

THE UNITED REPUBLIC OF TANZANIA  
MINISTRY OF AGRICULTURE & FOOD SECURITY

Soil Fertility Recapitalization and  
Agricultural Intensification Project  
(SOFRAIP)

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# Soil Fertility Recapitalization and Agricultural Intensification Project (SOFRAIP)

## Background and justification of the project

1– While major advances have been made using modern agricultural production systems in many parts of the world, and often such systems afford surplus production, in Tanzania, many smallholder farmers are still practicing traditional (i.e. subsistence) low input/low output agricultural systems that invariably result in the degradation of the soil resource base. Soil productivity decline occurs mainly as the result of inappropriate husbandry practices that lead to adverse changes in the physical, chemical and biological properties of the soil, decreasing its capacity to support optimum plant growth.

2– The natural fertility of the Tanzanian soils has been lost as a result of continuous nutrient mining through repeated crop harvest removals, soil erosion, leaching and denitrification. Farmers are removing from the soil far more than they are able to replenish by the addition of fertilizers be either from organic or mineral sources. Tanzania has one of the lowest fertilizer consumption rates in the world (less than 7 kg/ha of nutrients as compared to 15 kg/ha for sub-Saharan Africa and 87 kg/ha as a world average). Low crop yields, as a result of soil fertility depletion and the degradation of the resource base, are areas of concern to the government.

3- Notwithstanding the liberalization of the economy, the performance of the agricultural sector has remained stagnant and has yet to show appreciable benefits. This is why poverty continues to be predominantly a rural phenomenon. The supply response has been very limited and this has led to a substantial rise in input prices. Similarly, the real food grain prices have declined in many cases. Rural markets for inputs are still very small, and have not attracted enough players to make them more competitive. Moreover, output markets are also fragmented, underdeveloped, and suffer from wide variations in price over time and space.

4- The above problems have acted, as a disincentive for the farmers to produce more than for their consumption needs. As a result, farmers have considerably reduced the use of needed production inputs such as improved seeds, fertilizers, and appropriate husbandry practices. Concerning fertilizers, they should be viewed as what they are, i.e. plant nutrients and as such, both chemical and organic fertilizers are required. Moreover, the most scientific approach to plant nutrient management, calls for the judicious use of both sources of nutrients in a balanced combination. As the majority of farmers have resorted to traditional (i.e. subsistence) low input/low output agriculture systems, the soil resource base has become progressively degraded, yields are declining and farmers are caught in a vicious spiral of poverty, resource degradation and food insecurity. Poverty in the rural areas is still further aggravated by HIV/AIDS. Unless this vicious circle is broken, the degradation of the environment will not only continue, but would be exacerbated by population pressure. To arrest the decline in productivity, the soil resource base must be

protected, and initiatives taken to restore and enhance its nutrient status in a manner that it becomes sustainable for future generations to use. There is a real concern on the part of the government about the perceived decline on the productive capacity of the soils as the result of improper land husbandry practices and soil resource degradation. The present project on *Soil Fertility Recapitalization and Agricultural Intensification* (SOFRAIP), seeks to address these problems through an integrated participatory approach that brings together all stakeholders in problem identification, prioritization of felt needs and strategies to address these constraints. Moreover, reversing the problem of soil degradation, and addressing the constraints in input and output markets would also permit farmers to increase on their productivity and generate additional income that would spill over the wider economy of the country and would be the engine of future economic growth.

5- The project addresses issues that are grouped into four major components, namely:

- i) **Soil Fertility Recapitalization**
- ii) **Agricultural Intensification**
- iii) **Inputs and Outputs Markets**
- iv) **Capacity Building**

#### **I. Soil Fertility Recapitalization**

6- The soil is the most basic agriculture resource. Plants grow and feed from the soil they grow in. If farmers do not restore the nutrients that are lost by harvest removals, leaching and erosion, the productive capacity of soils is gradually lost.

Farmers in the rural areas have identified “soil exhaustion” as one of the main reasons for declining yields. Although Tanzania is a land rich country with an estimated 43 million ha of land potentially arable, only 6–7 million ha are at present under cultivation. However, it is estimated that forests are being cleared at a rate of about 800,000 ha annually while allowable cut is only 400,000 ha. The final outcome is the loss of rich plant and animal biodiversity and resource degradation. The main reasons for the destruction of the forest resources are the need for agriculture expansion as the result of both population growth and to substitute for the crop land that has become unproductive because of nutrient depletion, the need for fuel wood for tobacco curing, charcoal making for household use, and commercial logging. The government understands that in the long run, agriculture would grow as result of both crop intensification and area expansion. But the new land to be put into agriculture use should be opened by careful planning at the district and community levels in order to minimize the destruction of habitat-rich forests and to ensure that genetic biodiversity and the resource base are maintained.

