

Dutch consultation on Foreign Trade and Development Cooperation (deadline 22 March 2018):

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A hungry man is an angry man (someone deprived of a basic necessity will not be easily placated: proverbial saying, mid 17th century)! Investing in food security programmes mitigates the root causes of migration, in particular “supporting basic services for local populations such as food and nutrition security, health, education and social protection, as well as environmental sustainability.”

Conflict and migration will continue unless food security is increased and rural livelihoods are improved in the Global South. Over 800 million people are currently undernourished, predominately in low- and middle income countries, and half of these are smallholder farmers, growing what they can to feed their families and earning an income at local markets. The scale of the challenge of food security has been explicitly and implicitly recognised in the SDGs.

Between now and 2050, the world's population is expected to increase by up to one third. This will raise pressure on global natural resources, food availability and food prices. It is expected that global food production will need to increase by 60% by mid-century in order to satisfy the needs of the growing world population and their changing diets.

In the horn of Africa, IGAD¹ also mentions **climate change, reduced water levels, invasive species**, as emerging issues with potential for catastrophic future impacts. Notably in the pastoral arid and semi-arid ecosystems of Kenya, Uganda, Sudan increasing livestock populations have contributed to over grazing and land degradation in some areas with predominance of invasive species, whilst the competition for these dwindling resources has precipitated conflicts in these areas.

Some sobering statistics:

- 500 million smallholders produce the food for two-thirds of global population.
- The average crop yield in Africa is comparable to the average yield in Europe during the Roman Era.
- An estimated average 30-40% of the crops grown by smallholders in developing countries are lost to plant pests and diseases even before crops are harvested and sold (whilst most of the wastes in the developed world are at the consumers' end).
- Reducing crop losses by just 1% could feed millions more people.
- One billion people across the world are “over-nourished”, so although there currently seems to be enough food to feed everyone, the future is bleak with a growing global population and diminishing natural resource base to support food production.

A further challenge is the unattractiveness of agriculture to rural youth. The average age of an African farmer is above 60 and once this age group retires, with it agricultural knowledge on how to grow indigenous (and often highly nutritious) crops will disappear. There is an

¹ Intergovernmental Authority on Development Regional Strategy, 2016

urgent need to attract youth into agriculture, generate decent jobs for them through support to invest in and build infrastructure and capacity for rural youth to set-up and grow rural enterprises to continue to feed good quality produce into local, regional and international markets and value chains.

Therefore, Dutch support for food security programmes such as Plantwise that lead to improved advisory services and income from agriculture and related services continues to be relevant and the Netherlands government is recommended to consider stepping-up support to complementary programmes to help end hunger and make stability a reality.

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In the context of food and nutrition security, development assistance policies need to promote **sufficient income from agriculture and related services**: A global priority is to end hunger and make access to food a universal human right. To attract young people into farming and discourage rural flight, agriculture must be profitable at all levels, including for smallholders. As the global population increases, and demands on resources grow, smallholder farmers also need help to find ways to grow more with fewer agricultural inputs. By adopting the principles of integrated crop management (ICM) and Good Agricultural Practice (GAP), new farmers could be the first generation to access new markets.

There are two primary opportunities for increasing youth employment in agriculture: encouraging more young people to take up farming and encouraging young people to take up non-farm opportunities in the agriculture sector, such as producing local agro-inputs, agro-input sales, agro-processing, commodity trading and rural advisory. SMEs are the biggest job providers in African society. But also the role of governments is key: Together with the relevant ministries, an overarching and holistic framework for the agricultural sector is needed to future-proof the sector. This should include scale-up of successful pilots that attract youth into agriculture, e.g. rural warehouse receipt infrastructures through which not only farmers benefit from improved price for their produce, these generate job opportunities for managing the storage and sales. Another example is supporting bioprospecting for diversification of bio-based product delivery: use nature to support production of food, feed, fiber, etc.

Both of these approaches have to be based on the aim of making the agricultural sector attractive to young people, for example by appealing to their sense of entrepreneurship or by highlighting the untapped opportunities of using digital technologies to make agriculture in Africa and the Middle East more productive.

Knowledge is the foundation upon which best practice and innovation is built. However, despite the best efforts of public organisations, NGOs and others, these principles are not widely adopted because there is a significant lack of field extension workers. Per Kenyan extension worker, there are 950 farmers to be served, in Uganda there is one extension worker per 2500 farmers and in Nigeria extension workers need to serve 3420 farmers each. There is a knowledge and skill gap.

