

Tyhileka madubela - Response to: National Climate Change Response \

From: "Hans E Klink"
To: , , "Tyhileka madubela"
Date: 2011/10/24 04:31 PM
Subject: Response to: National Climate Change Response White Paper
CC: "Auerbach, Raymond (Professor) (George Campus)", "Liz Eglington", "Konrad Hauptfleisch", "Heinrich Schultz"

Dear Katinka Wågsæther

I have extracted some points of the **National climate change response white paper; October 2011** and they are as follows:

Executive summary:

Objective 2: Make a fair contribution to the global effort to stabilise greenhouse gas (GHG) concentrations in the atmosphere at a level that avoids dangerous anthropogenic interference with the climate system within a timeframe that enables economic, social and environmental development to proceed in a sustainable manner.

For job creation, as described in section 9, the National Climate Change Response aims to limit jobs contraction to those areas of the economy where excessive carbon intensity is unsustainable, whilst promoting and expanding the green economy sectors.

Introduction:

South Africa is already a water-stressed country and we face future drying trends and weather variability with cycles of droughts and sudden excessive rains. We have to urgently strengthen the resilience of our society and economy to such climate change impacts and to develop and implement policies, measures, mechanisms and infrastructure that protect the most vulnerable.

3. Principles

- Intra- and Inter-generational sustainability
- The Precautionary Principle
- Informed participation
- Economic, social and ecological pillars of sustainable development

4. The SA climate change response strategy

4.2 Strategic Priorities

- **Policy and regulatory alignment** – firstly, prioritise interventions already envisaged by national policies, legislation or strategies that have climate change co-benefits, particularly those that also contribute towards the national priorities of job creation, poverty alleviation or have other positive socio-economic benefits. Secondly, review existing national policies, legislation or strategies, with a view to optimising and maximising the climate change co-benefits of their interventions. Thirdly, integrate into the relevant existing or new policies, legislation or strategies those climate change response interventions that stimulate new economic activities as well as those that improve the efficiency and competitive advantage of existing activities.

5. Adaptation

5.1 Overall approach

- All states in the Southern African sub-region face the challenges of rural and urban poverty, limited water

or access to water resources, food insecurity, and other development challenges.

- We also need focused monitoring and evaluation systems to update our knowledge of how rapidly the change is occurring and the effectiveness of adaptation responses.

Using the results of this analysis, adaptation strategies will be integrated into sectoral plans, including:

- The Strategic Plan for South African Agriculture.

5.2 Water

5.2.8 Undertaking focused monitoring and research in order to ensure the efficacy of water adaptation approaches over the long-term.

5.3 Agriculture and commercial forestry

At the same time, conventional, commercial input-intensive agriculture has a range of negative environmental, social and economic externalities, which increasingly render it an unsustainable model. However, commercial agriculture remains a significant contributor to GDP and employment. Its full contribution, with multipliers, comprises up to 12% of GDP and 30% of national employment. Crop failures can therefore have a significant economic impact. A climate-resilient agricultural response depends on the recognition that agriculture should provide not only food, but also a range of other environmental and socio-economic benefits. The appropriate use of small-scale labour-intensive agriculture techniques and models could reverse the present decrease in agricultural jobs; contribute to empowerment goals; promote food security; conserve soil quality and structure; and contribute to biodiversity.

5.3.3 Invest in and improve research into water, nutrient and soil conservation technologies and techniques, climate-resistant crops and livestock, as well as agricultural production, 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 yields.

5.3.4 Use early warning systems to give timely warnings of adverse weather and possibly related pests and disease occurrence. This will also provide up-to-date information and decision support tools to assess the vulnerability of farmers and inform farm management decisions.

5.3.5 Invest in education and awareness programmes in rural areas and link these to agricultural extension activities to enable both subsistence and commercial producers to understand, respond and adapt to the challenges of climate change.

5.4 Health

The South African health sector is one of the five key priorities of government. A significant proportion of South Africans, and in particular the poor, already have serious and complex health challenges compounded by poor living conditions.

5.4.2 Recognising that the nutritional status of individuals is key to building resilience to environmental health threats, ensure that food security and sound nutritional policies form part of an integrated approach to health adaptation strategies.