7- The project will support activities aimed at arresting soil erosion, building up organic matter in the soil, enhancing soil and water conservation, promoting better crop husbandry practices, improving the physical and biological structure of the soil, improving rooting depth and permeability, and recapitalizing the phosphorous status of P-deficient soils. In addition, rural communities will have access to technical assistance in support of collective action activities (i.e. contour terracing, afforestation) aimed at using soil and water resources

in a more sustainable manner. The districts will be the focal point for planning on targets, activities, and inputs required, while execution will be at village level. Each village and district has unique problems. Thus, the village will be the center point for strategic planning and budgeting of interventions. Significant training will be needed over a period of time to build local capacity on participatory skills or to promote attitudinal changes, especially on the extension officers that formerly were trained on approaches that assumed that “know how” is with the change agent and the clientele (i.e. the farmer) is on the receiving end. Competition from private sector service providers will be encouraged.

## **II. Agricultural Intensification**

8- While many progressive farmers in Tanzania have harvested yields of the order of six to seven tonnes of maize and paddy per ha (the most important cereals grown in the country), the average yield has been of the order of 1.5 tonnes per ha (the world average yield for maize stands at 3.7 tonnes per ha). The cause of low yields is mainly the use of inappropriate crop husbandry practices including low quality seeds, poor plant nutrition, and inappropriate crop rotation practices. Low input/low output agricultural systems lead to resource degradation. Many farmers are even unable to produce enough food grains to meet their own food demands let alone the production of surpluses for the urban dwellers. Most of the increases in food supply as a result of increases in the demand of a growing population are currently being met by bringing more land under the plough using inadequate husbandry practices, rather than by increases in productivity by unit of

land. This strategy is not sustainable and over time, increased food demand must be met by increasing land productivity through agricultural intensification. This is the only way to enhance food security, reduce poverty, and protect the rural resource base.

9- The proposed project will build on the capacities and experiences being developed by ongoing projects (TARP-2, NAEP-2, Mara Farmers Initiative, Rural Financial Services Project and others), NGOs, private sector agents, and farmers themselves. This component would provide supplemental support in two parts: i) Formulation of agro-ecological zone-specific technological recommendations and ii) adoption of technologies. Through a participatory process involving farmers, researchers, extension agents, and other stakeholders (such as NGOs staff, private sector representatives, District staff), zone-specific recommendations would be updated and disseminated to farmers. These recommendations would be based on both socio-economic and agronomic considerations. The latter would be based on the concept of integrated crop management practices and would include but not limited to: a) Appropriate land husbandry practices; b) the use of the best available crop seed varieties and management practices that ensure proper rates, dates and methods of sowing; c) integrated pest management (IPM); d) efficient soil and moisture management practices, including conservation tillage practices; e) judicious application of plant nutrients combining both organic and chemical sources; and f) improvements in post-harvest practices in order to reduce crop losses and extend the marketing season. To improve the delivery of technologies, both extension staff and farmers will undergo

extensive training in order to upgrade their capacities in participatory planning approaches, marketing and profitability analysis, and in participatory technology development and dissemination. Training will be site-specific in order to focus on felt needs as identified by the farmers. In addition, farmers groups will be empowered with financial resources to facilitate their access to markets and services. Close supervision, follow up and technical backstopping will be required in order to monitor progress, identify weaknesses and implement corrective measures when needed.

10- Tanzanian farmers have considerably reduced the use of needed production inputs such as seed of improved varieties, fertilizers and agrochemicals (at present, fertilizer consumption is of the order of 65,000 MT; well below the consumption level of 150,000 MT that was attained during 1991/92). At the present level of subsistence production systems it does not make sense to invest in good seed when the soils have very low intrinsic production potential. On the other hand, the application of moderate amounts of fertilizers be either chemical or of organic source to restore depleted plant nutrients, would not give an economic pay off unless farmers combine the restoration of plant nutrients in the soil, with the use of an improved variety that can take advantage of the new situation, and better crop management practices that combine optimum plant population and pest control.



### III. Inputs and Outputs Markets

11– The present inputs (seeds and fertilizers) supply chain is characterized by high inefficiency and inadequate competition. As a result, farm gate price for these inputs are unnecessarily high. Farmers in the villages frequently complained about the very high price of inputs (both seeds and fertilizers). Fertilizer prices can be reduced by as much as 30–40 percent by innovative mechanisms that take advantage of economies of scale in importing and efficiency gains in the supply chain. Also the use by farmers of high analysis fertilizers (such as DAP and Urea) in substitution of low analysis fertilizers (SA, CAN) would contribute to these savings. As for seeds, the project would promote several measures for the production and marketing of better quality seeds.

12– Similarly, the output markets are underdeveloped and thus not well integrated. Farmers have very limited options and in most cases are compelled to sell at harvesting when grain prices are traditionally at their lowest level. Farmers will be able to access a fair price for their produce only if they are able to safely hold on the grain until the market offers better return. Appropriate post harvest practices including grain treatments and grain silo management are essential. The project will assist with training farmers in grain preservation techniques and would link the producer with the traders. Warehouse receipts if in place would assist farmers to access some financing to cover pressing needs while the grain is in store. Stable prices of outputs will promote greater profitability of fertilizer use in crop production. Responsible private sector

participation in agricultural development is of utmost importance.

