestry to minimize the impacts of salinity and high water tables;
- ❑ Expand small-scale irrigation schemes through policy, institutional framework, external and national public funding and enabling conditions for private sector investments;
- ❑ Encourage re-vitalization, upgrading and maintenance of irrigated land through irrigation development programmes;
- ❑ Maximize water retention capacity of soils;
- ❑ Promote development of drought resistant crops through genetic engineering;
- ❑ Develop and promote appropriate water harvesting technologies especially for dryland production;
- ❑ Improving the efficiency and effectiveness of water use in agriculture.

5.1.2.3 BIODIVERSITY AND GENETIC RESOURCES FOR FOOD AND AGRICULTURE

The preservation and sustainable management of biodiversity is crucial for supporting all life forms, including national food security and development of new crop varieties, plants of medicinal value and preservation of cultural integrity of our people for future generations. Improving crops, livestock and feeds;

increasing soil fertility; and controlling pests and diseases often depend on these resources.

Strategies for policy development:

- ❑ Improve and integrate strategies for the conservation and the sustainable use of genetic resources for food and agriculture into national programmes and policies;
- ❑ Develop education and awareness programmes on the importance of genetic resources for food and agriculture;
- ❑ Create incentives to support breeders and targeted indigenous practitioners for the development of plant breeding strategies that maintain and enhance genetic diversity in a manner that will foster adoption by farmers;
- ❑ Strengthen financial and technical support, for capacity-building targeted specifically at the youth and women in order to enhance indigenous and community-based conservation efforts of genetic resources for food and agriculture;
- ❑ Encourage the use of genetic resources of value to sustain agricultural productivity in a conservative manner and guard against complete depletion and extinction;
- ❑ Develop and implement programmes to re-train extension officers on the importance of genetic resources for food and agriculture;

5.1.3 ADDRESSING THE ECONOMIC ISSUES

5.1.3.1 GLOBAL COMPETITIVENESS

South Africa is now part of the global community. Globalization has brought about increased competition for agricultural products both local and on export markets. Major adjustments are needed to develop measures to enhance competitiveness of the South African agricultural sector.

Strategies for policy development

- ❑ Develop coordinated, effective and targeted trade-related technical assistance and capacity-building programmes, to take advantage of existing and future market access opportunities;
- ❑ Strengthen government service delivery and enforcement of regulations to enhance profitability and competitiveness in the agriculture sector;
- ❑ Develop and implement effective risk management strategies to ensure that the viability of agricultural development is maintained;
- ❑ Support trade opportunities for poor rural communities;
- ❑ Provide adequate financial and technical support to poor farmers and micro enterprises to optimize production and value adding;
- ❑ Step up the use of information and communication technologies for improving agricultural development through access to accurate information and advice;

- ❑ Enhance the capacities to benefit from liberalized trade opportunities, through measures aimed at improving productivity, commodity diversification and competitiveness, community based entrepreneurial capacity, and transportation and communication infrastructure development;
- ❑ Unlock the full potential of all people involved in agriculture through capacity and support programmes;
- ❑ Enhance industrial development by promoting the development of micro, small and medium size enterprises, with special focus on agro-industry as a provider of livelihoods for rural communities;
- ❑ Increase productivity and profitability by using best agricultural practices;
- ❑ Develop and implement effective market intelligence system to take advantage of niche markets as well as minimise risks;
- ❑ Increase market access, with a particular focus on the emerging and small scale farmers;
- ❑ Reduce high costs to market access by poor and small producers.
- ❑ Strengthen capacities to participate in multilateral trade negotiations.
- ❑ Mitigate the negative impacts of globalization on poor and vulnerable groups, through, for example, the provision of social safety nets.
- ❑ Strengthen capacities related to the assessment, adaptation and implementation of relevant international policy and regulatory frameworks related to agriculture, food security and food safety.
- ❑ Expand public and private investments and partnerships in rural infrastructure, such as building and maintaining rural roads and bridges, small-scale irrigation systems, post-harvest facilities, processing and market facilities and so on.
- ❑ Strengthen capacities for improving food safety and quality.
- ❑ Improve access to rural financial services for small-scale farmers and rural entrepreneurs, and build viable and sustainable rural financing schemes and banking services.
- ❑ Provide access to agricultural resources for people living in poverty.