Within Plantwise and other agricultural extension programmes, digital rural advisory tools are becoming available but more needs to be done to get young individuals trained up to use these tools and become farmers or rural advisors. If Dutch actors supported knowledge institutions in Africa and parts of the Middle East to develop and build capacity at the level of

secondary schooling / vocational training, then a cadre of young rural agricultural professionals could be generated which will ultimately support growing populations.

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The need to address increasing inequality – within and between nations – has been a driving factor in formulating the SDGs, which emphasise the principles of equality, non-discrimination, equity and inclusion at all levels. The World Bank Development Report on Agriculture (2008) highlighted the critical role of the agricultural sector as a key driver of livelihood improvement, economic growth and political stability in the poorest countries of the world. Furthermore, the projected growth in world population to 9.5 billion by 2050 will put increased pressure on food supplies, threatening to raise prices and reduce food security, particularly for those most in need. Against this background, lack of support for agriculture, food and nutrition would be counter-productive to the achievement of the world's development goals, so at least one of the current areas of focus (food & nutrition security) needs to continue.

A few examples: (1) Support for value chain development: There is a need to build relevant infrastructure right at the start of the value chain to help improve the quality across the board. Earlier mentioned warehouses will avoid waste through losses in storage and transport as well as improve a steady flow of supply. (2) ICT approaches: These provide an opportunity to scale up the use of new technologies, and to put actionable information into the hands of farmers so they can produce more crops and participate more effectively in markets. (3) related to 2, a lack of institutional, national, and international policies and openness of data can limit the effectiveness of agricultural and nutritional data from research and innovation. Open access to research and open publication of data to support food security and nutrition, enables the direction of research investment to be driven by farmers, farmer organizations, researchers, extension experts, policy makers, governments, and other private sector and civil society stakeholders participating in "innovation systems" and along value chains.

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Climate change is already impacting agriculture in a number of ways (e.g. through changes in precipitation and/or temperature, increases in extreme weather events, changes in pest incidence, etc.), with smallholder farmers in low and middle countries generally being the most vulnerable and disproportionately affected. At the same time, agriculture is also a major climate change driver, since it remains the world's second largest emitter of greenhouse gases (GHG). This necessitates the immediate implementation of adaptation strategies, coupled with mitigation efforts to reduce global climate change, sustain food production and maintain livelihoods, as promoted by FAO through the Climate Smart Agriculture approach. The 23rd Conference of the Parties (COP23) has paved the way for consolidated climate action in the agricultural arena. This push is also reflected in most of the developing parties' Nationally Determined Contributions (NDCs), which include agriculture and/or land use, land use change and forestry as a sector in their mitigation and/or adaptation contributions.

CABI envisions a world in which the agricultural sector is able to supply sufficient, safe and nutritious food, embedded in a healthy and climate resilient landscape with clean water and air, healthy soils and functional ecosystem services. For this vision to become reality, farmers need access to information on context-specific and locally-adapted best management approaches, as well as climate-friendly technologies. Effective communication and knowledge transfer will be key to ensuring that learnings from successful Climate Smart Agriculture (CSA) pilots is able to effectively support decision-making and planning. Critical will be two-way platforms and channels that enable dialogue and knowledge sharing between providers and users of both climate and agricultural science and other relevant scientific disciplines. CSA offers an opportunity to revitalize the efforts of sustainable agriculture development, while adjusting them to the new realities of climate change. CSA has the potential to offer a solution for the triple challenge that the agricultural sector is facing: ensuring food security, adapting to climate change, and contributing to mitigation of climate change.

Successfully rolling out CSA will require considerable efforts from a variety of stakeholders. Extension services are, and will be, key players because of their key role in knowledge transfer and their vicinity to farmers' fields. The correct mix of different extension approaches will largely depend on factors such as: the complexity of the extension messages, the target population and its geographical spread, the available technology, the type and variety of data to be collected from farmers, and the resources (human and financial) that are available for extension. On-the-ground implementation of extension also needs to go hand-in-hand with advocacy and awareness raising among decision-makers on the imminent threat of climate change for agriculture in order to make extension more responsive to climate change and contribute to addressing the triple challenge of food security, adaptation and mitigation. Dutch technological innovations in the agricultural sector – whether greenhouse horticulture, dairy farming or biological control technologies – will be crucial in supporting low and middle income countries to make their agriculture more climate smart.

