

Indigenous and Neglected Crops (INC) Promotion for Resilient Food Systems in South Africa

Work Package 6: Supply and Socioeconomics

Task 1: Farm-to-Fork (F2F) Strategy

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The Context

The farm-to-fork (F2F) strategy is a plan designed for different segments of the agri-food value chain that ensures the quantity, quality and safety of the produce for the final consumers. The F2F strategic framework is a strategic design of pathways that ensure transparent, traceable and sustainable agri-food supply from the origin (farm) to the final destination (consumption). The systemic F2F strategic framework is an approach and/or mechanism comprehensively designed with a system of resources to facilitate value chain development of the agri-food sector from the producers to the final consumers. The F2F strategy is not homogeneous across countries and regions because of differences in agricultural practices and policies. Hence, heterogeneity exists not only in agricultural and food production practices but also in other stages of the value chain system, vis-à-vis processing, storage, distribution, regulations, policies, etc., across countries and regions.

The heterogeneity is influenced by culture and tradition, socio-philosophical orientation, religion, and indigenous knowledge. Besides, the policy and regulation levels, technology adaptation, climatic conditions, topography, soil content and level of development will determine not only the heterogeneity of agri-food production practices but also the pre- and post-production stages. For instance, it shapes the conceptualisation of the cropping system development, soil preparation, inputs (such as seed and seedling), and other agroecology cultivation activities, as well as other stages of the F2F system. The heterogeneity in the F2F practices, determined by the aforementioned factors, characterised the peculiarity of some crop cultivation, production, processing, storage and marketing in certain geographical locations.

This peculiarity in the specificity of the geographical F2F practices is said to be indigenous to the inhabitants of the geographical location, particularly Africa, which is tantamount to their geographical indication. FAO (2023; 2024a) concurred that for millennia, African indigenous communities have been using many community-adapted crops as sources of food and nutrition, energy, medicine, ornament and livelihood. However, the civilisation and change in tastes and preferences towards sophisticated, produced foods such as processed foods have led to neglect of some of these geographically- and indigenous-specific crops. The neglected crops are native to specific regions, which are basic sources of nutritious and medicinal foods, but have become unpopular (Padulosi et al., 2002; Nhamo et al., 2022). Besides, the growing modernisation, urbanisation and middle-income earners have led to the indigenous crops being seen as status-unbefitting, unmodernised and traditional foods, thereby leading to their neglect. The neglect led to the disappearance of 75% of these crops over the 20th century, and by 2020, wheat, rice and crops were the main staple foods, contributing 41% of global calorie intake (Lefebvre et al. 2023).

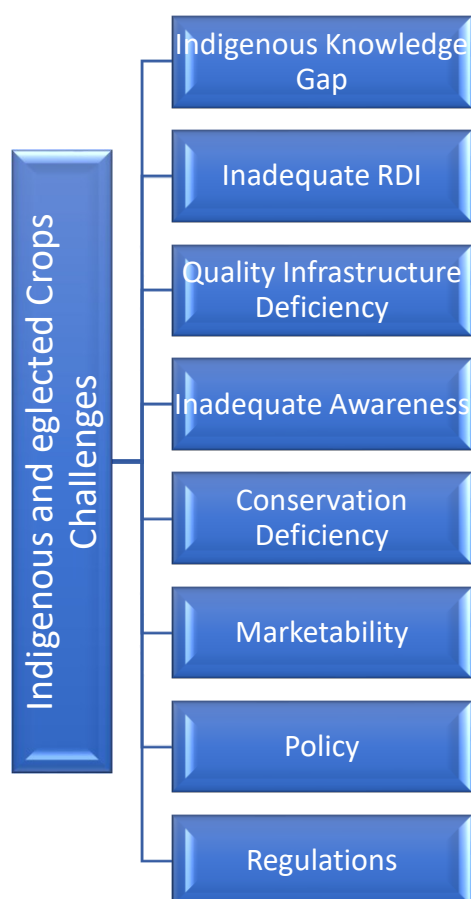
Thus, the indigenous and neglected crops are opportunities and nutritious crops that are native and traditional to the inhabitants of a geographical area, such as Southern Africa. However, they are marginalised, underutilised, underexplored, underestimated and sometimes completely abandoned because they are viewed as local, unsophisticated and unattractive for modern food intake. The crops are indigenous to the inhabitants of the geographical area, providing staple foods, a source of medicine, means of livelihood and employment. Besides, these crops are embedded with extensive nutritional values and provide varieties and resilience to food insecurity and hunger. The indigenous crop species are pests and disease-tolerant and more resilient to climatic change (Nhamo et al. 2022). However, these crops have been marginalised or completely sidelined by producers, breeders, scholars and policy makers, despite their being food and industrial potential crops (Mabhaudhi et al., 2017a; Okafor and Ugwu, 2021). They are crops whose seed supply system, cultivation, value chains and utilisation lack proper documentation, while being sidelined in the mainstream food system. Padulosi et al. (2013) assert that the indigenous and neglected crops are non-commodity crops that are part of a diverse and large group of wild, semi-domesticated and domesticated species, which are locally adapted. Moreover, these crops are characterised by subsistence-level and traditional production systems with the application of informal seed (Dansi et al., 2012; FAO, 2023).

