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13. ECOLOGICAL TRANSFORMATION AND THE FUTURE OF FOOD SECURITY AND SUSTAINABLE AGRICULTURE: A RESPONSE TO JOHN GICHIMU

Dietrich Werner

I want to suggest 10 points in response to the excellent paper presented by the Ven. John Gichimu on the work of OAIC in the area of food security and sustainable agriculture:[1]

Pioneering role of AICs in rural settings

The presentation has underlined again that African Instituted churches play a vital role for development particularly in rural settings. AICs reach out to rural and vulnerable populations, which often are not reached by mainline Christian churches. Their added value and benefit as a facilitator for rural development is amply presented and shown in the Livelihood and Farmers Resource Persons Program, which combines spiritual empowerment, farmer's training and concrete instructions on eco-sensitive agriculture and is supported by Bread for the World.

[1] Response to John Gichimu's contribution in the previous chapter, presented at the conference "Churches in Southern as Civil Society Actors for Ecological Sustainability" in Pretoria, South Africa, 28–31 October 2019.

Food sovereignty and right to food as key concerns both of rural churches and of ecumenical partners

Christian development actors like Bread for the World have long had a key interest and mandate to work on issues around food sovereignty and right to food as broad based development efforts depend on the ability to produce and properly distribute food to all people, particularly vulnerable populations.[2] According to the UNEP Synthesis Report on "Agriculture at the Crossroads"[3] the crucial factor is not just increased agricultural productivity at all costs, but that food and the means of its production are available where they are needed and locally owned. This is best achieved through smallholder structures, which are addressed and qualified through programs like OAICs program on Livelihood and Farmers Resource Persons.

Theology of bread and theology of soil to be brought together

Food security today, and this has been illustrated by the work of OAIC as well, is a complex and interrelated issue as not only distribution and production, but also the availability of fertile soil and climatic conditions as well as good structures of local ownership and collaboration are at stake. We need a good theology of bread, but at the same time in relation

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[2] See Francisco Mari, "Food Security – Secure Food Supply through Agroecological Farming," accessed 28 August 2023, https://www.brot-fuer-die-welt.de/en/bread-for-the-world/our-topics/food-security/.

[3] International Assessment of Agricultural Knowledge Science and Technology for Development (IAASTD) and United Nations Environment Programme, *Agriculture at a Crossroads: Executive Summary of the Synthesis Report* (2009), https://wedocs.unep.org/20.500.11822/7880, accessed 28 August 2023.

to a good theology of soil which deals with the complex issues of land ownership as well as the rapid processes of soil degradation due to over-usage, drought or the use of pesticides. Strengthening the self-reliance in food production is a key mandate of churches which are under the dual mandate of bringing good news to the (rural) poor (Luke 4:18-19), to join with the daily prayers of the faithful "to give us our daily bread" as well as the critique of destructive lifestyles of consumerism and aggressive forms of industrialized agro-business which takes up the other line within biblical tradition and is expressed in Mathew 4:1-4, "Man shall not live on bread alone, but on every word that comes from the mouth of God".

Interrelatedness of food security and climate change

Climate change has adversely affected and influenced food security in many regions of Africa. This was clearly emphasized in the recent IPCC special report on "Climate Change and Land" which should be a key reference document for further work of African churches on issues of soil degradation and food security.[4] Key insights from this IPCC report include:

— *Land is both a source and sink of CO2 emissions,* playing a crucial role in combating climate change. However, better land-use alone will not stop climate change. Delaying decarbonisation and shifting mitigation to the land sector will increase the risk of climate impacts and food insecurity.

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[4] Greenpeace International, "Deforestation, Meat Production Driving Climate Crisis," 8 August 2019, accessed 28 August 2023, https://www.greenpeace.org/international/press-release/23685/deforestation-meat-production-driving-climate-crisis/.

— Climate change, including the increased frequency and intensity of extremes, has *adversely impacted food security and land ecosystems* while also contributing to desertification and land degradation.

— Our food system, fresh-water systems and biodiversity are being pushed to the brink and we need to change course now through the strict protection of intact carbon-rich ecosystems such as primary forests and peatlands.

— *Ecological restoration* of used forests, lost forests and other managed carbon- rich lands should be given clear preference over large-scale afforestation with tree plantations or other monoculture crops for bioenergy generation given their massive benefits to biodiversity, the permanence of CO2 sequestration, water, soils and local livelihoods.

— *Meat and dairy production and consumption* are driving an increase in human greenhouse gas emissions, land degradation and deforestation and there is an urgent need for dietary change, particularly in high-income societies.