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Social challenges in production, trade and investments:

Improving women's and youth's opportunities in agriculture will not only help these people themselves, but also help to address wider issues such as youth unemployment, global hunger and poverty. Women's role in agriculture worldwide is indisputable. Women produce more than half of all food grown worldwide (UN Food and Agriculture Organisation) and play a fundamental role in the agricultural and rural economies in all low and middle income countries with the roles varying considerably between and within the regions. In Latin America and the Caribbean they manage 30% of all agricultural land (FAO stats) and worldwide depend heavily on agriculture for their livelihoods (>60% of economically active women in sub-Saharan Africa and South Asia work in agriculture) (FAO stats). They constitute a large proportion of the agricultural labour force (49% of farmers in sub-Saharan Africa, 43% in Asia). The evidence is clear that increasing women's knowledge and educational opportunities has a decisive impact on a range of social issues. In agriculture, improvements to extension services are a major opportunity to improve working conditions, livelihoods and health. It is therefore important that agricultural extension and community education programmes are gender transformative and sensitive to the needs of youth.

Making sure that there are more female extension officers or that the services are available at a time to suit female farmers' schedules are just the first steps to addressing these challenges.

Ecological challenges in production, trade and investments:

The livelihoods of rural people are being seriously undermined by incursions of the world's worst pests – destructive **invasive species** – species with national, regional and in some cases global impacts. These invasive species negatively affect rural livelihoods by degrading agricultural land, depleting water resources, and poisoning humans and animals, and need to be dealt with as agreed in the SDG 15 (15.8: By 2020, introduce measures to prevent the introduction and significantly reduce the impact of invasive alien species on land and water ecosystems and control or eradicate the priority species).

Some statistics:

- Invasive species cost the world at least \$1.4 trillion per annum, almost double the total economic worth of wheat and corn from the US from 2000-2013 inclusive;
- Losses attributable to just four invasive species in sub-Saharan Africa amount to well over \$12.8 billion per annum;
- In Southeast Asia, average losses due to invasive species have been reported as costing at least \$33 billion annually, or \$55 per capita per year;
- In Africa 100m women spend 20bn hours weeding per annum – that loss of time has a major impact on their productivity on the farm and in the household and keeps girls from school;
- Invasive Fall armyworm (*Spodoptera frugiperda*): potential to cause maize yield losses in a range from 8.3 to 20.6m tonnes per annum, in the absence of any control methods, in just 12 of Africa's maize-producing countries. This equals 21%-53% of the annual production of maize;
- Invasive Larger grain borer (*Prostephanus truncatus*): post - harvest loss in maize and cassava of over 60% in Sub-Saharan Africa; elevated levels of health-threatening aflatoxin associated with damaged kernels; losses in Tanzania amount to US\$ 91 million per annum;
- Invasive Famine weed (*Parthenium hysterophorus*): up to 95% crop loss; poisonous to livestock; causes severe asthma and dermatitis in people – some suicides documented;
- Invasive Tomato leafminer (*Tuta absoluta*): recent serious and rapidly moving pest of tomato crops in Africa; causes 80-100% yield losses; the pest also now reported and spreading in Asia.

Due to globalisation of trade and tourism, among others, the introduction of new invasive species has accelerated during the last decade, and this acceleration is expected to continue. Left unmanaged, invasive species will undermine any investments in development including climate change adaptation measures. Invasive species are a livelihoods issue, undermining food security, threatening rural household incomes, and promoting displacement and conflict, often amongst the poorest and most marginalized who depend most on the natural resources and lack the required knowledge and capital to manage the threat. They have been identified as the second greatest threat to biodiversity after habitat loss.

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Until recently, post-war research and breeding systems have focused on size and yield, some pest resistance and at times colour, rarely on taste, and hardly ever on nutritional value. A recent global study found that over the last 50 years, diets have become ever more similar. Staples like wheat, maize and soybean has meant fewer people go hungry, but this convergence over the last few decades, due to a golden age in agricultural science, is leading to a more homogenous diet, which is not good for human health. Another danger of a more homogeneous global food basket is that it makes agriculture more vulnerable to major threats like drought, but also pests and diseases, which are likely to become worse in many parts of the world as a result of climate change.

For sustainability we need to move to more complex and knowledge intensive systems, and that leads to the need for producers to get better and higher education in order to be successful. There is much that knowledge transfer can do in the form of good advice so farmers are able to grow healthy crops and animals and reduce losses sustainably. In order to continue to provide raw materials for the food / feed / fiber value chains, it's crucially important to engage with and attract young farmers into the sector, with a decent pay for a decent job. Farmers should be seen as entrepreneurs rather than end beneficiaries as they bring ideas, experiences and opportunities to try things out. They too, in particular the younger generation, will subscribe to the strategy of producing more sustainably in innovative rural areas. The Dutch government is recommended to consider how youth can be supported with infrastructure, knowledge and credit so they can work with farmer groups in e.g. helping them comply with trade standards, whether for local, regional or international market access.