5.5 Biodiversity and ecosystems

In response to these challenges, South Africa will integrate climate change into the management of biodiversity and ecosystem services as follows:

5.5.1 Strengthen biodiversity management and research institutions so that they can monitor, assess and respond effectively to existing anthropogenic pressures together with the additional pressures that climate change presents.

5.5.2 Conserve, rehabilitate and restore natural systems

5.5.3 Prioritise impact assessments and adaptation planning that takes into account the full range of possible climate outcomes, in conjunction with plausible scenarios of other stresses.

5.5.4 Prioritise climate change research into marine and terrestrial biodiversity and ecosystem services, and institute effective monitoring to enhance the understanding and forecasting of critical future threats.

Monitoring efforts at national and sub-national scale, supported by experimental studies that quantify future risks to biodiversity and that improve projections of impacts, will help to design and refine adaptation responses.

8. Near-term priority flagship programmes

ADD! 8.9 The Organic Agriculture Flagship Programme

9. Job creation

Unemployment is a key issue for South Africa and is a critical vulnerability that could be severely worsened by climate change.

9.1 Policy outcomes

Net job creation will be a key performance indicator, as well as baseline vulnerability measures and sectoral actions to improve resilience against job losses. This will enable the monitoring of and reporting on progress made.

11. Resource mobilisation

South Africa's resource mobilisation strategy will be informed by the mainstreaming of climate change into the planning and decision-making of government, private sector and civil society. Government aims to:

- Create an enabling environment whereby government, private sector and civil society collectively respond to the economic and social changes necessary for climate-resilient development and job creation, providing for the economic and social upliftment of the people of South Africa, while minimising negative impacts on future development.
- Promote the green economy as an effective investment in climate change response and secure resources to support climate change and green economy interventions.
- Consolidate and extend existing initiatives towards a climate-resilient economy. Thus, the Near-term Priority Flagship Programmes mentioned in section 8 will form the foundation for the next phase in the transition to a lower-carbon and climate-resilient economy and society. However, Government will endeavour to continuously evaluate its priorities to adjust to the dynamic nature of the socio-economic transformation envisaged.

12. Monitoring and evaluation

12.1.3 Establish a monitoring system for gathering information (with bottom-up inputs where possible) and reporting progress on the implementation of adaptation actions.

13. Conclusion

Amongst a range of environmental constraints that are of necessity playing an increasing role in social development planning, climate change represents the most urgent and far-reaching challenge of our time.

The following paper was delivered at the **NATIONAL CLIMATE CHANGE CONFERENCE FOR AGRICULTURE, FORESTRY AND FISHERIES 11-12 August 2011** by Professor Raymond Auerbach, Director of Rainman Landcare Foundation, and Professor of Ecological Agriculture, School of Natural Resource Management, Nelson Mandela Metropolitan University, George Campus.

Climate Smart Agriculture:

There has been a good deal of excellent work done on quantifying and predicting climate change around the world over the past ten years. However, there has been much less work done on how we can mitigate the effects of climate change, and how farmers can adapt to its effects. Yet, for the last forty years, organic farmers have been quietly showing how to double carbon sequestration, how to improve water and energy efficiency, how to increase biodiversity and how to farm in a more sustainable and intelligent matter; it has been fashionable to dismiss these farmers with comments such as "it is all muck and magic", and "organic farming cannot feed the world", and yet, despite the scepticism and prejudice from many scientists, the organic movement continues to grow (the world market for certified organic produce reached US\$ 54 billion last year).

Organic research has kept pace with these developments, and may be accessed via Organic E-prints (www.orgprints.org) or through the websites of the Swiss Organic Research Institute (www.fibl.org) and the

International Society of Organic Agricultural Research (www.isofar.org). Research into comparisons between organic and conventional food quality can be found on www.glif.org and various resources at the website of The Organic Center in Oregon (www.organic-center.org/res.science.html). A recent study by the United States National Research Council led to a 600 page report which was summarized in a recent article in Science magazine, "Transforming US Agriculture" (Reganold *et al.*, 2011), and this report states that "Although U.S. farms have provided growing supplies of food and other products, they have also been major contributors to global greenhouse gases, biodiversity loss, natural resource degradation, and public health problems. Farm productivity and economic viability are vulnerable to resource scarcities, climate change, and market volatility. Concerns about long-term sustainability have promoted interest in new forms of agriculture that (i) enhance the natural resource base and environment, (ii) make farming financially viable, and (iii) contribute to the well-being of farmers, farm workers, and rural communities, while still (iv) providing abundant, affordable food, feed, fiber, and fuel." Research in Africa has shown similar challenges.