13- The project would also support activities aimed at enhancing the bargaining capacity of farmers in inputs and outputs markets through the implementation of an **Inputs Voucher Scheme**, an improved market information system (including improved regulation and quality control), and through demand-driven village and district marketing infrastructure investment subprojects, such as storage facilities, and investments for productive activities.

14- The Voucher is an instrument to enhance the purchasing power of beneficiaries (to buy agricultural inputs) and to build their savings to finance future purchases. Recipients, who in order to qualify would have to be members of an existing farmers' organization (such as a SACCO, SACA, or primary society), would contribute half the value of the voucher to purchase inputs to grow the crop of their choice in one acre, and would redeem vouchers as a group with qualified private retailers or dealers. After harvest, participants would save the full value of the voucher in order to qualify for another voucher the following year. Participants would be eligible to receive vouchers for a maximum of two consecutive years after which they would be expected to purchase the inputs from private suppliers without the assistance of the vouchers. However, they could continue participation in other project activities.

15- The project preparation team has discussed with private sector participants in Tanzania's fertilizer supply chains the state of development of that chain and the nature of

## **IV Institutional Strengthening and Capacity Building**

17- This project component will seek to strengthen the institutional and human capacity to address the challenges of rural development and provide capacity for project implementation at the local, technical coordination of regional and national levels, by bringing the public and private sector service providers. Significant resources will be devoted to need-based technical assistance and training, particularly at the local levels.

### **Sustainability**

18- Several measures are built in the project to ensure its sustainability and will guide project implementation. Among them: i) the project will be demand driven by empowering the local communities and farmers groups to make their own decisions regarding sustainable production technology and service delivery, it will not support the implementation of pre-conceived solutions designed at the top and rolled down to the village level, ii) the project will strengthen the ongoing decentralization process at the district level. The majority of the investment funds will be channeled directly to the districts and then onward to the villages and farmers groups. Districts will be encouraged to develop their own strategies and plans for addressing the constraints in the rural communities as raised by the villagers and farmers groups. iii) Effective linkages with ongoing projects sharing similar objectives will be built. This will be made operational through the

coordination of the national level Steering Committee, the zonal technical committees, the District management team and the District Council. Lastly, iv) the project will ensure that a transparent, competitive and participatory approach is used in the selection of service providers and in the provision of inputs at all levels of project implementation.

### **Project Cost**

Components	USD million
Soil Fertility Recapitalization	7.1
Agricultural Intensification	62.1*
Development of Inputs & Output Markets	10.9
Capacity Building	15.6
<b>Total</b>	<b>95.7</b>

Notes: \* Inclusive of voucher scheme

- Approx. US\$80 million of the total budget will be spent at the district level.

19- The project cost has been estimated on the phasing in of the districts, as they are included in the implementation of the project. Not all districts will be included in the initial phase. At the beginning (year 2001-2002), about 15 to 20 districts are expected to participate. Gradually, other districts will be included. The speed at which other districts will be included will depend on the success of the first districts and on the absorptive capacity of the new districts. It is imperative that the capacity for project implementation is put in place before we attempt to initiate activities in a new district. SOFRAIP will closely link with the districts in order to develop such capacity.

## **Implementation of SOFRAIP**

20- The project will have a district focus with actual implementation at the village level. The district will have the responsibility for planning on targets, activities and inputs as raised by the villages and farmers groups. At the district level there will be a core District Management Team that would be headed by the District Executive Director (DED), and would include the District Agricultural and Livestock Officer (DALDO), the District Planning Officer (DPLO), the District Treasurer, the Community Development Officer and the Cooperative Development Officer. NGOs working in the district would be invited to join in, as well as critical input service providers. The district management team would be responsible for translating the project concepts into specific activities that clearly reflects farmers' perceived needs and priorities. The team will also be responsible for providing support on technical backstopping, monitoring and follow up.

21- The Project Coordination Unit (PCU) at the central level would bear the overall responsibility to provide support for the implementation of the project. The PCU would report to a Project Steering Committee, comprising of Permanent Secretaries of the related line and Central Ministries.

22- A Technical Steering Committee, headed by the Ministry of Agriculture and Food Security and including the ministries of Cooperatives and Marketing, Livestock and Water Resources, Community Development, Women Affairs and Children, Regional and Local Government and other key stakeholders would be responsible for the technical support of the project.

Must decide on the manner and modalities of actions that would be required in order to make agriculture a sustainable undertaking. The Central Government must be vigilant in providing the required support to the lower levels of the administration and to ensure that the proper policies and their implementation are consistent with the development agenda of the country.