In recent years, there has been a clamour for the adoption, cultivation, marketing and inclusiveness of the indigenous and neglected crops in the food system due to their dietary nutrients, climate-change resiliency and potential for mitigating food insecurity, especially in Africa. This becomes pertinent as the world is confronted with multiple crises, wars, geopolitical tensions and exogenous shocks such as climate change, pests and disease plagues, etc. Mudau et al. (2022) and Mabhaudhi et al. (2022) opined that, owing to the need to expand agricultural production with considerations for environmental, health and welfare concerns, there has been increasing attention directed at the indigenous crops due to their ecological friendliness and potential to improve food and nutrition security. Moreover, the improved cultivation of these crops enhances much-needed dietary nutrients (FAO, 2024b) and is an avenue to increase smallholder farmers' income and propel rural employment. Although most of the indigenous and neglected crops in South Africa, in particular and Africa at large have limited stages of F2F (usually short supply chain) due to inadequate economic activities surrounding these crops, as a result, limited adoption and utilisation. With adequate development finance and investment, the indigenous and neglected crops can expand the agro-allied industry and thereby reduce rural-urban migration and dangerous emigration to high-income countries.

Despite this clamour for the inclusiveness of the indigenous and neglected crops, the obstacles such as lack of integration, food safety and quality assurance, finance and investment, effective policy and quality infrastructure among other, are hindering the adoption, development, expansion and mainstreaming into the food system in Africa and particularly in Southern Africa persist, which cut across all stages of F2F. Mabhaudhi et al. (2017) and Akinola et al. (2020) argued that these crop species' poorly understood and developed F2F was a consequence of neglect and complete annihilation. To this end, there are different challenges characterising the F2F for the indigenous and neglected crops. The challenges range from the incapacitation and inadequacies in the cropping system to deficiencies in processing capabilities, poor storage and warehousing, and a poor distribution network. Besides, access to quality infrastructure, finance and governance are other challenges. These challenges hindered upscaling, downstream activities, market access and consumption, especially by the urban dwellers.

Owing to these problems, the quality and safety of these crops are called into question, thereby inhibiting acceptability, adoptability, marketability and streamlining into the food systems. Moreover, the upscaling of the indigenous and neglected crops' productivity and development or upgrading of the value chains to the sophisticated modern tastes and preferences for acceptability and adoption, is hampered by these challenges.

Figure 1: The indigenous and neglected crops challenges



The mitigation of the challenges is paramount to the effective upscaling of the indigenous and neglected crops as a means to sustainable agriculture, dietary diversification, resilience to food insecurity, income generation, cultural diversity sustenance and environmental and ecosystem stability. Nevertheless, mitigations can only be effective in achieving the desired outcomes when they are fortified/backed with an appropriate and effective systemic F2F strategic framework. To this end, an effective systemic F2F strategic framework is germane and has become inevitable not only to overcome the challenges but also to systematically design the mechanism, avenue or pathway through which the proffered solutions transform and upscale the indigenous and neglected crops to quality, safety, climate change resilience and environmental friendliness that conform to the tastes.

Furthermore, this strategic framework provides a pathway for an inclusive transformation of indigenous and neglected crops' F2F, such that it considers the extant agroecology environment, utilisation, quality infrastructure, policy and regulations in the producing

communities. This also extends to consideration of the availability of development finance and investments that are necessary and sufficient for an effective systemic F2F strategic development. The systemic F2F strategic framework, as enunciated here, departs from the conventional framework as it could bring about effective delivery of value addition, upgrading of these crops and upscaling the economic activities across the value chain. This will stimulate policy interventions, regulations, and capacity development, thereby mainstreaming the indigenous and neglected crops into the food system, which is being considered in South Africa (South African Government, 2025).