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Stakeholder insights and policy recommendations from the InnoFoodAfrica Project on traditional African foods

Significance:

Supporting systems that provide healthy and safe food ingredients and products and environmentally sustainable nutrition and food security solutions are key local priorities. To achieve these priorities in South Africa, multilevel and multiagency support is needed by smallholder farmers to expand the cultivation, growing, distribution, marketing, and production of indigenous and traditional African food crops (ITFC) and ingredients, as well as the sale, acceptance, and consumption of ITFCs. Public education is required to transform local perspectives on protein intake and the benefits of ITFCs. The government must exempt ITFCs from VAT to promote their mainstream commercial viability.

Malnutrition is considered Africa's most pressing health and social challenge.[1] A triple burden of malnutrition, including undernutrition; overnutrition leading to obesity and diet-related non-communicable diseases; and micronutrient deficiency (or hidden nutrition), is emerging in South Africa.[2] Just under half of children under the age of five in South Africa (43%) present with some form of malnutrition.[3] The prevalence of stunting in South African children is high at about 27%.[3] Stunting and undernutrition increase a child's vulnerability to poor health, poor developmental outcomes, and mortality. Simultaneously, an estimated 68% of women and 31% of men over the age of 15 years in South Africa are overweight or obese.[4] The high prevalence of micronutrient deficiency and overweight malnutrition that occurs alongside stunting is "an emerging feature of food insecurity in South Africa"[5(p.20)].

The sub-Saharan African diet commonly includes an inadequate intake of animal products and vegetables.[6] Three main staples – wheat, maize and rice – provide most of the world's daily calorie requirements and protein intake. In sub-Saharan Africa, maize is the prevalent staple. Although this affordable and accessible staple crop has a high energy density, refined maize meal commonly lacks macronutrients, for example protein, and micronutrients (vitamins and minerals). Dietary dependency on maize for the provision of daily calorie intake could cause protein-energy malnutrition.[7]

Local shifts toward urbanisation and changing agricultural production have affected the security of a healthy, acceptable, diverse and affordable food supply.[8] The cost and affordability of nutrient-dense foods remain major barriers to consumers accessing nutritious and balanced diets. Foods with high energy density (such as maize products) are comparatively cost-effective energy sources; however, they generally have lower nutrient densities.[9] As agricultural production moves away from subsistence farming and rural households attempt to generate income from other sources, large-scale farming faces considerable challenges in meeting the food demand of the growing urban population.[8] There is a growing list of groups that are disproportionately vulnerable to food insecurity, including women (particularly women of reproductive age who live in low-income settings), victims of conflict, people with health conditions, people living in low-income urban areas and rural areas, the elderly, and children under the age of five.[3,10] Subsequently, there is a pressing need to improve the accessibility, acceptability, availability and affordability of safe and healthy foods and food ingredients with environmentally sustainable nutrition and food security solutions.

Indigenous and traditional food crops (ITFCs), such as sorghum, Bambara groundnut and cowpea, have marked potential to diversify diets and offer viable alternatives to enhance food and nutrition security.[11] The availability, affordability and accessibility of safe and nutritious food at national and household levels is included as a strategic goal of the 2014 South African National Policy on Food and Nutrition Security.[12] Links between dietary diversity and attaining food and nutrition security are highlighted in this policy. It further asserts that the neglect of indigenous and traditional foods contributes to micronutrient deficiencies. Concerns over environmental degradation, climate change vulnerabilities, and biodiversity losses also support the need to integrate ITFCs into the food-supply system. Indigenous food crops should contribute to the African diet by providing essential micronutrients and health benefits.[13] These climate-resistant crops also hold the potential to promote income generation for subsistence and smallholder farmers. Increased reliance on ITFCs in local diets could result in reduced dependency on foreign food aid and greater reliance on local, sub-Saharan African solutions from within the region.[14]

The InnoFoodAfrica (IFA) project, funded by the European Union, aims to create new value chains of ITFCs to produce and distribute healthy foods and bio-based materials for packaging from farms to local and export markets. IFA demonstrates the potential of African ITFCs as healthy food ingredients to combat malnutrition in children and pregnant women and the undernutrition risk in adults. The project has developed technologies and methods combined with capacity-building, communication, and business models to improve farming practices and nutrition, and to produce healthy ingredients and foodstuffs as well as packaging materials to reduce loss. The project involves 13 African and 5 European partners, comprising 5 research and technology organisations, 6 universities, 3 non-governmental organisations, and 4 private enterprises.