5.1.3.2 BIOTECHNOLOGY

There is a need to harness the potential of agricultural biotechnology for the benefit of all people. It is also important to dispel all myths that surround biotechnology, particularly its impact on human health and biodiversity.

Strategies for policy development

- ❑ Maximize the benefits of biotechnology for agricultural development;
- ❑ Spread benefits and opportunities offered by biotechnology to the rural poor by acceleration of technology acquisition, transfer and adaptation to support activities that promote food security and poverty alleviation;
- ❑ Improve or strengthen current legislation to ensure that biotechnologies are safe and accountable;

- ❑ Improve risk assessment tests for transgenic material imported from other countries, to safeguard the environment;
- ❑ Develop and implement an effective and transparent framework for access to the results and benefits arising from biotechnologies based on genetic resources;

5.1.3.3 PRODUCTION SYSTEMS

Appropriate production systems are important for ensuring food security at both national and household levels, as well as promoting economic development through the production of raw materials for the manufacturing and processing sectors. These systems need to ensure sustainable use of natural resources.

Sustainable production practices can improve agricultural productivity while conserving biodiversity, soil fertility and efficiency of water use and while reducing the pressure to clear forests and over-fish the seas.

5.1.3.3.1 Plant Production Practices

Sustainable plant production practices involve a variety of approaches. Important factors that impact on plant production are topography, soil characteristics, climate, pests, availability of inputs and the individual farmer's goals. The development and adoption of best management practices, incentives, guidelines and training in farm business and risk management are necessary to enhance farm profitability and promote the adoption of agricultural practices that are both sustainable and productive.

Strategies for policy development

- ❑ Promote integrated production systems, incorporating both plants and animals;
- ❑ Develop and adopt where appropriate, alternative crops and cropping systems suitable to the circumstances of farmers and climatic and soil conditions of a particular area;
- ❑ Promote the integrated management of pests, diseases, and weeds;
- ❑ Encourage the reduction of dependence on inorganic fertilisers and agro-chemicals through the increased use of organic alternatives;
- ❑ Address nutrient depletion, especially in communal areas, through appropriate interventions, like liming, promotion of the use of organic manures, etc;
- ❑ Encourage innovative approaches including cover crops, minimum tillage, crop rotation, inter-cropping and incorporation of agricultural by-products and residues to increase soil organic matter;
- ❑ Minimize pre- and post harvest losses through technical assistance, capacity building, provision of appropriate information, etc;

- ❑ Develop effective local storage and distribution systems especially in rural areas;
- ❑ Improve capacity to manage both climatic and market risks;
- ❑ Develop environmentally friendly technologies in crop production that will use less land, water, supplemental plant nutrients and pesticides;
- ❑ Promote the establishment of niche markets, including organic production of products;
- ❑ Facilitate training in appropriate best practice in crop production methods;
- ❑ Support and promote the utilization of indigenous knowledge in crop production, natural resource management and plant protection;
- ❑ Develop new crop varieties that are capable of higher yields, can adapt to South African conditions and are tolerant to adverse conditions, pests, and diseases;
- ❑ Develop new crops from indigenous crops for niche markets;

5.1.3.3.2 Animal Production Practices

Sustainable animal production involves breed selection, grazing (or feed supply), health, adaptability, nutrition, reproduction and welfare. A system approach, whereby production of animals and plants are integrated had proven to be more sustainable over time.

