# The future of smallholder farmer support in Tanzania:

## Where to after the National Agricultural Input Voucher System (NAIVS)

## SUMMARY

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# Contents



On 7 April 2015 the African Centre for Biosafety officially changed its name to the African Centre for Biodiversity (ACB). This name change was agreed by consultation within the ACB to reflect the expanded scope of our work over the past few years. All ACB publications prior to this date will remain under our old name of African Centre for Biosafety and should continue to be referenced as such.

We remain committed to dismantling inequalities in the food and agriculture systems in Africa and our belief in people's right to healthy and culturally appropriate food, produced through ecologically sound and sustainable methods, and their right to define their own food and agricultural systems.



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# Acronyms

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| ACB | African Centre for Biodiversity |
| AGRA | Alliance for a Green Revolution in Africa |
| AFSP | Accelerated Food Security Program |
| DAP | Diammonium phosphate |
| FAO | Food and Agriculture Organization of the United Nations |
| FISP | Farm input subsidy programme |
| IDA | International Development Association |
| MAFC | Ministry of Agriculture, Food Security and Cooperatives |
| MVIWATA | Mtandao wa Vikundi vya Wakulima Tanzania |
| NAIVS | National Agricultural Input Voucher System |
| OPV | Open-pollinated variety |
| PELUM | Participatory Ecological Land Use Management |
| QDS | Quality Declared Seed |
| SADC | Southern African Development Community |

# Introduction

This is a summary of the fully referenced document on "The future of smallholder farmer support in Tanzania: What next after the National Agricultural Input Voucher System (NAIVS)" researched by the ACB. The paper discusses farm input subsidies in Tanzania highlighting the impacts on smallholder farmers, and deals specifically with the National Agricultural Input Voucher Scheme (NAIVS). Farm input subsidy pogrammes (FISPs) aim to facilitate the adoption of agricultural inputs in order to increase agricultural productivity and mostly target smallholder farmers. NAIVS, a large scale FISP in Tanzania, was based on the supply of improved maize and rice seed and synthetic fertiliser through the distribution of vouchers to smallholder farmers. The NAIVS project ran for five years, with efforts made by the government to sustain the model thereafter. But this was constrained by limited budgets and implementation inefficiencies. This paper aims to contribute to discussions on the kinds of support that could be provided to smallholder farmers to encourage diversified farming practices that are more socially and ecologically sustainable and incorporate the needs of diverse smallholder farmers.

This summary covers the important elements of the main report including a background on paving the way for input subsidies programmes in Tanzania, the NAIVS and impacts to smallholder farmers, assessment of the NAIVS and input supply programmes and the future of input subsidies in Tanzania.

# Paving the way for input subsidies programmes in Tanzania

Since the 2007/08 global food crisis, which saw rapidly increasing food prices and a resultant rise in food insecurity and rural poverty, the world has experienced a renewed emphasis on agricultural production support programmes. In some African countries such as Malawi, Zambia, Ghana and Tanzania subsidised agricultural inputs for smallholder farmers is a key part of farmer support. These farm input subsidy programmes (FISPs) consume a large part of agricultural budgets, with ten African countries having spent around US$1 billion on these programmes between 2000 and 2011, close to 30% of their agricultural budgets on average (ACB, 2016b).

Subsidies aim to facilitate the greater adoption of inputs, in particular seed and synthetic fertiliser, to increase agricultural production, primarily of staple food crops. Evidence suggests that although yields of staples such as maize have increased modestly in some places, subsidy programmes are very costly and are not sustainable in the long run (IAPRI, 2017; Jayne et al, 2018). There is extensive documentation of serious concerns, including high administrative costs, limited impact on poverty and livelihoods, a tendency to benefit the already economically better-off, political and elite patronage and corruption, corporate capture of the agriculture input value chain, and distortion of agricultural markets. Their continuation is mainly due to their use as a tool for political support.

