DeSIRA-LIFT Terms of Reference

Expert in soil health and biofertilizers - junior (NKE3.8, Cat III)

Background

The DeSIRA Initiative, funded by the European Commission (EC), Directorate General for International Partnerships (DG INTPA), seeks to enhance an inclusive, sustainable and climate-relevant transformation of rural areas and agri-food systems, by linking agricultural innovation with research and education for developmental impacts at scale. It supports actions in low- and middle-income countries (LMICs) to strengthen agriculture and food systems resilience, the relevance of the national and regional innovation systems, and the coherence and efficiency of their agricultural public research and extension services related to climate change adaptation.

DeSIRA-LIFT is a *service project* (June 2021 – May 2024) to DG INTPA with the main objective to enhance the impact of the DeSIRA Initiative by providing (on-demand) services to DeSIRA project holders and partners. DeSIRA-LIFT includes three service areas aligned to the three DeSIRA Pillars: *Service Area 1* supports country-led DeSIRA projects to enhance their impacts on climate-oriented innovation systems in line with more sustainable food system transitions. *Service Area 2* supports the Comprehensive Africa Agriculture Development Programme (CAADP) ex-pillar IV organizations in their Agricultural Knowledge and Innovation Systems (AKIS) related roles. *Service Area 3* supports policy makers on themes related to agricultural research for development (AR4D) and innovation policies and programming.

This assignment is part of *Service Area 3: Sub-service area 3.3 - On-demand requests.*

Rationale of the assignment

In the wake of the current Russian war against Ukraine and the subsequent rise in prices of food, agricultural products, and production inputs, including fertilizers, the UN Global Crisis Response Group sounded the alarm on a global fertilizer crisis in June 2022, warning it might jeopardise food production in the coming years and further contribute to a significant increase in the number and share of undernourished and food insecure people worldwide. This warning of a "food availability crisis in 2023" and complementary analyses have gradually captured political attention to address the food crisis.

The fertilizer crisis (in terms of availability and prices) has been caused by two consecutive global crises, i.e., the COVID pandemic and the Russian war against Ukraine. In Africa, prices of Urea and DAP which are the commonly used fertilizers, have doubled, thus becoming unaffordable and out of reach to the majority of farmers. For medium and large-scale farmers, diminishing returns from their farming ventures due to the high cost of inputs is altogether discouraging the use of inorganic fertilizers. Some governments have rolled out emergency subsidies to cushion the effects of expensive fuel, fertilizers and food, but this is not sustainable on a long-term basis. Countries such as Nigeria, Rwanda and Zimbabwe are planning to develop national capacity for fertilizer production and/or blending to become less dependent on fertilizer imports.

If the fertilizer crisis is only addressed through increased production and use of inorganic inputs this is insufficient to address (i) the increase of fertilisers prices and (ii) the progressive degradation of soil. It also contradicts the European Green Deal and the 'Farm to Fork strategy' and its international dimension towards more sustainable agri-food systems. Fertilizers may have a positive impact on yields (if well used and on time) as well as on nutrient cycles and nutrient stocks in the soils. But the long-term impact on soil fertility can be negative in the absence of sound management of organic matter, especially in a continent with a significant share of degraded lands. Soil fertility and soil health cannot be limited to the use of fertilizers. Due to unfavourable conditions or unsatisfactory use of fertilizers, their effect on yields can be less important than expected and very variable depending on agroecological zones, crops and types of farms.

DG INTPA wishes to avoid a 'fertilizer tunnel vision' and will continue to promote a comprehensive approach to soil fertility, in line with the Team Europe response to global food insecurity that was agreed to by EU Member States in June 2022 (Council Conclusions) committing to "more efficient and sustainable use of inorganic inputs (fertilizers)" as well as to "agroecological and other innovative approaches".

DG INTPA needs to provide concrete pathways to operationalise a nuanced INTPA and EU position, responding adequately to the US Global Fertilizer Challenge[i] Programme without venturing into the production of inorganic fertilizers in Africa. Consequently, the EU (and INTPA) is calling for an integrated approach to soil fertility management and innovative agricultural practices to better manage fertilizers within a mix of contextual solutions based on agroecological principles that includes organic fertilizers and biofertilizers, the development of legumes, agroforestry, etc. In the context of the fertiliser crisis, organic fertilisers and biofertilisers are options to be explored.

What are biofertilizers?

Biofertilizers are defined as biological products containing living micro-organisms that, when applied to seed, plant surfaces, or soil, promote growth by several mechanisms such as increasing the supply of nutrients, increasing root biomass or root area and increasing nutrient uptake capacity of the plant (Vessey, 2003).

Biofertilizers are biological preparations of efficient microorganisms that promote plant growth by improving nutrient acquisition, they enhance soil productivity by fixing atmospheric nitrogen, solubilizing soil phosphorus, and stimulating plant growth (Maan and Garcha, 2021).

see also:
https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/biofertilizer

A large portion of organic matter is recycled at farm level through an adequate management of crop residues and mixed farming with the production of manure. However, there is a lack of information regarding the off-farm production, marketing and use of organic fertilizers and biofertilizers involving actors such as Farmers' Organisations (FOs), NGOs, and SMEs. The specific focus of the assignment as further detailed below in this ToR, includes therefore a study to fill this knowledge gap by providing first insights on this topic. The results of the study will also contribute to orient future EU investments, provide relevant information to EUDs, and support the AUC to develop concrete guidelines for its Ecological and Organic Agriculture Initiative (EOA-I).