Strategies for policy development

- ❑ Encourage selection of animals appropriate to the available resources, feed and forage sources, landscape, climate and management capacity;
- ❑ Develop an understanding of the nutritional requirements of animals, including seasonal variations in feed and forage quality;
- ❑ Optimize the use of farm-generated by-products in diversified farming systems;
- ❑ Ensure the adoption of well-planned animal health programmes to ensure sustainability;
- ❑ Promote the use of quality germplasm, where appropriate, to enhance herd performance;
- ❑ Promote animal health, welfare and environmentally acceptable waste disposal under conditions of intensified animal production;
- ❑ Promote best practices for grazing management, including awareness of carrying capacity, forage sources and fenced camps;
- ❑ Investigate alternative livestock management systems, such as improved fallow, unpalatable cover crops and living fences, for communal farmers;
- ❑ Ensure a participatory approach to animal production, including women, the youth and the disabled thus contributing to food security and sustainability;
- ❑ Promote best management practices, including the development of calendars of operations, stock flows, forage flows, labour needs, production records and land use plans in order to monitor progress towards attainment of goals;

- ❑ Develop programmes aimed at promoting the use and improvement of indigenous animal species;

5.1.3.3.3 Management of Pests, Weeds and Diseases

Various pests, weeds and diseases threaten production of plants and animals. Integrated management approach, which combines biological control, host plant resistance, physical control, good farming practices and chemical control is viewed as one of the best options for dealing with these problems.

Strategies for policy development:

- ❑ Promote programmes of integrated pest-management to put them within the reach of farmers through farmer networks, extension services and research institutions;
- ❑ Develop and adopt efficient management systems to control and monitor the incidence of pests and disease in agriculture;
- ❑ Develop and adopt efficient management systems to control the distribution and use of pesticides;
- ❑ Develop and implement economic incentives with regulations in order to ease reliance on regulatory authorities that are challenged with high costs and capacities;
- ❑ Encourage research and development into pesticides that are target-specific and readily degrade into harmless constituent parts after use.
- ❑ Disseminate information on biological control agents and organic pesticides, as well as on traditional and other relevant knowledge and skills regarding alternative non-chemical ways of controlling pests.
- ❑ Strengthen interdisciplinary projects and establish integrated pest management (IPM) networks to demonstrate the social, economic and environmental benefits of IPM for food and cash crops in agriculture.
- ❑ Promote the training of extension agents and involve farmers and women's groups in crop health and alternative non-chemical ways of controlling pests in agriculture.
- ❑ Strengthen regulatory services 'polluter-pays-principles' in the control of usage of pesticides and the transfer of technology for integrated pest management;
- ❑ Promote the use of indigenous knowledge systems with regard to the control of pests, diseases, and weeds, etc.

5.1.3.4 Sustainable Energy Management

Modern, commercial agriculture is heavily dependent on non-renewable energy sources, especially petroleum. In sustainable agricultural systems, there is reduced reliance on non-renewable energy sources and a substitution of renewable sources or labour to the extent that is economically feasible. The key is not eliminating energy use from agriculture but increasing the efficiency of its

use and minimizing its negative impacts on the natural resource base on which sustainable agriculture depends. Achieving gains in efficiency also addresses the concerns about climate change and its potentially negative effects. This—plus land use practices aimed at lowering greenhouse gas emissions and carbon sequestration—give agriculture important linkages to the energy sector.

Strategies for policy development:

- ❑ Promote sustainable use of biomass and, other renewable energies through improvement of current patterns of use.
- ❑ Decrease the depletion of non-renewable energy resources i.e. oil, gas, coal and promote methods extending their 'life' through recycling, using less or switching to renewable substitutes;
- ❑ Develop and implement programmes that would combine, more efficiently, and as appropriate, the use of traditional, renewable energy resources, and cleaner fossil fuel technologies, which could meet the growing need for energy services in the longer term to achieve sustainable development;
- ❑ Provide support for the development of safe low-cost technologies that provide or conserve fuel for cooking and water heating;
- ❑ Intensify research and the development, diversification and conservation of energy, taking into account the need for efficient use and environmentally sound technology;
- ❑ Develop programmes aimed at promoting the production of crops needed for manufacturing of biofuels;

5.1.3.5 Agricultural Research Systems

South African agriculture needs a well-developed research system. This will ensure optimization of all available resources and involvement of as wide a spectrum of role players as possible, and focus on the research challenges of sustainable development.

Agricultural productivity growth requires technology development, dissemination and adoption by farmers. Research will have to be publicly funded where its outputs are such that people who have not paid for them cannot be stopped from enjoying their benefits. Examples include integrated pest management (IPM) practices, measures to raise the organic matter content of soils, biological nitrogen fixation to improve fertilizer use efficiency and genetic resource conservation.