— *There is a limited amount of land available to mitigate and adapt to climate change* to ensure food security and must make a choice. We cannot use land twice. This report points policy makers towards *no regrets* solutions that free up pressure on land and do not need more land for mitigation (e.g., forest protection and restoration, reduce meat and dairy demand, reduce food waste and loss)".[5]

[5] *Ibidem*.

Choices to be made with regard to the type of farming

Important expert studies have clearly identified and stated that small-scale organic farming is best suited to curb climate changes.[6] The results of global studies on proper forms of agriculture, mitigation of climate change and protection of fertile soils need to be urgently translated into national agricultural strategies and long-term scenarios in African countries.[7] Mechanization of agriculture is not the only and a blunt and easy way of preparing African's agriculture for the future, but it needs to be done carefully, with contextual and culturally adapted methodologies and with ecological awareness.[8] One key challenge is to attract young African people to work in small-scale farmers cooperatives and to invest in agriculture instead of leaving the rural spaces and trying to seek their fortune all in urban centres.[9]

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[6] IFOAM EU Group, "Organic Farming, Climate Change Mitigation and beyond Reducing the Environmental Impacts of EU Agriculture," accessed 26 August 2023, https://www.ifoam-eu.org/sites/default/files/ifoameu_advocacy_climate_change_report_2016.pdf.

[7] California Environmental Associates and Climate Focus, *Strategies for Mitigating Climate Change in Agriculture*, accessed 26 August 2023, https://www.climateandlandusealliance.org/reports/strategies-for-mitigating-climate-change-in-agriculture/.

[8] World Economic Forum: Ethel Sennhauser, "What is the Future of Agriculture in Africa?" accessed 26 August 2023, https://www.weforum.org/agenda/2015/11/what-is-the-future-of-agriculture-in-africa/.

[9] FAO e-agriculture article 13 June 2018, "The Future of Africa's Agriculture Rests with the Youth," accessed 26 August 2023, http://www.fao.org/e-agriculture/news/future-africa%E2%80%99s-agriculture-rests-youth.

Choices to be made with regard to the kind of food produced: the interrelation between health-food and malnutrition

The quality of food and the health standards realized within food production is another crucial issue not to be forgotten. Due to excessive meat production and diary production, the unhealthy food standards propagated by modern media and urban culture some health parameters within African populations are gradually deteriorating. Malnutrition and obesity nowadays are as acute a problem in some African cities as they are in some centres of western countries. "Obesity rates in sub-Saharan Africa are shooting up faster than in just about anywhere else in the world, causing a public health crisis that is catching Africa, and the world, by surprise. In Burkina Faso, the prevalence of adult obesity in the past 36 years has jumped nearly 1,400 percent. In Ghana, Togo, Ethiopia and Benin, it has increased by more than 500 percent. Eight of the 20 nations in the world with the fastest-rising rates of adult obesity are in Africa, according to a recent study by the Institute for Health Metrics and Evaluation at the University of Washington"[10]. The issue of the health quality of food therefore, the amounts of fat, sugar and meat taken in by average African populations is a serious matter, which cannot be ignored any more.

[10] *The New York Times*, In Kenya, and Across Africa, an Unexpected Epidemic: Obesity, accessed 26 August 2023, https://www.nytimes.com/2018/01/27/world/africa/kenya-obesity-diabetes.html.

Sustainable food trade and supply chains between rural and urban centres

Another issue at stake is how to strengthen regional supply chains between rural and urban settings in terms of trading food. Independence needs to be strengthened from big multinational companies trying to dominate national and regional markets and weakening local distribution and trade channels and systems. Churches need to become aware of major challenges which will confront them in the decades to come: "More than half of Sub-Saharan Africa (SSA) population could be living in urban areas by 2050 posing huge challenges for poor towns and cities, which already face challenges such as poverty and inequalities. These are coupled with growing levels of food insecurity and malnutrition in a context of high vulnerability to climate change." The initiative for a South and East African City-to-City (CtCi) Food Systems meeting, which brings together several cities from Namibia, Madagascar, Mozambique, Tanzania, Zimbabwe, Zambia and the host country, South Africa, for "discussing how they would guarantee durable food systems that ensure a healthy and nutritious diet for all, while making a sustainable use of natural resources in light of the added pressure of increased food demand" are recommended for the churches to be accompanied and supported.[11] Feeding African growing cities in the twenty-first century and providing not cheap and low quality, but high and organic quality of food to the masses of the urban poor is one of the major key challenge for the decades

[11] FAO Regional Office for Africa, "African Cities Tackle Food and Nutrition Security Challenges", 18 April 2018, accessed 16 August 2023, http://www.fao.org/africa/news/detail-news/en/c/1118444/.

to come.[12]

Developing critical awareness and resistance about GMO related technologies in agriculture

