Nexus Economy and Alternatives

Session chair - B. Kanu. - African Development Bank - Lead Agricultural Expert

Executive Summary - The economic advance of alternative potash sources is inherited from the regional, local availability of those sources that overcome the key issue of infrastructure and logistics development for the African continent. The agricultural regions are rarely directly on the coast. Therefore, using importations from outside the continent, or from regions thousands of kilometers away, prevent any economic value for the farmers to use potassium. Therefore, the geological realities are potentially providing a great opportunity for alternative to K-salts (which to date, and according to geologists, are unlikely to be found in the adequate agricultural regions), since the K-containing silicates are more abundant and typically easier to mine. Some developments on phosphates in Tanzania have demonstrated the suitability of such alternative sources, located near the agricultural areas. In addition, there is a clear need for more information and education on the usage and benefits of K (maybe more than other nutrients), in order to generate a demand that sustains potential extraction and processing of alternative resources.

Therefore, the situation calls for:

- a survey of the possible locations of alternative K sources in regions close to agricultural needs or with adequate infrastructure to those regions

- an involvement of soil scientists and agronomist with the farmers, to provide a better information and incentive. Such an incentive is nowadays left to the private sector which does not have the best market incentive to proceed at the scale of the issue.

This session, led by an expert and experienced leader on agricultural economy in Africa, had the following questions as a framework of discussion:

1. Why is there under consumption of K in Africa?
2. Are all countries in the same situations? Are there examples of leadership on this matter?
3. What is the cost structure of K fertilizers in Africa? How much burden is due to transportation?
4. From an end-user perspective, is there a link between the purchase of N, P, and K or are those purchased separately/individually?
5. What is the seasonality of the needs? Are there any stocks? Who are the players?
Though clear detailed answers could not possibly be provided within the 90 minutes of interactions, some preliminary elements were provided by the chair and the participants, allowing to generate momentum for discussion and to draw a first set of conclusions.

Prior to digging into the questions, the speaker introduced the role of his organization and some of the specific targets and missions that are important to keep in mind when envisioning developments of alternative potash relevant to Africa.

- The mission of the African Development Bank, founded in 1964, were presented (see presentation). Its authorized capital as at December 2014 was $97 billion.
- The long-term agriculture vision of the Bank for Africa entails commercialization of Africa’s agriculture sector and transforming the sector for shared prosperity. The shared vision of the African Agricultural Transformation Agenda is based on the following goals:
  
  • Eliminating extreme poverty in Africa;
  • Ending hunger and malnutrition in Africa;
  • Turning Africa into a net food exporter; and
  • Moving Africa to the top of the global value chains.

- Increasing agricultural yields is at the heart of the Bank’s priorities for transforming African agriculture. This will be done through a comprehensive package of policy reform, increased access to farm inputs including inorganic fertilizers, supporting regional fertilizer manufacturing capacity, innovative financing, de-risking agriculture, developing agro-allied industrial zones and agricultural corridors and promoting youth employment in agriculture.

The range of opportunities for the private sector is enormous in Africa, with an agricultural market estimated to reach $1 trillion by 2050.

On the demand side (farmers), there is a general doubt from end-users about the true benefits of applying adding inorganic fertilizer. The costs are high, there is an opportunity to add ‘complements’ (e.g. manure, recycled material, etc), and, in general, extension knowledge about fertilizer use among smallholder farmers is very low. Finally, the question of timely availability/supply of fertilizer to farmers is crucial, since delivery of fertilizer is often late for the planting season.

On the supply side, infrastructures, policy and importations are the key limitations. The lack of investments in the supply chain and the unreliable network of distribution drastically reduce the efficiency of supply, both in time and cost. The cost of financing the stocks of fertilizers and the lack of availability at the port (role of importation) further worsen the very difficult situation of the supply chain in K fertilizers.

Those two elements provide an accurate summary of the situation and tangible answers to the questions asked in introduction.
Prof. Allanore highlighted that the issue of African infrastructures is an extreme case of situations found in other countries (see open presentations about Brazil), where the transportation from the port to the farmer increases by a factor 2 to 6 the final cost of potash.

Therefore, a common conclusion from the participants is that it is unlikely that a new project of KCl exploitation will allow to overcome this matter. In other words, although KCl deposits are one side of the issue, the potash solution for a time span as short as 2020-2050 will have to come close to the regions where potash and fertilizers are needed. There are examples of other countries adopting such an approach of ‘regional’ resources of fertilizer, like in China (see open presentation from Prof. Liu) or Brazil. Prof. Van Straaten emphasized that such approaches are possible and relevant for the African continent as well (see Agrogeology approach for phosphates for example, book from Van Stratten), though political obstacles are often a key issue to ‘unlock’ those resources. Dr. Msolla has reported a successful case study in Tanzania.

Prof. Van Straaten, commented about the issue of awareness and acceptance by the farmers. Extension services of information and education by soils scientists of the farmers used to be handled by government entities, but most of those efforts have collapsed in many countries. Although country dependent, the amount of budget dedicated to agriculture is on average in the low 5%, forbidding such an involvement of trained experts. It is now assumed that the private sector will handle this responsibility, and some companies have initiated such efforts (ETG, Yara, Greenbelt). The overall effort is however far from sufficient, for the obvious economic reasons reported in the beginning of the session: the market situation is hardly sufficient to promote private businesses to support such effort. In addition, this situation may be controversial since the companies embark in such developments by promoting the use of their own products derived from traditional sources, which are not necessarily optimal for specific local conditions (see Nexus Soil - Alternative Potash session).

As a recap of the session, the chair provided the following summary based on the discussions:

1. **Why is there underconsumption of K in Africa?**

   Main reason is the lack of availability of K at a price compatible with the economic reality of crop production. Second reason is the issue of farmers awareness of the K-problems and the consequences of a lack of potassium.

2. **Are all countries in the same situations? Are there examples of leadership on this matter?**

   None of the participants could identify a leading country on the matter of K that could serve as an example. Few spots of KCl projects may help the situation, though the fear is that most of the extracted K will serve for exports outside the continent. A lack of detailed and quantitative mapping of possible alternative K sources is evident for the African continent. The geological methodology is available thanks to similar efforts in Brazil and an extensive knowledge of the main geological « areas » in Africa.

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3. What is the cost structure of K fertilizers in Africa? How much burden is due to transportation?

The cost consists of the FOB from main ports of the producing countries, plus shipment, plus tariffs and disembarkment to a major African port. This in itself increases the cost by a factor 2 or so compared to the cost in producing countries. The essential burden is however the transportation and logistics internal to the African continent, which increases the cost by a factor 3 to 6 depending on the country/region within the continent.

4. From an end-user perspective, is there a link between the purchase of N, P, and K or are those purchased separately/individually?

Farmers tend to favor Potassium Sulfate (as opposed to Chloride). Subsidies are available for N, P but not K.

5. What is the seasonality of the needs? Are there any stocks? Who are the players?

The seasonality used to be linked to the dry vs rain season, but apparently, the application is now potential throughout the year. However, this remains crop and soil dependent.