African indigenous vegetables are commonly used in many African organic farming systems, and represent a much under-used source of agricultural bio-diversity (see Shackleton *et al.*, 2009), and most of these plants thrive under organic systems, and can contribute to climate smart agriculture, yet they are much neglected by the agricultural research establishment. Ugandan and Kenyan farmers have developed local and export markets for many organic crops, and there are now about a quarter of a million certified organic farmers in Uganda, and although their farms are only around one hectare on average, they earn significantly more than many other local farmers (EPOPA, 2008). The International Federation of Organic Agriculture Movements (IFOAM) has summarized the contribution of organic agriculture to mitigating climate change, and the negative effects of conventional agriculture in their pamphlet (IFOAM, 2007).

Subsequently, the United Nations Food and Agriculture Organisation (FAO) carried out extensive research in Africa to determine what interventions were really helping small scale farmers to improve their yields and to enter the cash economy. They conclude that organic interventions have been making a remarkable contribution to improving agricultural productivity and sustainable natural resource use. In summary, FAO found the following:

Organic farming systems in Africa:

- Almost double carbon sequestration efficiency,
- Reduce non-solar energy use by 33 to 56%,
- Reduce water use by 25 to 40%,
- Significantly increase agrobiodiversity,
- Increase yields by an average of 132% in Africa (Scialabba, 2007).

The Rainman Rainwater Harvesting System, which I developed on our teaching farm in KwaZulu-Natal uses swales, mulch and compost to double water infiltration, reduce evapotranspiration by 40% and increase the soil's nutrient and water holding capacity. Without the system, 6% of the water flowing through our farm goes to groundwater re-charge; with the system, this rises to 26% (see Auerbach, 1999 & 2005).

How do we reduce hunger and poverty?

The World Bank has spent considerable resources looking at ways to increase global food production, but they are asking the wrong question. It is not sufficient to increase the production of expensive food at the further expense of the world's water, energy and bio-diversity resource. The World Summit on Sustainable Development (WSSD) held in Johannesburg in 2002 asked the more relevant question: How do we reduce world hunger and poverty? In particular, how can African farmers feed Africa? This led to the commissioning of 400 scientists by the FAO and the World Bank, who worked from 2004 to 2008, and produced a series of reports under the general title "Agriculture at a cross-roads"; these may be viewed at www.agassessment.org and include a Global Synthesis, a Summary for Decision Makers and Regional reports for each region of the world.

Agriculture at a cross-roads: The International Assessment of Agricultural Knowledge, Science and Technology for Development

The IAASTD Report for Sub-Saharan Africa states (IAASTD, 2009, p.19):

“Strategies of agricultural development need to be coordinated with strategies for biodiversity and water conservation (retaining areas of natural vegetation in production areas, keeping areas where pollinators can thrive, promoting organic agriculture, incorporating trees in agriculture).”

Ecological agriculture is an important part of any meaningful strategy for adapting to climate change, whether specifically organic in nature, or taking a broader approach to production by encouraging those practices which enliven soil without using large amounts of water-soluble salts, increase bio-diversity, reduce poison use, address carbon sequestration and work more carefully with water and energy. Some argue that organic agriculture has only developed because consumers know that there are international organic standards, and that certification and inspection bodies check carefully to ensure compliance with these standards. Others argue that there needs to be flexibility to allow small scale farmers to survive by occasionally using poisons or fertilisers where these may be essential for a particular situation. Most informed observers agree that systems which are successful are heading towards improved soil biology, integrated pest management and careful crop rotation – in short, these systems are heading towards organic agriculture, even if they may not be 100% pure in their application of these principles.

