

**ASSURING FOOD AND NUTRITION SECURITY IN AFRICA BY 2020:  
Prioritizing Action, Strengthening Actors, and Facilitating Partnerships**  
April 1–3, 2004, Kampala, Uganda

**SUMMARY NOTE**

**Parallel Session:**     **Priorities for Action: Perspectives for West Africa**

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**Title:**                 **Prioritizing Actions: Investing in Natural Resource Capital for Improving Food and Nutrition Security in West Africa**

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West Africa consists of 16 countries. Food insecurity is endemic in all 16 countries. While arable land planted to cereals increased by 42 percent during 1980–90 (FAOSTAT), the total quantity of cereals produced increased by 25 percent. The cause of food insecurity is **insufficient total food production**. Food production cannot be increased because of nutrient-poor (infertile) soils and the inefficient use of rainwater. West African soils are formed from very old Pre-Cambrian rocks that are highly weathered. These parent materials contain only small amounts of the nutrients needed for optimum plant growth. Low organic matter contents and negligible quantities of nitrogen and phosphorus have combined with the lack of bases to make low soil fertility a major biophysical constraint to improved agricultural production in West Africa. Most crops are produced under rainfed conditions. However, rainfall throughout West Africa is erratic, variable, and poorly distributed. Low contents of soil organic matter reduce the water-holding capacities of the soils. Poor interaction between available water and nutrients leads to poor crop production. The weak technological, environmental, socio-cultural, economic, institutional and policy base has exacerbated constraints related to low soil fertility, fragile ecosystems, over-dependence on rainfall, aging rural population, underdeveloped and degraded rural infrastructure, inadequate information from research, inadequate extension services, extensive post-harvest losses, lack of access to markets and credit for both outputs and inputs. Farmers are aware that both intensification and commercialization are necessary elements of the struggle for household food security. However, intensification has meant a more intensive rate of depletion of the erstwhile low quantities of native nutrients. In densely populated areas such as the NE region of Ghana or the Kano State of Nigeria, “landless” farmers are cultivating marginal lands or invading what were once “forest reserves”. The consequence is accelerated land degradation and conservative estimates by the Food and Agriculture Organization of the UN (FAO) are that 66 percent of Africa’s land base is degraded.

In developing its Sustainable Livelihoods Approach, the UK’s Department for International Development (DFID, 2000) reminded us that farmers base their decisions concerning their household livelihoods on the balance between the physical assets they own (such as the land) and other factors that are related to the climate and/or socioeconomic and political conditions. The approach recognized the existence of five realms of capital — natural, manufactured, human, financial, and social. Natural capital (such as soil, water, biota) has both intrinsic and extrinsic values. Natural capital creates not only services that generate goods with a market value but also services that generate essential amenities for the sustenance of life such as clean air and water. In addition, improvements in natural capital result in improvements in other realms of capital.

If poor agricultural production, the result of infertile soils and poor water availability, is the main cause of food insecurity in West Africa, then I submit that the entry point for any interventions must be the improvement of the region’s natural capital, especially its soils and water.

Recognizing the importance of improving the nutrient status of the soils for increased agricultural production, the FAO, during the 1950s, demonstrated the value of mineral fertilizers in improving the fertility of soils in Sub-Saharan Africa. Since most of the mineral fertilizer used in Sub-Saharan Africa is imported, the high cost of these products has limited their use. Before the introduction of structural adjustment programs that further damaged the capacity of West African farmers to procure mineral fertilizers needed to produce food for their households, import of phosphate fertilizers alone by West African governments consumed a substantial fraction of each country's annual budget. Today, what is needed is massive investment in all forms of materials and technologies that would ultimately improve the productive capacity of the soils by replenishing the nutrient capital. Many organizations working on ways to replenish the fertility of depleted African soils have adopted one or a combination of the following technologies: (1) the use of local phosphate rocks to meet the long term and short-term phosphorus needs of the soils and crops; (2) the use of fallows consisting of leguminous plants including trees and herbs; (3) biomass transfer of leaves of nutrient-accumulating shrubs; and (4) the use of other local agro-minerals such as limestone and gypsum to enhance nutrient uptake by crops.

The use of phosphate rock for replenishing the phosphorus capital of West African soils is of particular importance in a region that is well endowed with phosphate rock deposits. Most of the phosphate rock deposits in West Africa such as those found in Benin, Burkina Faso, Mali, Niger, Senegal, and Togo are of sedimentary origin. The deposits in Mali (Tilemsi), Senegal (Matam) and Niger (Tahoua) are reactive and can readily be used for direct application. Replenishing the phosphorus capital in the West African soils is critical because more than 90 percent of the soils are deficient in this critical nutrient. In some of the soils, especially in the Sahel, the native supply of the nutrient is so low that seedlings die when the minute supply of phosphorus in the seed is used up (Bationo et al., 1986). In absolute amounts, more nitrogen is needed for West African soils than phosphorus. However, as Mughogho et al. (1986) demonstrated, profitable returns to nitrogen in the drier parts of West Africa can only be possible in the presence of adequate supplies of phosphorus. The residual effectiveness of phosphate fertilizers in general and of phosphate rock in particular is a significant property that makes the use of phosphate rock for improving the productivity of West African soils most attractive.

I, therefore, urge that one of the actions to be prioritized is the use of the abundant phosphate rock resources in West Africa to increase the phosphate and hence the overall nutrient capital of the soils. Combined with appropriate water-harvesting techniques and sound agronomic practices, the use of indigenous phosphate rock would ensure improved crop productivity, farm income and rural livelihoods in West Africa.

## References

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