FISPs are narrowly designed to tackle food and nutritional security issues through market-oriented approaches such as integration into commercial value chains, which tend to focus on few, staple, calorie-dense foods. Multinational seed, fertiliser and agrochemical companies are major beneficiaries, since they secure guaranteed markets based on public subsidies. While a relatively small group of farmers may benefit, the majority of resource-poor, smallholder farmers may become dependant on subsidised inputs. Rather than building on the social capital of resource-poor smallholders farming communities, these externally imposed one-size-fits-all programmes suppress diversified approaches to support small-scale farmers building on and strengthening local seed and farming systems.

FISPs were common in a number of sub-Saharan countries before the mid-1970s until they were phased out in the mid-1980s, due to economic crisis that led to structural adjustment programmes. In Tanzania, after

a decade without input subsidises, these were reintroduced in 2003/04 in the form of a subsidy that covered the transport cost and part of the cost of the consumer price of the fertiliser (Cagley et al., 2009). The government entered into contractual agreements with companies to distribute fertiliser ultimately sold to farmers at a cost agreed by the government and the companies (URT, 2012b). This subsidy was eventually phased out because of concerns around inefficiencies, cost effectiveness, and targeting and distribution of benefits. A voucher-based subsidy, the National Agricultural Input Voucher Scheme (NAIVS), replaced it.

Input subsidies are only a part of government support to smallholder farmers. However, it is a crucial element since it significantly shapes production practices and orientations with regard to seed, soil and pest management. As they are currently structured, the FISPs channel public sector support onto a Green Revolution path. There is growing consensus globally that diversity, and socially and ecologically sustainable production practices, are essential for the future of agriculture. This report considers NAIVS and implications for farmer support in Tanzania in a context of climate change, rising inequality and erosion of the natural resource base in the form of declining soil fertility, water pollution and loss of agricultural biodiversity.

## The NAIVS and impacts on smallholder farmers

NAIVS was the largest component of the Accelerated Food Security Project (AFSP), which was negotiated between the government and the World Bank and launched in 2009. NAIVS was introduced to replace and overcome the limitations of the previous fertiliser transport subsidy programme. The basic premise of a voucher subsidy system is the use of vouchers by selected farmers to purchase inputs (generally fertiliser and seeds) at a subsidised price. The input supplier then redeems the voucher for cash from the government, or a financial institution linked to the subsidy programme. The package generally included three vouchers: 10kg of maize seed - either improved open pollinated variety (OPV) or hybrid maize - or 15kg paddy seed, both roughly enough for one hectare of land. Of the vouchers, 80% were allocated to maize farmers, while the remaining 20% offered paddy seed. The second voucher was for basal fertiliser, either 150kg bag of diammonium phosphate (DAP) or two 50kg bags of Minjingu Rock Phosphate, and the third voucher was for top dress fertiliser, generally 50kg urea (Pan and Christiaensen, 2012).

The voucher system was first piloted in two districts in Mbeya and Rukwa regions in 2007/8. This was later expanded to 58 districts across 11 potential regions – i.e. areas with large-scale production of maize with favourable climate, soil, etc. – in 2008/9[1], and to areas where rice farmers have access to irrigation. It ultimately became a nationwide programme (World Bank, 2014b). The short-term goal was to immediately increase food production. The selection of beneficiaries and establishment of agrodealers to supply inputs at village level were designed with a longer-term goal to initiate a market-driven agricultural input distribution system (Mather and Ndyetabula, 2016). This decentralised distribution of input vouchers aimed to expand maize and rice production and to improve both household and national food security, in response to the rapid rise in grain and fertiliser prices in 2007 and 2008, combined with drought and food price increases (URT, 2014a; Pan and Christiaensen, 2012). Other objectives were to introduce and increase access to and availability of improved maize and rice seed and fertiliser, and to strengthen input supply chains for improved seed and fertilisers through established agrodealerships (World Bank, 2014b).

In 2007/8, the Alliance for a Green Revolution in Africa (AGRA), in collaboration with the Ministry of Agriculture, Food Security

1. Iringa, Mbeya, Ruvuma and Rukwa in the southern highlands; and Kilimanjaro, Arusha, Manyara, Kigoma, Tabora, Mara and Morogoro in the central and northern parts of the country. Pwani was added in 2009/10.

and Cooperatives (MAFC) had supported agrodealer training in 14 district councils. World Bank funding included support for the training of about 3,855 agrodealers who registered to participate in the programme, which took place before the 2009/10 input distribution season. Of these, 2,010 agrodealers remained active in agricultural input distribution (World Bank, 2014b).