The South African Organic Sector Organisation (SAOSO) is co-ordinating efforts to develop domestic and export markets, and to help emerging farmers to access those markets. With the help of the Department of Trade and Industry (dti), which commissioned a study into the Organic Value Chain, and the help of the Department of Agriculture, Forestry and Fisheries (DAFF) which recently developed an Organic Policy, SAOSO meets regularly with government in an Organic Sector Strategy Implementation Committee (OSSIC), which is working towards strategic partnerships for small farmer development and training.

To ease the burden of demanding organic certification, the South African Participatory Guarantee Systems Association has been established, which helps local communities to set up their own voluntary certification groups, and it works closely with the International Federation of Organic Agricultural Movements (IFOAM). The Department of Rural Development and Land Reform has also been working closely with the Nelson Mandela Metropolitan University and commercial farmers in the Southern Cape on a programme of Sustainable Land Reform, where successful commercial farmers assist emerging farmers with business development, using tried and tested business models, but incorporating the most important elements of social, environmental and economic sustainability into the new farming units. Solar food driers, pasture-fed dairy cattle, African indigenous vegetables, efficient use of water and energy and well-managed soil biology characterize these projects.

SAOSO therefore calls on DAFF, DTI, ARC and WRC to support research into organic farming systems, and into ways of supporting the organisation of organic farmers in South Africa, in the interest of mitigating climate change and in order to help small scale organic farmers to adapt to its effects.

SAOSO is the South African Organic Sector Organisation

Issued on behalf of SAOSO by Professor Raymond Auerbach,

SAOSO Champion for Training, Research, Extension and Education.

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Furthermore Agro-Organics has done a lot of research on practicalities and this summary was send to Elsenburg:

System's driven agriculture: Agro-Organics needs your (Western Cape DAFF) committed support

Definition:

System driven agriculture: "..... It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs....." This extract from the definition of Organic Agriculture covers in essence also traditional, agro-ecology, biological, bio-dynamics, nature, perma-culture and other sustainable farming practices that want to move closer to natural processes.

Money trail:

Fertilising of soils has twisted the knowledge prior to the green revolution in such a manner that even the Wikipedia allows the following: "The first root that comes from a plant is called the radicle. The four major functions of roots are 1) absorption of water and inorganic nutrients, 2) anchoring of the plant body to the ground and 3) storage of food and nutrients and 4) to prevent soil erosion." Literature prior 1940 shows clearly that the microbes feed the plant and that the mass of microbial life in the soil, is the measure of plant growth above. – **FACT: the roots "fertilize" the soil. (Prof. Franz Sekera; 1947); Microbes feed the plants. (IFOAM; Mischlinger; and many more)**

A symptomatic approach, whether in medicine or agriculture creates opportunities through imbalances to make money! Following the money trail it becomes clear the "big business" will defend ANY challenge to redress such imbalances. The mechanism need to be understood:

- Identify a challenge (fertigate with salts, pest disease threat remedies, weed control, etc.)
- Find a solution that can be protected by Intellectual Property rights (IP).
- IP levers funding to develop a product.
- Create a barrier / hurdle that restrict opportunities for peasants and force dependency. (Act36) – You may ONLY use registered products
- The advantages:
 - Control of "food safety and quality assurance"
 - A few money generating units – easier to manage for control mechanisms
 - Job creation for the intellect

The growing scientific consensus after the IAASTD 2008 report is: "Small scale agroecological farming is the best solution to achieve the MDG, food security, reduce food price increases, mitigate green house gas emissions and create climate change resilience." So far 58 countries have endorsed the IAASTD, notable exceptions are Australia, the USA and South Africa.... why?

Two challenges: Small scale; Agroecological farming. The cry was obvious:

- Small scale? Where in SA are "small scalers" feeding even one community!
- A system's driven agriculture cannot Semi-arid region; compost / manure danger of contamination; reduced harvest;
- Threat to SA's current economic model of agricultural supply chain.

Organic input product pioneers:

In this environment Agro-Organics has concentrated on the list of allowed crop protection substances and formulated solutions for the SA environment. As time progressed we understand much better that our product efficacies are perfect for a system's driven environment, but not able to compete in a product driven agriculture. Furthermore that offering only a product means that we enter in a conflict with the definition of system's driven agriculture!

We have done much research on monitoring / scouting of system parameters and an entry to improved fertility of soils.