Research will also have to be publicly funded if its potential users are so poor that they cannot pay enough to make the research profitable to a private researcher. The private sector can be expected to focus on areas where research outputs can be protected or are profitable or both. Biotechnology development is a particularly key example— it has important potential contributions, such as in combating drought stress in plants, etc.

Strategies for policy development

- ❑ Improve public and private funding for research in sustainable agriculture and support efforts to strengthen agricultural research and natural resource management capacity and dissemination of research results to the farming communities;
- ❑ Integrate and strengthen national research and extension services and farmer organizations to trigger farmer-to-farmer exchange on good practices and information on environmentally sound, low-cost technologies, with the assistance of government and other stakeholders;
- ❑ Improve public and private finance in the research and development of genetic resources for food and agriculture;
- ❑ Facilitate capacity building among producer organizations to contract research and extension services and provide farmers with a menu of technology options.
- ❑ Promote research targeted at serving the needs of poor farmers with focus on such topics as improving drought tolerance and yield response to scarce plant nutrients and building pest and disease resistance.
- ❑ Develop research policies, which focus on identifying and removing constraints to the adoption of practices that promote optimal use of existing technologies, such as conservation agriculture and IPM.
- ❑ Develop programmes aimed at making agricultural extension, education and communication more responsive to farmers' needs.
- ❑ Develop sound institutions for extension and promote investment in human capital, access to databases of best practices for technology generation and dissemination and the application of new information and communication technologies.

5.1.3.6 Infrastructure

Basic infrastructure in energy, water supply, sanitation and telecommunications is needed to stimulate private-sector investment in food marketing, storage and processing. Investments in monitoring and surveillance systems and in building the capacity of institutions responsible for food safety and for plant and animal health will help farmers and rural enterprises tap national, regional and international markets. Good infrastructure will do much to improve living standards and increase productivity.

The public sector should focus on services that cannot be provided by the private sector and should target interventions to the poorest regions and communities, and to the poorest of the poor within these communities. High priority must go to the upgrading and development of rural roads and to ensuring their maintenance.

Strategies for policy development

- ❑ Broaden access to infrastructure services;

- ❑ Promote private sector involvement in the production and financing of infrastructure investments;
- ❑ Promote participation of a broad range of stakeholders in the provision and maintenance of rural infrastructure, including community organizations, local governments, non-governmental organizations (NGOs) and the private sector.

5.1.3.8 Developing Well-Functioning Markets

To help the rural poor participate in local and international markets, agricultural output must diversify, quality of produce must improve, and agro-based processing must add value to primary products. Rural agricultural communities must also obtain greater access to credit. These communities can become better organized through cooperatives, which can help provide a range of necessary rural facilities, including those relating to input and output marketing, and financial services. Cooperatives provide a perfect linking mechanism, allowing farmers to collectively access the marketplace, both to market their crops and to access farm inputs at reasonable rates.

Strategies for policy development

- ❑ Supporting agro-based processing and rural entrepreneurship.
- ❑ Strengthening local market organizations and institutions.
- ❑ Promoting agricultural services through cooperatives and rural agricultural education.
- ❑ Promoting access of farmers in developing countries to international markets.
- ❑ Provision of reliable and up-to-date information on marketing opportunities and trends.

5.2 RECOMMENDED POLICY OPTIONS

From section 5.1, it is clear that the policy options presented are inter-linked. Thus it is difficult to recommend one of them above the others. Which of these to prioritize would depend on preferred focus areas and emerging DoA's programmes, as well as on the priorities of different stakeholders, all in the national interest. These should emerge during the inclusive stakeholder participation and consultative process envisaged for further development of this document. It should also be noted that the guiding principles to sustainable development should be people centered i.e. to improve the quality of human life by creating opportunities for people to realize their potential and fulfil their goals. This implies that option 5.1.1 carries slightly more weight than the other options, but this does not mean that they should be ignored.

5.3 INSTITUTIONAL IMPLICATIONS

The positioning of programmes and directorates within the National Department of Agriculture to address emerging policy on sustainable development is

important. It is not anticipated that major restructuring would be necessary, but some re-organization within individual units might be necessary. The maintenance and procurement of adequate capacity to plan and implement are also considered essential.