The planned budget for NAIVS was between US$60 million and US$100 million per year, between 8.4% and 33% of the total agricultural budget, depending on funding, the number of vouchers distributed and the shifting year-to-year cost of fertiliser imports (World Bank, 2014b). During the first two years of the project, the International Development Association (IDA)[2] financed 50% of the subsidy cost with the remaining 50% being financed by the government. Due to significant delays in the release of government funds, the IDA increased its contribution to 83% for the 2010/11 cropping season (World Bank, 2014b). External funding gradually declined over the implementation period, and was finally terminated in 2013/14, limiting the government's ability to continue implementing the programme (Cameron et al, 2017). The government continued providing subsidies in 2014/15 to 2016/17 through different approaches, shifting the nature of the subsidy, including: credit-based subsidies, by providing loans and credit to farmer groups and cooperatives to access inputs; the use of vouchers for one season; and entering into contracts with seed and fertiliser companies to supply inputs of seed and fertiliser. Government then singlehandedly financed the subsidy programme, which was reduced in the 2016/17 budget, with indications that funding will cease in the future (Cameron et al, 2017).

In the 2017/18 budget speech the government reaffirmed that it will continue to provide subsidies for maize and rice seed and fertilisers through contracts with companies. Consolidation of procurement of fertiliser is seen as a cost-effective measure, through the Fertiliser (Bulk Procurement) Regulations of 2017[3] (following the enactment of the Fertiliser Act of 2009) for only two types of fertiliser, urea and DAP. The goal is to make the fertiliser input supply chain more competitive, especially for DAP and urea where the view is that local companies can participate in fertiliser marketing and distribution. The government has projected that this will result in an increase in fertiliser usage in the country.

## Assessing NAIVS and input supply programmes

Inefficiencies in delivery of NAIVS have been reported in many studies, including: delays in the delivery of the vouchers and inputs; misuse of the vouchers; and lack of proper awareness among smallholder farmers of the way in which the programme operates. Delivery delays resulted in delayed planting of crops and was a major complaint by farmers. In some cases, such as 2011/12, inputs only arrived way into the rainy season (World Bank, 2014b). Farmers were either unable to plant, or planted traditional seeds instead (REPOA, 2017). When inputs were delayed, farmers were still required to purchase the entire package.

Farmers not only become dependent on using improved maize and rice seed and chemical fertilisers, but they also in turn expect the continuous supply of subsidised inputs (World Bank, 2014b). The increasingly high costs of improved seeds and chemical inputs reduce profit margins, and farmers are likely to demand an indefinite continuation and expansion of subsidies, or access to affordable credit (IPES-Food, 2017).

There are also divergent reports of corruption and leakage, and challenges in the selection of beneficiaries and agrodealers. Beneficiaries were ultimately selected by Village Voucher Committees and Village Councils, with claims of unfair selection and nepotism

2. The International Development Association (IDA) is an international financial institution which offers concessional loans and grants to the world's poorest developing countries. Together, the International Development Association and International Bank for Reconstruction and Development are collectively generally known as the World Bank.
3. See the Fertiliser (Bulk Procurement) Regulations, 2017, Government Notice No. 49, Supplement No. 7, 17 February 2017.

displayed by hamlet[4] leaders. What is clear, is that those responsible for selecting beneficiaries had significant discretion over voucher allocations, with the potential result being political patronage, corruption and favouritism (DANIDA, 2012). In a few reported cases, farmers would also sell vouchers, likely due to their inability to afford the top-up (and sometimes needing money to buy food), not wanting to take the entire package, or when inputs were delayed. In other cases, farmers were asked to sign for all the vouchers but failed to receive all their inputs (World Bank, 2014b). The agrodealers were selected by seed/fertiliser companies, rather than villagers, making it difficult for farmers to hold them accountable in cases of poor performance (REPOA, 2017).