Coordinated policy, programmatic and research efforts are required to address malnutrition, food insecurity and environmental sustainability to address complex nutrition and food security challenges in South Africa. Stakeholder engagement is one way to facilitate the impact of research and promote the practical consideration

and implementation of research findings and recommendations and put forward meaningful policy recommendations from research.[14] The term 'stakeholders' refers to "individuals, organisations, or communities that have a direct interest in the process and outcomes of a project, research, or policy endeavor"[15(p.5)]. Stakeholder engagement assists researchers to draw meaningful insights from research findings and identify policy and implementation gaps. Given the central role that research plays in promoting sustainability[16], stakeholder engagement was included to extend the potential of the IFA research beyond academia with a focus on its potential broader contributions to environmentally sustainable food and nutrition solutions.

A hybrid stakeholder workshop was hosted at the University of Pretoria's Future Africa Campus during their biennial 'Africa Week' science leadership event. Invitations were extended broadly to higher education institutions, the agricultural and farming industry, non-profit organisations, governmental agencies, and organisations, and shared through the Africa Week advertisements and webpage. A total of 42 stakeholders attended in person and 2 stakeholders attended virtually. Stakeholders represented academic and higher education institutions (9), food and beverage manufacturing, processing, and/or safety organisations (20), local research organisations (6), agricultural and farming industries (4), a national non-profit organisation (1), and governmental agencies or organisations (2). The workshop was also attended virtually by three of the funding partners and in person by nine IFA associates. Seven students from the University of Pretoria who were directly involved in the project contributed to the presentations and/or discussions.

Stakeholder engagement was bidirectional and collaborative as the stakeholders were included to improve the uptake of the research and facilitate policy recommendations.[14] The aim of the stakeholder workshop was to disseminate information on the outputs of the project to key stakeholders to generate discussion and identify takeaway points for policy and programmatic recommendations. Firstly, key research findings from the various work packages in the IFA project were shared. Secondly, the workshop aimed to facilitate stakeholder reflection on the meaning and impact of the key research findings with a focus on identifying the main action points to be taken forward. Lastly, the responsibilities and roles of the key players and stakeholders to action the identified reflection points were also identified and discussed.

The stakeholder workshop was facilitated by a researcher (S.D.) with experience in stakeholder engagement. The facilitator started the workshop by detailing the primary aim of the workshop, explaining that stakeholder engagement was essential to ensure that the project had extensions beyond the research value to emphasise the impact of IFA research. Firstly, a brief overview of the IFA project aims, planned outputs and overarching objectives were shared. The workshop was divided into four sessions with different but complimentary foci, namely (1) consumer and nutrition studies, (2) farmers' participatory research, (3) food ingredients, food products and bio-packaging innovation, and (4) a summary and final comments. Each session started with a summary presentation on the primary aims and outputs of the research and an interactive question-and-answer session. Thereafter, there was an individual reflection session in which stakeholders made notes and, lastly, a facilitated reflection and discussion session.

Stakeholders were provided with a summary graphic detailing the different types of potential impacts of research and their definitions (Figure 1). The impact summary graphic was developed based on literature in the field.[17] The graphic was provided to guide the stakeholder reflections on whether research has an impact on people's understanding and awareness of issues, promotes technological advances, affects the health and well-being of individuals or groups, influences capacity and preparedness to handle changes, and impacts cultural attitudes and/or beliefs. The summary graphic was also intended for stakeholders to consider the research impact on the economy, the environment, various social issues, novel or amended policies and guidelines, and whether research could contribute to changes in attitudes or beliefs.

Stakeholders were provided with sticky notes and requested to make notes focused on the different impact points during the presentations, reflection and discussion sessions. The sticky notes were collected after each session. Furthermore, summary notes were displayed on a board at the front of the venue and additional summary notes were compiled by a scribe during each reflection and discussion session. During the fourth and final session of the day, the workshop facilitator provided feedback to the stakeholders on the summary points drawn from their reflection; the main takeaway points and the identified roles of the responsible partners were also reintroduced and discussed. Following the workshop, one author (K.S.) compiled summaries of the notes, sticky notes and discussions. These summaries were sent to the IFA project partners and discussed between the authors (K.S., S.D., M.N.E.).