We have achieved a level of knowledge that can swing any product dependent plant production to a system's driven agriculture within three crop cycles, and without a reduction of harvest. In the contrary, research data shows double digit increases are common and with one specific apple farm harvesting 350% more than neighbours do!

Yes, we are part of OSSIC, SAOSO and committed to be a law abiding citizen. The law permitting reason as our constitution provides for. The pace though of creating an enabling environment for the organic sector is mighty slow.

No Wheel to be re-invented:

Pest control research ends with the use of a product. Most research up to 1994 was funded by government and therefore is owned by the public. All papers need to be revisited and put into context of a system's driven agriculture. Landscape architecture can maintain level of "threat-insects" to such a point where crop losses are minimal.

Fertilising of soils is driven by root penetration and distribution, supported by microbial activity and biodiversity from single cells to insects. When the systems are functional, the need of external input is reduced to an outmost minimum, basically sunlight and water only. The root companions and dynamic accumulators need to be identified (PermacultureSA; Hazel Mugford has done much research on this subject) and through constant re-growth a "composting" cover must be formed.

NEW: We have identified a group of organism that can give us an extract to change the metabolism of a plant in such a way that root growth is increased, flowing from increased root growth increased microbial activity, flowing from increased microbial activity a plant with its defence mechanism fully functional. This understanding will capacitate us to develop a second generation product that will reduce risks of possible side effects. Once the plant has fully settled, NO FURTHER treatment should be required. – **This will assist in reducing the time transforming to a system's driven agriculture and without harvest reduction.**

Yes, and we have identified how to **measure change** (soil parameters, pest parameters, product use parameters). Without measurement no change is possible. Again the tools come from history. Simple and executable by a school educated person. (The science of monitoring systems though needs further scientific development.)

OUR NEED:

Agro-Organics cannot openly market our products, due to the shackles of Act36. The government led initiative regarding the empowerment of the organic sector is just not happening fast enough. You need to investigate what is going on with Act 36. Please.

Secondly we urge you to establish a relationship with us that taps into our knowledge build over years and will address a string of challenges you face as government: food security, rural development / land redistribution, poverty alleviation to name a few.

You need to appoint a group of persons that can interact with us in order to understand and possibly promote our (*Three companies: Agro-Organics; PermacultureSA; DFM Software Solutions [monitoring and reporting]*) pioneering exercise into a sustainable (*possibly government owned*) support model for a system's driven agriculture. The key of such support lies in a service of scientific scouting / monitoring that can create in excess of 8000 jobs. Yes and it can be rolled out right through Africa.

Once you can visualise the paradigm we hope that you will grasp why a relation between yourselves and us might become key to a system's driven agricultural trajectory for the future in SA.

South African Citizen's gain:

- Boosting yields

FAO: "To feed 9 billion people by 2050 food production need to rise by 70%. " - We can show you that more than 70% is possible way before 2050 and that without GMO!

- Health

Plants fed by microbial activities rather than by ion-exchange contain essential micro-nutrients that reduce health risks

- Poverty

Cutting out input products can link production costs DIRECTLY to labor AND everyone could produce enough food having no paid job.

- Legacy

The increase in biodiversity, reduction of synthetic inputs and increased energy efficiency will reduce pressures on the environment

It is in your hands:

We cannot transfer our knowledge within one hour. What we can do is answer your questions in order for you to make up your mind, - whether and to what an extent, - you can commit yourself to the process of building the platform for an executable system's driven agricultural model.

Thank you

Slides and Attachments:

- File containing: Presentation and related information, such as Budget and policy Speech by the Minister of Rural Development and Land Reform, Mr G Nkwinti, (MP)
- Food Security (an EU research document)
- The future of organic farming in Europe
- and the Implementation Action Plan
- Agroecology and the Search for a Truly Sustainable Agriculture (1st Edition)
- Dr. Ferreira: Metabolite
- Hans Klink: The Organic Model
- Agro-Organics Manual and Update

Dear Katinka Wågsæther, we would have loved to give much more input to the white paper regarding the future of agriculture in South Africa and Africa as a whole.

The South African Organic Sector Organisation is currently being constituted and the Organic Policy is in its 8th draft.

None the less you should appreciate that our request to add under Flagship Programmes:

ADD! 8.9 The Organic Agriculture Flagship Programme

Sincerely
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