Through the NAIVS , farmers were directed towards hybrid maize production, even in marginal conditions, with long-term implications of reducing agricultural biodiversity, and less food becoming available locally. The shift towards standardised, hybrid maize and improved rice varieties displaces local varieties, often preferred in local markets. Across the region, farmers tend to plant hybrids for sale to industrial markets while they prefer local varieties for own consumption. The long-term use of hybrids and varieties developed for commercial value chains (for example, for use as inputs into industrial animal feed), coupled with standardized synthetic fertiliser packages have negative effects on ecological and soil health, as well as reduce dietary diversity and nutritional security (ACB, 2016b). Although increasing yields are premised on market channels to dispose of surpluses, commercial markets are not accessible for many farmers. This results in inappropriate varieties flooding local markets. Most of the incentives and justifications for the focus on few, commercially lucrative crops in NAIVS must be questioned, especially where local markets fail to absorb excess grain, and as food insecurity persists.

The diversion of local resources towards increasingly expensive, externally-sourced commercial seeds and synthetic fertilisers becomes a great concern when farmers no longer have access to local varieties which serve as a risk-reducing strategy.[5] There are farmers who still produce traditional varieties, which are in high demand. Even though this is the only source of seed for many crops, these farmers currently operate at the margins and are further marginalised by commercial seed laws that seek to restrict farmer use and exchange of seed.

## The future of input subsidies in Tanzania

As the future of input subsidies in Tanzania remains unclear, we reflect on the challenges and possibilities regarding the future allocation of scarce public resources. What is clear is that continued government support to smallholder farmers is essential to meet the global 2030 agenda of the Sustainable Development Goals (SDGs).[6] In particular, SDG 2 aims to 'end hunger, achieve food security and improved nutrition and promote sustainable agriculture'.

Looking at the NAIVS programme, many questions remain. Should the Ministry of Agriculture invest 30–40% of its annual budget in input subsidies, or would these be better invested through diversification and strengthening other forms of support? Should subsidies serve better-resourced farmers, or include those less-resourced and in more marginal environments? Should subsidies primarily benefit private and foreign seed and agrochemical companies, developing input supply chains, or should the focus be on strengthening and supporting local markets, based on diverse production of seed and crops by farmers themselves? What are the most sustainable, agroecological inputs and practices that could be considered for subsidy?

4. A hamlet is an administrative subdivision of a village in Tanzania. Usually 3-5 hamlets make up a village.
5. Farmer group discussions, August 2017
6. See Sustainable Development Goals: 17 goals to transform our world https://www.un.org/sustainabledevelopment/sustainable-development-goals/

Smallholder farmers face diverse and interrelated challenges. To address these, a set of specific support could be undertaken by government, farmer and civil society organisations and other stakeholders. Particularly, there is need to have a discussion on the reform of the current Green Revolution agenda specifically in terms on shifting resources towards agroecology. Reforms could include holistic innovations and support on seed, soil and water and such as:

- Promoting soil organic matter through use of organic fertilisers, compost, cattle and chicken manure, tea manure, agroforestry;
- Recognising, promoting, supporting and distribution of local and indigenous seeds through seed fairs, seed shows, seed exchanges;
- Considering local and indigenous seed as part of the FISP package;
- Water conservation through promoting irrigation and water harvesting technologies such as boreholes, rivers and dams;
- Integrated crop, livestock and agroforestry production through use of organic and botanical biopesticides;
- Promotion of local food markets that support wholesome, nutritious local food and;
- Addressing social and economic dimensions of agroecology including women, environment and climate change, water and agriculture, food, seed and land rights
- Direct incentives from FISP to independent farmers who adopt locally appropriate set of agroecological practices;
- Movement building and awareness and campaigns on agroecology from local to regional level;
- Evidence based agroecology as an alternative to current FISPs sharing of indigenous knowledge of seed value;
- Farmer to farmer training and exchange visits;
- Local agroecology hubs and;
- Policy engagement and dialogue with policy makers at all levels.

