



# Solving Africa's Development Puzzle from the Ground Up





Due to low farm productivity and the high costs they face to buy food off-farm, when available, millions in Africa go without adequate nutritious food every day.

Africa's soils are too poor to meet the needs of its rapidly growing population. Soil mining – the removal of nutrients by crops without replenishment – only makes the situation worse. It is estimated that Africa loses four billion dollars' worth of plant nutrients every year, thus eroding its ability to grow its own food.

As a result, Africa is the only continent where some measures of agricultural productivity have been declining. A massive investment in soil fertility is needed to reverse this devastating trend.

Fertilizers can trigger sustainable, pro-poor growth in African agriculture, thus helping the continent pull itself out of the downward spiral of poverty and hunger where it is currently trapped.



## Can organic sources of crop nutrients solve Africa's problem?

In an ideal world, all sources of nutrients are combined in an approach called integrated plant nutrient management. Farmers start with on-farm sources of nutrients such as manures, crop residues and legumes and then supplement them with fertilizers. In Africa's case, available organic materials are limited, and there is often a competing demand to use them for other purposes, such as fuel for the fire. Fertilizers can provide the missing nutrients, which will also improve the balance among the required elements and thus enhances plants' uptake of nutrients from existing organic sources. Higher yields mean that there is more organic matter\* to be introduced into the soil, thus allowing farmers to enrich their soils to increase

the chances of successful crops in subsequent years.

\* Organic matter comes from compost, manures and other decomposed materials from living beings.



Photo: USAID, K. Stéphanova



Photo: USAID, W. Creighton/DAI



## Feeding the crops that feed people

Agriculture and the spread of cities both require large quantities of land. Although the population density of Africa is relatively low, most of the good agricultural land is already being used. Ironically, cities are often built on the best lands for food production. As a result, increased agricultural production often requires higher yields on existing agricultural lands, or the conversion of fragile lands and precious wildlife habitats to cultivation.

Because many people have moved to the city and many others have been affected by diseases, Africa's agricultural work force is shrinking. This is another reason why it is important to grow more on each plot of land.

By contributing to greater soil fertility, fertilizers help farmers produce more food, feed, fibre and bioenergy per unit of land. The main nutrients that help raise yields are nitrogen (N), phosphate (P), potassium (K) and sulphur (S), although others are important. Calcium (Ca) is also critical in Africa because many of its soils are very acidic.



## Balanced, healthy diets for all



Even if people consume enough calories, human health and well-being can suffer from a lack of important vitamins and minerals. By some estimates, as many as one-half of the global population is not getting enough of at least one nutrient.

The varied foods, such as fruits and vegetables, that are an essential part of a healthy, balanced diet require significant quantities of as many as 16 different nutrients. But the crop can only

contain these elements if they are available in the soil, or from an external source like fertilizers.

Among the nutrients we require to be healthy, nitrogen has a particularly important role in the formation of protein. Phosphate and calcium contribute to strong bones. Potassium provides energy and vitality.

Crops also provide micronutrients that benefit human health. Targeted fertilization can help raise food's content of some of these trace elements in order to improve public health in a cost-effective way. IFA is currently exploring how the fertilizer industry can help reduce zinc, boron and selenium deficiencies globally.





## Fighting soil degradation

Healthy soils are fertile and retain moisture well. Many soils in Africa contain few nutrients and little organic matter. Not many plants can grow under such conditions, so these soils are exposed to erosion. As farmers remove more and more nutrients from the soil without replenishing them, this cycle can worsen, causing an extreme form of damage to the land called desertification. Once the situation has reached this point, it is hard to repair the damage, and food or other crops can only be grown at a very high cost.

By making healthy crop cover possible, fertilizers help protect fragile lands from erosion. Higher yields and more plentiful crop residues\* gradually increase the organic matter in soils, so they are

better able to retain moisture. Fertilizers are therefore an important part of the fight to stop desertification in Africa.

\* Crop residues are the parts of plants left in the field after harvest.



Photo: USAID, R. Nyberg

Photo: IFDC, S. Palwingani

# A supporting framework for fertilizer use must be in place in Africa



Photo: IFDC

Because of unpredictable factors, such as the weather, farming is a risky business. In order for farmer to be able to afford to invest in fertilizers:

- Appropriate policies are needed to make sure that the right fertilizers are available and that their quality is assured.

- Adequate transport infrastructures must be developed to reduce the farm-gate costs of fertilizers.
- Farmers need access to markets to sell their surpluses after their families and villages have enough.
- Farmers need affordable credit adapted to the rhythm of agricultural seasons, because they will only earn money after the harvest.
- Farmers need reliable sources on prices for fertilizers and other farm inputs, as well as information to judge the fairness of prices for the crops they are selling.
- Local agricultural retailers – the natural partners of farmers – also need an environment that enables their enterprises to flourish.



## **IFA's Year for Africa**

No country has ever shaken off poverty without ensuring adequate soil fertility. By dedicating 2006 to Africa, the fertilizer industry wants to rise to the challenge set by the United Nations and Africa's own leaders to fight hunger and poverty. IFA believes that, given the right tools, knowledge and opportunities, African farmers can feed their families and communities sustainably. Fertilizers are an essential piece needed to solve Africa's development puzzle from the ground up.