The Netherlands could also contribute more to international cooperation in innovation activities – one example to highlight the benefit of research and innovation with regard to the “hidden biodiversity”, the microbes of this world that get little or no attention unless they can produce interesting pharma or nutraceuticals. We still don't understand well enough what the role and benefits are of many of these and will need more attention at international level, which can lead to breakthroughs of interest to the SDGs. For example, Green Muscle® is a biological pesticide for green locust which was developed as a result of research investments by DGIS and others. As a result of this work, in 2009 FAO officially recommended Green Muscle® to be used as the best method for locust control in ecologically sensitive areas in Africa (see p. 22-23 of this [Dutch magazine](#)). Similar products can be developed for application across agriculture and the environment, and Dutch companies will benefit from higher compliance to GAP standards in trade as well as opportunities to enlarge markets for bio-based pesticides.

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CABI believes that agriculture must be supported to realise its full potential, but also that sustainable development through agriculture cannot be achieved without protecting the natural resources in the environment. Specific recommendations include:

- Strive to work with local and international field-based organizations with strong local/regional networks which can provide appropriate linkages to facilitate effective facilitation of putting Dutch investments to good use.
- Work more closely with intergovernmental organizations whose members form a partnership of equals and which provide a forum for the equitable and appropriate exchange of expertise, resources and insights.
- Commit to the aid effectiveness agenda, and particularly build on partnership approaches where donor agency activities are harmonized to avoid duplication and competition and where programming is aligned with partner country priorities and needs. Specifically, look for opportunities which respect partner priorities, pool donor expertise, leverage funding commitments, and maximize scale of impact.
- Support independent agencies to help get products and services into use at scale, e.g. by adopting processes that have been successful in CABI's Plantwise programme:
 - Ensure user-friendly access to relevant information and advice: In Plantwise, trained extension staff get further training to diagnose and advise on plant health problems presented to them by farmers at local plant clinics, increasing cost and resource efficiency for national partners.
 - Two-way feedback systems: Such plant clinics do not only give out information, they also collect information and track farmer needs so there is a response mechanism for new or re-emerging pests that national plant protection organisations can track and help manage.
 - Ensure countries see the value: Many Plantwise countries have now integrated plant clinics and plant doctor terms of references into government roles, and allocate budgets to help ensure sustainability of the local operations.
 - Strengthen stakeholder linkages: In Plantwise, communications between farmers, extension services, research and regulatory bodies has substantially improved as they work together to run and backstop plant clinics.
 - Implement a holistic system approach: The Plantwise motto is 'any crop, any problem,' including fruits and vegetables from home gardens which can improve family nutrition but are often neglected by traditional cash crop-oriented extension.
 - Include use of ICT: apps, simulation games, use of SMS and voicemail advisory services are used to expand the quality and reach and mark a new chapter of agricultural extension.

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Participating in PPP calls for proposals issued by the Dutch government to date is not always possible for organisations without core funding or profit. Proposal development takes a significant amount of time and often co-finance requirements prevent not-for-profits taking part in these. We have experienced that participation of independent but not-for-profit knowledge institutions and developing country organisations, is seriously hampered by the

lack of access to co-finance. We therefore appeal to the Dutch government to recognise the value of the experience of (international) not-for-profits that have no or limited core support for their work. We recommend including a special financial model that, under specific circumstances, will allow for the recovery of a certain amount of proposal development costs as well as reduce or eliminate the requirement for co-finance from non-Dutch government sources.

The Netherlands could consider to work more with local and international field-based organizations with strong local/regional networks which can provide appropriate linkages to facilitate effective implementation of Netherlands-funded programs and businesses. It is recommended that the Netherlands also considers to work more closely with locally based SMEs and regional economic organizations such as ECOWAS, COMESA and SADC in Africa, to increase economic and employment opportunities there, focusing particularly on women and youth.

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CABI is a science-based development and information organisation, owned by 48 member countries, including over 20 partner countries included in the DGGF country list. We are proud to count the Netherlands as one of our associate member countries and to collaborate with DGIS in our two flagship food security programmes: Plantwise (www.plantwise.org) and Action on Invasives (www.invasive-species.org).

CABI highly appreciates the opportunity to respond to this open FT&DC consultation. Being a global network of countries that work together to solve agricultural and environmental problems worldwide, CABI wishes to respectfully urge strong support for global cooperation in agricultural and environmental innovation and putting research into action.