Agroecology can contribute to meeting many of SDG 2's specific targets, as it embodies sustainable food production systems and resilient food production practices that increase productivity and production; help maintain ecosystems; strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters; and progressively improve land and soil quality (Lim, 2018). There is a long history of comparative research illustrating the resilience of organic and ***agroecological practices***, and their ability to outperform conventional agriculture across multiple indicators, particularly in times of drought (IAASTD, 2009; Rodale Institute, 2011; IPES-Food 2016). Many of these methods, such as mulching or intercropping, are inexpensive, simple and have no health implications.

The role of ***research and extension*** is key towards diversifying FISPs by directing support towards agroecological practices. Unfortunately, the current mandate of research and extension in Tanzania is skewed towards modern and industrial modes of agriculture, promotion of commercial agriculture based on land consolidation and economies of scale, and integration into global value chains that syphon resources and wealth out of the continent.

As we start to formulate ideas about how to reimagine agricultural subsidies for smallholder farmers, there are a few important aspects that can be considered at the outset. The Chair of the Food and Agriculture Organisation (FAO) Second International Symposium on Agroecology, has recommended developing family, farmer-led and ***participatory research and co-innovation*** that is people centred, builds collective capacities to solve systemic problems, is climate resilient and low cost, enhances family farmers' autonomy and livelihood, is locally adapted, uses natural resources sustainably and evolves according to feedback (FAO, 2018).

This can include empirical research ***comparing various improved, traditional and farmer varieties***, based on context specific variables and practices. It could also include ***developing varieties with farmers through participatory plant breeding and participatory variety selection***, responsive to the interests and intersecting needs of farmers (ACB, 2018). Initiatives such as these would help provide options for farmers, conserve and maintain agricultural biodiversity, and strengthen farmer seed systems and local markets.

This requires going beyond the primary ***indicators*** used to assess varieties and their potential: yield/hectare, calories, and income. Indicators could be extended to include a broader range of criteria reflecting longer-term societal and ecological imperatives, such as:

- soil health especially measured by nutrient analysis, moisture content, soil organic matter, and macro and micro soil life;
- nutrient content/ha;
- nutrient availability and quality;
- total output/ha;
- total biomass;
- resource efficiency;
- impact on biodiversity; provision of ecosystem services; and
- impact on livelihoods resilience and social equity (IPES-Food, 2016).

***Legal and regulatory frameworks*** should be adapted to a transition to agroecology that is based on integrated and coherent multi-sectoral food policies. Long-term objectives and planning that respect human rights, particularly the right to food, should be central. In relation to inputs such as seed, there is a need to address Tanzania's ***seed laws*** and those of the region, which restrict the trade, exchange and sale of seed that has not complied with commercial requirements. Although ***QDS*** is recognised in Tanzania, such seed is not being supported or utilised in the input subsidy programmes. In 2015, during a seed review process, QDS was proposed for expansion to the district level, which would open possibilities for QDS having a broader geographical reach (ESAFF, 2014; TOAM, 2015; ACB, 2016a). QDS may provide an opportunity for production of farmer varieties, if the requirements of distinctiveness, uniformity, and stability (***DUS***) are reformed to allow for more flexibility for breeding materials based on farmers' varieties, and to incorporate greater heterogeneity. This is central to agricultural biodiversity conservation, maintenance and dynamic adaptation.

The Southern African Development Community (SADC) provision for the ***registration of landrace varieties*** could be explored and engaged with, towards finding suitable avenues to accommodate farmer varieties (SADC, 2008). SADC has the provision for labelling QDS for trade, with the vision to cater for registered landrace varieties. These provisions should be explored in greater detail.

There are many ways that the government of Tanzania could use these programmes to support and strengthen existing seed production in the country, as well as farmer seed networks. Farmers and organisations such as MVIWATA, Sustainable Agriculture Tanzania (SAT), Eastern and Southern Africa Farmers Forum (ESAFF), Participatory Ecological Land Use Management (PELUM), Tanzania Alliance for Biodoversity (TABIO) and Tanzania Organic Agricultural Movement (TOAM) are working on conservation, seed selection, and variety development, QDS and other areas. ESAFF, for example, has been working towards certifying a local maize variety under DUS criteria, so that it can be marketed.[7] Such case studies provide potential for learning from these experiences as we move towards finding seed systems suitable and appropriate for smallholder farmers, and farmer varieties.