Scope of the assignment

This Non Key Expert Cat III (junior expert) assignment will be conducted in collaboration with a Non Key Expert Cat I - Senior. The NKE Cat I will be overall responsible for the deliverables of the assignment. It is expected that the NKE Cat I will collaborate closely with the NKE Cat III and supervise him/her as deemed necessary. The Non Key Expert Cat III post described in these Terms of Reference will therefore be responsible for the following tasks:

- Contribute to the development of the methodology for the scoping study. This includes:
  - Selection of 12 countries, distributed across the sub-regions of Africa, based on a number of criteria (to be proposed by the expert) for in-country analysis
  - Development of methodology: identification of key informants, data collection tools, method for data analysis.
- Contribute to the Rapid analysis of the 'ecosystem' of organic and biofertilizers (including challenges and opportunities) by region with a focus on new emerging actors:
  - Describe the state of the production of organic and biofertilizers *(in the 12 selected countries)* with a qualitative analysis of the types of actors, the origin of organic matter (from farms, cultivated areas, waste along specific value chains, urban waste including human faeces), a rough estimate of the quantity produced (in comparison of chemical fertilizers), and prices

- Describing the state of the demand and use of organic and biofertilizers *(in the 12 selected countries)* with a qualitative analysis regarding the type of crops, type of farms, type of farming systems: organic, conventional, etc.
- Assess the potential supply of organic matter (in the 12 selected countries) to produce organic and biofertilizers (along value chains and urban area).
- Identify challenges and opportunities to the scaling of the organic and biofertilizers sector in Africa, and (policy) recommendations to address these.

- Support the NKE Cat I to make a short presentation of relevant case studies and key actors *(around 2/3 cases per country)* including topics such as trajectory, level of production, quality of the products, business model, channel of distribution, challenges and opportunities.
- The NKE Cat III is responsible for the data collection, analysis and preparation of report inputs under guidance of the NKE Cat I.

Specific details of the assignment

The assignment includes the following specific characteristics:

- The study will focus on Africa.
- The study will not include the management of organic matter at farm level as knowledge already exists.
- The study will not include inorganic / synthetic fertilizers as knowledge already exists.
- The study (and specific analyses) is based on a literature review (including articles, reports, websites) *and* on interviews with key actors or experts in the field (around 10 per countries).
- As part of the information is not easy to collect, the expert has to adapt the level of details which could be provided with a relevant balance between qualitative and quantitative information *(see also the draft/suggested workplan below)*.
- The assignment includes two experts: a Non Key Expert Cat I (25 days) and a Non Key Expert Cat III (60 days).

Suggested workplan

The workplan below is tentative.

Task	Deadline	**Days NKE (Cat III)**	Days NKE (Cat I)[1]
Inception report	01 December 2022	**10**	5
Data collection an analysis	31 January 2023	**30**	5
Full report (including executive summary)	15 February 2023	**15**	10
Policy brief	28 February 2023	**5**	5

Deliverables (with the NKE cat I)

- An Inception Report, including:
  - a general introduction on organic and biofertilizers in Africa (production, demand, supply streams)
  - a justification for the selection of 12 countries across the sub-regions of Africa;
  - methodology of the scoping study
- A report *(max 25 pages excluding annexes)*, including:
  - analysis of the 'ecosystem' of organic and biofertilizers (including challenges and opportunities) by region with a focus on new emerging actors
  - the status of organic fertilizers and biofertilizers in the 12 selected countries (see the explanation of tasks under the 'scope of the assignment');
  - a description of e.g., relevant cases

[1] NB see separate ToRs

- A 2-page Executive Summary

- A policy brief summarizing the key findings and policy recommendations (and or arguments) for scaling of organic fertilizer and biofertilizers production by e.g., SMEs or FOs. The policy brief will be developed in close consultation with DeSIRA-LIFT Key Experts (SA3 Leader and Project Director).

Reporting

The NKE Cat III (and the NKE Cat I) will report to the SA3 Leader and Project Director of DeSIRA-LIFT.

Duration of the assignment

The assignment for the Non Key Expert (Cat III) includes 60 working days in the period November 2022 – February 2023.

A draft report is to be submitted to DG INTPA by 30 January 2023, final report to be submitted 20 February 2023.

Location of the assignment

The assignment will be home-based and includes a desk review.

Required qualifications and experience

The expert will have:

Qualifications and skills

- A relevant education, preferably related to Soil Sciences or Agricultural Sciences.

General professional experience

- At least 3 years' professional experience in areas directly relevant to international development, innovation with a social science perspective, knowledge and innovation systems, or likewise.

Specific professional experience

- Professional experience in areas directly relevant to agriculture in an international setting is an advantage, including
  - Knowledge of soil fertility in sub-Saharan Africa
  - Knowledge and experience in the organic and biofertilizer industry in Africa
- Experience working in LMICs
- A research track record in the following fields is appreciated: soil sciences, agricultural sciences.
- Experience in areas directly relevant to agricultural development, organic agriculture, biofertilizers or likewise is desirable

Soft skills

- Ability to work in a team and in a multicultural context
- Motivation, self-direction and proactiveness
- Methodological rigour, priority management and organisational skills

Language skills

- Excellent writing and oral presentation skills in English.
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[i] The ***Global Fertilizer Challenge*** set a goal of raising $100 million in new funding by UNFCCC COP 27 to support "innovative research, demonstrations, and training to help countries with high fertilizer usage and loss adopt efficient nutrient management and alternative fertilizers and cropping systems". The US committed $25 million and approached the EU for a similar contribution to the initiative with its own strand of work (actions do not need to be carried out together with US or other donors, but *could propose its own initiatives/actions and financing*), as long as they contribute to "improving nutrient management and efficiency, reducing losses and sustainable use and *production of fertilizers*, with a particular focus on extension and advisory services for farmers". The initial geographical scope has been restricted to Sub-Saharan Africa.