5.4 FINANCIAL IMPLICATIONS

No major financial implications are anticipated, although some reallocation and shifting of funds would be necessary. Provision should be made in the budgets of individual directorates.

5.5 COMMUNICATION IMPLICATIONS

The document when finalized would be communicated as widely as possible.

5.6 LEGISLATIVE AND REGULATORY IMPLICATIONS

The principles and policy on agriculture in sustainable development should be internalized in appropriate policies, regulations and guidelines.

6. PERFORMANCE INDICATORS

Appropriate indicators for the social, economic and environmental aspects relating to agriculture in sustainable development need to be identified through the envisaged stakeholder workshops.

7. TIMETABLE AND IMPLEMENTATION

A ten-year implementation plan needs to be developed, in consultation with stakeholders. This should be harmonized, within the Department of Agriculture, PDAs and other government structures, taking into consideration the regional and international commitments. The MDG, the Johannesburg Plan of Implementation, expanded by the CSD are vital. They encompass time-related commitments on national policies by 2005, biodiversity by 2010, food security and hunger by 2015, chemicals by 2004, 2008 and 2020, are examples. The implementation plan needs to have clear targets, be specific and indicative of responsibilities, to ensure success and sustainable development.

8. REFERENCE DOCUMENTS

Bill Vorley, 2002. *The Chains of Agriculture: Sustainability and the Restructuring of Agri-food Markets*, IIED, Background Paper for the Preparatory Committee Meetings to the World Summit on Sustainable Development, Johannesburg, 26 August – 4 September 2002

FAO, 1995. *Sustainability Issues in Agricultural and Rural Development Policies, Volume 2*, Trainer's kit, Training Material for Agricultural Planning, 38/2, Rome Italy.

FAO, 1995. *Sustainability Issues in Agricultural and Rural Development Policies, Volume 1*, Trainee's reader, Training Material for Agricultural Planning, 38/1, Rome Italy.

NEPAD. 2002. *Comprehensive Africa Agriculture Development Programme*.
FAO, Rome, Italy.

DEPARTMENT OF ENVIRONMENTAL AFFAIRS AND TOURISM. 1999.
National State of Environment Report. Pretoria, South Africa.

NATIONAL DEPARTMENT OF AGRICULTURE. 2001. The Strategic Plan of
South African Agriculture. Pretoria, South Africa.

PROCEEDINGS OF ROUNDTABLES:

Planning Round Table, Esselen Park, 12 March 2002

Sustainable Agricultural Production Systems Round Table, Pretoria, 11 April
2002.

Landcare Conference, Benoni, 7-10 May 2002

Intellectual Property Rights, Indigenous Knowledge Systems, and
Agrobiodiversity, Pretoria, 12 June 2002.

Sustainable Agricultural Research Agenda for Africa, Pretoria, 22 – 23 August
2002 and Johannesburg, 27 August 2002.

9.POLICY OWNER

Department of Agriculture, Republic of South Africa.

ANNEXURE A: ACRONYMS AND ABBREVIATIONS

CAADP: Comprehensive Africa Agricultural Development Programme
CASP: Comprehensive Agricultural Support Package
CBD: Convention on Biological Diversity
CBO: Community-based organization
CITES: Convention on International Trade in Endangered Species of Wild Fauna and Flora
CSD: Commission for Sustainable Development
HIV: Human immuno-deficiency virus
IFSNP: Integrated Strategy for Food Security and Nutrition Programme
IIED: International Institute for Environment and Development
IPM: Integrated pest management
ISRDS: Integrated Sustainable Rural Development Strategy
IU: The International Treaty on Plant Genetic Resources for Food and Agriculture
IUCN: World Conservation Union
LRAD: Land Redistribution for Agricultural Development
MDG: Millennium development goal
NAMC: National Agricultural Marketing
NARF: National Agricultural Research Forum
NEPAD: The New Partnership for Africa's Development
NGO: Non-governmental organization
NSDS: National sustainable development strategy
AU: African Union
PDAs: Provincial Departments of Agriculture
PGRFA: Plant Genetic Resources for Food and Agriculture
SADC: Southern African Development Community
SD: Sustainable development
SMME's: Small medium & micro enterprises
SRL: Sustainable rural livelihoods
UNCCD: United Nations Convention to Combat Desertification
UNCED: United Nations Conference on Environment and Development
UNDP: United Nations Development Programme
UNEP: United Nations Environment Programme
UNFCC: United Nations Framework Convention on Climate Change
WCED: World Commission on Environment and Development
WSSD: World Summit on Sustainable Development
WTO: World Trade Organization