***Integrated soil fertility management*** practices is a recognised and practical aspect which can be integrated into extension work. The expansion of Conservation Agriculture (CA) and Climate Smart Agriculture (CSA) across the region and in Tanzania (Rioux, 2017; Jayne, Sitko et al, 2018) opens a window to a healthier production system. At their core these approaches seek to improve soil health through the nurturing of the soil. Three core techniques are minimum or no till, crop rotation/intercropping, and permanent ground cover through mulching and legume cover crops. The promotion of such techniques is a positive step.

Some proponents of CA and CSA argue for continued use of herbicides and synthetic fertiliser. Sometimes the argument is that a transition is needed where people have already been using these inputs. Even in other areas, there may be serious soil nutrient deficiencies or pest problems and there are few other options immediately available. Manure is bulky to transport long

7. Interview with Pelum Tanzania Coordinator 24 August 2017.

distances and not all areas have sufficient livestock. However, when you look behind CA and CSA support is heavily skewed towards the Green Revolution inputs, while very few resources are channelled to building up the agroecological alternatives over time. Mauritius offers an example of what could be done. Due to the Mauri GAP[8] Level 1 standard, government subsidies are directed towards supplying organic fertilisers to farmers.

Currently even the e-voucher approach limits the farmer to what is available at the participating agrodealers. This restricts what farmers have available. A proposal from Ghana and Burkina Faso in West Africa is that farmers directly receive cash incentives for proven adoption of defined agroecological practices as an alternative to the Green Revolution input subsidies.

Although in transformation, the highly political nature of input subsidy programmes means they may not simply be discontinued. However the pathway forward is not entirely clear and this presents an opportunity for farmers, CSOs and others to propose alternative forms of farmer support incorporating diverse agroecological practices.

8. MauriGAP Level 1 standard is the basic standard for the production of crops under biofarming systems. This standard has already been gazetted. The aim is to encourage farmers to shift from conventional agricultural practices, which are based on heavy utilisation of chemical inputs to bio or organic farming, with less or no use of chemical inputs.

# References


ACB, 2016a. Changing seed and plant variety protection laws in Tanzania: Implications for farmer-managed seed systems and smallholder farmers. http://acbio.org.za/wp-content/uploads/2016/05/Tanzania-Seed-Law-2016.pdf

ACB, 2016b: Farm input subsidy programmes (FISPs): A benefit for, or the betrayal of, SADC's small-scale farmers? https://acbio.org.za/wp-content/uploads/2016/07/Input-Subsidies-Report-ACBio.pdf

ACB, 2018. A review of participatory breeding and lessons for African seed and food sovereignty movements. http://acbio.org.za/sites/default/files/documents/Full%20Report%20-%20English.pdf

Cagley JH, Gugerty MK and Plotnick R, 2009. Political Economy of Fertiliser Policy in Tanzania. Prepared for the Farmer Productivity Team of the Bill & Melinda Gates Foundation. Evans School of Public Affairs, University of Washington.

Cameron A, Derlagen C and Pauw K, 2017. Options for reducing fertilizer prices for smallholder farmers in Tanzania. Policy Report. Monitoring and analysing food and agricultural policies. Food and Agriculture Organization of the United Nations. http://www.fao.org/3/a-i7247e.pdf

DANIDA, 2012. Agricultural input subsidies in Sub-Saharan Africa. Evaluation Study 2011/12. https://www.oecd.org/derec/49231998.pdf

Demeke M, Spinelli A, Croce S, Pernechele V, Stefanelli E, Jafari A, Pangrazio G, Carracso G, Lanos B and Roux C, 2014. Food and agriculture policy decisions: Trends, emerging issues and policy alignments since the 2007/08 food security crisis. Food and Agriculture Organization of the United Nations. http://www.fao.org/docrep/019/i3514e/i3514e.pdf

ESAFF, 2014. Policy Brief on Seed. Need to improve access to quality seeds for small-scale farmers in Tanzania and other Eastern and Southern Africa Countries.