Another major issue of concern are the huge promised which are commercialized and circulated by big agro-business and pharmaceutical cooperations praising the introduction of genome-editing technologies as the key solution for solving the world food crisis in the twenty-first century. This demands more attention and detailed expertise than can be provided in this limited paper. The most recent type of gene-editing technologies is called CRISPR/CAS9 (Clustered Regularly Interspaced Short Palindromic Repeats/CRISPR Associated Protein9).[13] CAS9 cuts the DNA at a specific location. Afterwards DNA is inserted, deleted or otherwise altered at this location. The method is more precise and more effective as methods of GE 1.0. A special method of GE 2.0 is the so-called gene drive. This is a strategy to override the principles of genetic heredity and aims at introducing certain genetic properties in a complete population in very few generations of breeding. Projects aim for instance at the extinction of insects that carry tropical diseases (e.g., malaria, dengue, and zika) or to modify weeds that have developed herbicide resistance so that the agro-industrial system consisting of herbicide resistant cash crop and herbicides can be used again. More worrying is the idea to protect biodiversity by wiping out invasive species (including

[12] See the African research initiative "Feeding African Cities in the 21st Century", accessed 16 August 2023, https://www.urbanafrica.net/wp-content/uploads/2016/06/Food_ENG.pdf.

[13] Max-Planck-Gesellschaft, „CRISPR-Cas9 – Eine Schere aus Enzym und RNA", accessed 26 August 2023, https://www.mpg.de/11018867/crispr-cas9.

plants and mammals) or to develop concepts for biological weapons on the basis of gene drives.

Huge commercial interests and pressures are accompanying this advanced and accelerated form of genome editing (GE). Plants and animals which have been genetically engineered can be patented and then declared a legal property of the bio-companies which have created them, thereby obligating breeders and farmers to pay royalties to the patent holders when purchasing the patented seeds or animals. Against this trend to disown local farmers and indigenous cultures of natural seeds and biological resources, the FAO developed the "International Treaty on Plant Genetic Resources for Food and Agriculture" (ITPGRFA), which went into effect in 2004. The Seed Treaty, as it is often called, aimed at securing unhindered access of local farmers to seeds and plants available in their natural environments. A general framework agreement on farmers rights on plant genetic resources was agreed and decided upon in the FAO in 2009, the discussion however on the actual implementation of the farmers rights to plant genetic resources for food and agriculture is still not finalized and severe lack of implementation can be observed in several countries.[14]

Education in alternative ecological agro-cultures and sustainable farming

Issues of ecology and food security need to play a bigger role in

[14] For specific information, see internal draft paper, Gudrun Kordecki, Stig Tanzmann and Dietrich Werner, "Genome Editing Will Not Solve the World Food Crisis! Towards a Common Ethical Statement on Genetic Engineering", The Future of Global Food Safety, Agriculture, and Biodiversity from Christian Perspectives, Berlin 2019 (not published).

general higher education as well as in theological education. A recent global research report[15] found out that there are still major shortcomings in terms of available resources for eco-theological sensitization, curriculum models and well-trained educators, which can bring together updated resources for increasing understanding, knowledge and practical skills in the areas of care for creation and ethics of sustainability. To strengthen and enhance eco-theological reflection from and within African resources, bringing together traditional African wisdom traditions, insights from biblical tradition and churches traditions as well as putting them in dialogue with insights from advanced natural scientists from both African background as well as international research networks is an important challenge, but also promising task. It cannot be fulfilled by one tradition alone and by remaining only in denominational isolated pockets of self-reference. Instead, it is a joint task, which needs more dialogue both between mainline churches, African Independent churches as well as between Charismatic/Pentecostal churches in the African continent.

Code of conduct for global agro-business corporations

What is going on in the field of food security, trade and marketing of food and crops on the African continent as well as beyond, cannot be solved just by African players alone. It needs global and ecumenical cooperation. It would be worth trying to push ecumenical agencies to embark on a joint process to develop an Ethical Code of Conduct for big

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[15] Elisabeth Jeglitzka and Dietrich Werner, eds., *Eco-Theology, Climate Justice and Food Security: Theological Education and Christian Leadership Development*, (Geneva: Globethics.net, 2016), in: https://repository.globethics.net/handle/ 20.500.12424/156830.

global agro-business players, which seem to dominate regional markets and production chains. What is an ethical framework churches together with other players in civil society can suggest to these international cooperations to adhere to either voluntarily or by legal obligations? Crucial actors like ACT Alliance Africa and African ecumenical bodies have continued the exploration whether it would be feasible to propose such a process, at the 11th Assembly of the World Council of Churches in Karlsruhe in September 2021.

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