Stakeholder reflections acknowledged the commercial potential of the IFA innovations in terms of addressing food systems and nutrition challenges in a sustainable and comprehensive way. However, they further identified that scaling up the production of food ingredients and food products, to the commercial level required for them to make notable changes, would be hampered by the insufficient and inconsistent supply.

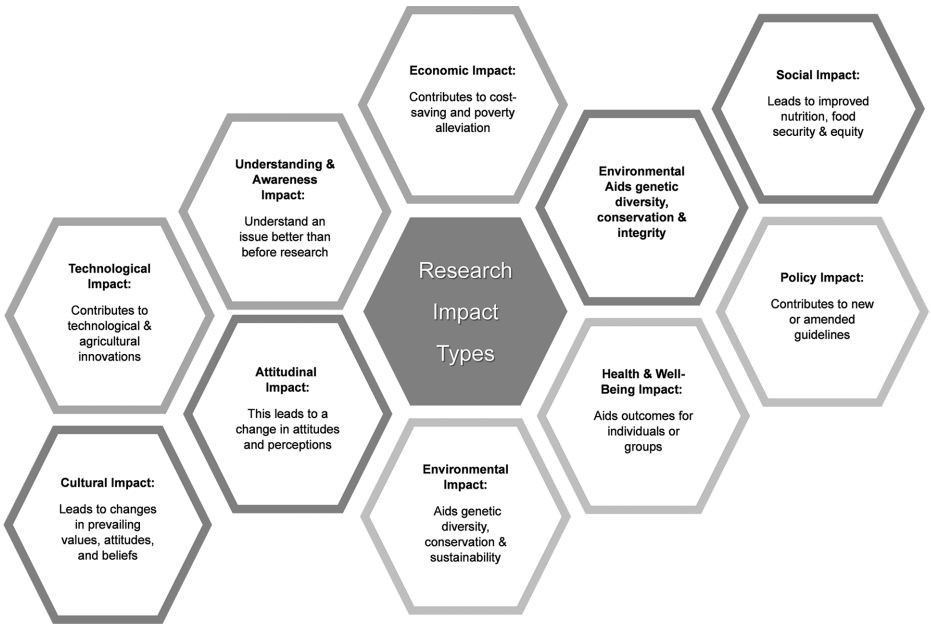

Figure 1: Types of potential impacts of research and their definitions.

The impact of value-added tax (VAT) on commercial food and beverage producers and consumers was a key challenge to this endeavour. The potential for sidestream income from the bio-packaging innovation was highlighted as a positive financial contributor to an alternative income source for farmers, as existing machinery can be used in a novel way to produce bio-packaging.

Discussions during the sessions centred largely around the need to develop food systems that supply healthy, affordable and nutrient-dense foods to the South African population. The potential benefits of ITFCs to meet this agenda were acknowledged by the stakeholders. Stakeholders identified two main barriers related to the mainstreaming of ITFCs. Firstly, the cost of food and food ingredients from ITFCs could be more competitive compared to that of maize meal if they were VAT exempted. Secondly, there is a need for awareness of the Paediatric Food Based Dietary Guidelines of South Africa.[18] Other barriers include attitudes towards and stigmatisation of ITFCs and these are linked to the lack of market interest in these crops.