FAO, 2018. 2nd International Symposium on Agroecology: Scaling up agroecology to achieve the Sustainable Development Goals (SDGs); 3-5 April 2018, Rome. http://www.fao.org/3/CA0346EN/ca0346en.pdf

HLPE, 2013. Investing in smallholder agriculture for food security: A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome. HLPE Report 6. http://www.fao.org/fileadmin/user_upload/hlpe/hlpe_documents/HLPE_Reports/HLPE-Report-6_Investing_in_smallholder_agriculture.pdf

IAASTD (International Assessment of Agricultural Knowledge, Science and Technology for Development), 2009. Agriculture at a crossroads: Global report. IAASTD https://www.globalagriculture.org/report-topics/about-the-iaastd-report.html

IAPRI (Indaba Agricultural Policy Research Institute) 2017. Achieving more with less: Reform and scaling down of FRA and FISP and boosting social protection. *IAPRI Policy Advisory Paper*. IAPRI, Lusaka.

IPES-Food, 2016. From uniformity to diversity: A paradigm shift from industrial agriculture to diversified agroecological systems. http://www.ipes-food.org/images/Reports/UniformityToDiversity_FullReport.pdf

Jayne, T., Mason, N., Burke, W. and Ariga, J. 2018. Taking stock of Africa's second-generation agricultural input subsidy programs. Food Policy, 75, pp.1-14. https://doi.org/10.1016/j.foodpol.2018.01.003

Jayne, T., Sitko, N., Mason, N. and Skole, D. 2018. Input subsidy programmes and Climate Smart Agriculture: Current realities and future potential, in L. Lipper et al. (eds), Climate Smart Agriculture, FAO Natural Resource Management and Policy 52. FAO, Rome.

Lim Li C, 2018. Agroecology for sustainable food systems. Environment and development series 19. Third World Network, Malaysia.

Mather D and Ndyetabula D, 2016. Assessing the drivers of Tanzania's fertilizer subsidy programs from 2003-2016: An application of the Kaleidoscope Model of policy chance. Feed the Future Innovation Lab for Food Security Policy, Research Paper 34.

Pan L and Christiaensen L, 2012. Who is vouching for the input voucher? Decentralized targeting and elite capture in Tanzania. *World Development*, 40(8):1619–33.

REPOA, 2017. Agricultural Policy Research 2015/16, National Agriculture Input Voucher (NAIVS) Implementation (draft). Dar es Salaam.

Rioux J, Laval E, Karttunen K, Lwakatare M, Natai S, Majule M, Massoy T, Malozo M and Bernoux M, 2017. Climate-smart agriculture guideline for the United Republic of Tanzania: A country-driven response to climate change, food and nutrition insecurity. Food and Agriculture Organization of the United Nations. http://www.fao.org/3/a-i7157e.pdf

Rodale Institute, 2011. The Farming Systems Trial: Celebrating 30 Years. http://rodaleinstitute.org/assets/FSTbookletFINAL.pdf

SADC, 2008. Technical agreements on harmonisation of seed regulation in the SADC region: Seed variety release, seed certification and quality assurance, quarantine and phytosanitary measures for seed. Gaborone, Botswana.

TOAM, 2015. Farmer managed seed systems in Tanzania. Operation, benefits, successes, challenges and support. http://www.kilimohai.org/fileadmin/01_images/Miscellaneous/TOAM_Seed_Book.pdf

URT (United Republic of Tanzania), 2012b. Ministry of Agriculture Budget Speech. http://www.kilimo.go.tz/uploads/Hotuba_11-07-2012_Final_Web.doc,

URT (United Republic of Tanzania), 2014a. Ministry of Agriculture Food and Cooperatives, Annual Report for fiscal year 2014/15. http://www.kilimo.go.tz/uploads/Annual_Report_2014_15_Final.docx


World Bank, 2014b. Implementation Completion and results report (IDA-46190, IDA-51730) on a credit in the amount of SDR 124.1million (US$ 185 million equivalent) to the United Republic of Tanzania for an Accelerated Food Security Project. Report number: ICR00003242. http://documents.worldbank.org/curated/en/132691468106739354/pdf/ICR32420P114290Odisclosed0120300140.pdf


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