ANNEXURE B: DEFINITIONS

Agenda 21: The most prominent and influential, but non-binding instrument in the integration of environment and development in the world that emerged from the Earth Summit of Rio de Janeiro in 1992

Aquaculture: The propagation and rearing of aquatic species in controlled or selected environments.

Biodiversity: Variety and variation among plants, animals, and micro-organisms, and among their ecosystems

Biofuels: Alternative fuels produced from products of living organisms

Biomass: The generic term for any living matter that can be converted into usable energy through biological or chemical processes. It encompasses feedstocks such as agricultural crops and their residues, animal wastes, wood, wood residues and grasses, and municipal wastes.

Biosafety: Measures taken, for protecting a nation's food supply and agricultural resources from both accidental contamination and deliberate attacks.

Biotechnology: A set of techniques for bringing about specific, man-made changes in deoxyribonucleic acid (DNA), or genetic material, in plants, animals and microbial systems, leading to useful products and technologies

Climate Change: Global Climate Change, often referred to as 'global warming', is more about serious disruptions of the world weather and climate patterns, including impacts on rainfall, extreme weather events and rising sea level, rather than just moderate temperature increases;

Crop rotation: The growing of different crops, in recurring succession, on the same land

Desertification: As defined by the UNCCD, desertification means land degradation in arid, semi-arid, and dry sub-humid areas. This process can result from various factors, including climatic variations and human activities

Equitable access: Open, equitable, predictable and non-discriminatory access to resources

Eutrophication: The process by which a body of water acquires a high concentration of plant nutrients, especially nitrates or phosphates

Food security: Access (physical and economic) by all people, at all times, to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.

Green Revolution: The term given to the rapid increase in crop production brought about in the late 1950s and 1960s by a combination of increased fertiliser use and the introduction of new high yielding varieties of grain.

Heritage: Recognition of the duty of ensuring the identification, protection, conservation, presentation and transmission to future generations of the cultural and natural heritage that is notably threatened with destruction not only by the traditional causes of decay, but also by changing social and economic conditions

Land degradation: The UNCCD defines Land degradation as a reduction or loss, in arid, semi-arid and dry sub-humid areas, of the biological or economic productivity and complexity of rain-fed cropland, irrigated cropland, or range, pasture, forest and woodlands.

Landcare South Africa: Landcare in South Africa is a community-based programme supported by both the public and private sector through a series of partnerships, focused on the conservation of the natural resources (soil, water and vegetation) through sustainable utilization and the creation of a conservation ethic through education and awareness.

Minimum tillage: Minimum Tillage is usually a form of Conservation Tillage and viewed as the minimum amount of soil disturbance required to obtain adequate sustainable crop production taking into consideration all other factors. In Africa it's viewed differently as any tillage system that results in the conservation of resources, especially natural (such as water and soil) but also human (such as time, energy, money etc).

Monoculture: Production practice that relies on a single plant variety.

Organic farming: An approach to farming based on biological methods that avoid the use of synthetic crop or livestock production inputs; also a broadly defined philosophical approach to farming that puts value on ecological harmony, resource efficiency, and non-intensive husbandry practices.

Rain-fed agriculture: A system of producing crops in semi-arid regions without irrigation

Strategy: A coordinated set of participatory and continuously improving processes of analysis, debate, capacity strengthening, planning and investment, which integrates the economic, social and environmental objectives of society, seeking trade-offs where this is not possible.

Sustainable development: WCED definition: *"development that meets the needs of the present without compromising the needs of future generations to meet their own needs"*.

Sustainable use: Using renewable resources at rates within their capacity for renewal