Market potential needs to be developed and mainstream consumer demand needs to be increased to develop and sustain ITFC farming and food systems.[19] The informal food retail sector fed by smallholder farmers plays an essential role in the supply and distribution of food in South Africa, especially for rural dwellers in remote areas.[20] Inadequate access to agricultural support services has been identified as a major reason for the inadequacy of programmes and policies that intend to support local smallholder farmers. Various programmatic efforts have been made to support local smallholder farmers, to boost their productivity and support their integration into the local agricultural economy.[21] Among these is the Agricultural Policy Action Plan 2015–2019, which focuses on value addition as a strategy. The Department of Rural Development initiated a land development programme called One Household One Hectare in 2015, targeting state-owned farms, Proactive Land Acquisition Strategy farms, and communal land with the purpose of creating rural smallholder producers at the household level in order to ensure food security, reduce poverty, create sustainable employment, broaden the skills base, and support the Agri-parks Programme. Considered one of the most progressive support programmes, the Comprehensive Agricultural Support Programme was implemented by the Department of Agriculture, Land Reform, and Rural Development in 2004/2005 to safeguard access to agricultural support and service delivery. Smallholder farmers are among the intended beneficiaries of this programme, which provides comprehensive financial and programmatic support for the farmers. Although there is substantial policy and programmatic support for smallholder farmers in theory, there are clear implementation gaps and fewer than intended smallholder farmers have benefitted from this support.[21]

The literature identifies that the dearth of reliable data about smallholder farmers in South Africa is a major contributing factor to the lack of support offered to them.[20,21] The lack of information on the number of smallholder farmers, the crops they farm, the types of production in which they engage, and the markets that they supply, remains a key challenge to the government offering them support.[20,21] Even national agricultural censuses from Statistics South Africa continue to focus on large-scale commercial farmers. A comprehensive register of smallholder farmers in South Africa needs to be compiled, and then wide-scale governmental support is required to deliver comprehensive, targeted policy and programmatic support to make tangible differences in market access.[21]

There is a concurrent need for governmental policies to be developed and implemented that address food distribution and marketing, which historically have been left mainly to private entities.[3] Mabhaudhi et al.[3] called for policymakers to adopt a transformative stance that includes informal traders and transporters who may currently operate illegally but play an important role in market access for ITFCs. There are limited data available on the buying and selling practices of informal traders of ITFCs and their economic value in South Africa.[19] Related to this is the imperative of raising the profile of ITFCs among consumers. Stakeholders identified that many smallholder farmers cultivate ITFCs already, but due to the lack of demand in the market, these crops are not mainstream. Current policies include a limited focus on ITFCs which stifles those who grow, process and distribute ITFCs in informal food systems.[3,19]

Caregivers at schools, among others, must be made aware of the importance of feeding the children affordable protein-rich foods such as legumes, eggs and fish. Caregivers also need to be educated on appropriate complementary feeding and education should focus on the first 1000 days of life. An updated school curriculum is required to include a renewed focus on nutrition and the Paediatric Food Based Dietary Guidelines of South Africa. Education should encourage plant-based diets to promote a transformation of local perspectives on protein intake. Despite their multiple benefits, negative perceptions and attitudinal barriers affect the acceptance of many ITFCs, and there needs to be more awareness about the benefits of ITFCs.[11] Education supported by public–private partnerships is needed to break the stigmatised associations that many local consumers have towards ITFCs as 'poor people's food' and to promote the acceptance of ITFCs and food ingredients into local diets.[3] Stakeholders suggested that public–private partnership is also required to educate consumers on how to store and prepare these crops to prevent postharvest losses and on how to prepare food to maintain nutrient density. Concerted marketing efforts and attractive packaging of foods using ITFCs as food ingredients could change perceptions on ITFCs.[11]

Another critical limiting factor to the mainstreaming of ITFCs identified by the stakeholders was the cost of including ITFCs as wide-scale commercialised food ingredients. While there are multiple factors that culminate to influence food insecurity and malnutrition, the affordability of food purchases is central for both urban and rural consumers.[9] In South Africa, many basic food items, such as brown bread (produced from wheat), rice, dried maize and maize products, are exempted from VAT.[22] Stakeholders highlighted that it is imperative for the government to exempt ITFCs from VAT to promote the affordability of food products produced from these crops. Without VAT exemption, the use of ITFCs as wide-scale commercialised food ingredients is unattainable because of the cost of commercial production and the consequent high prices for end consumers.

Multifaceted support is required in a circular fashion to boost the cultivation, growth, distribution, marketing and production of food ingredients as well as the selling, acceptance and consumption of ITFCs. To realise the aim of mainstreaming ITFCs, consistent support is required from the government in terms of policy and implementation, with further support from private entities.

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Declarations

We have no competing interests to declare. We have no AI or LLM use to declare. All authors read and approved the final manuscript.

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