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## Regional Trade in Staples for Equitable Food and Nutrition Security and Ecosystems Services in Rwanda

Implementing trade policies that mainstream gender and ecosystem management can steer sustainable agriculture production and ultimately improve food security.

### POLICY RECOMMENDATIONS

- Undertaking valuation of ecosystem services can help ensure that pricing policies are responsive to conserving and sustaining natural resources. If resources are valued, as proposed for wetlands within the Five Year Strategic Plan for the Environment and Natural Resources Sector (SPENRS)-2014-2018, and resource users pay a price that reflects the cost of resource replacement or rehabilitation of ecosystems, then ecosystems and ecosystem services can be preserved into the future, which is critical to national and regional food security.
- Formulating and implementing guidelines on environmental thresholds will support adoption of environmentally friendly technologies and ultimately sustainable utilization of natural resources used in production of traded food staples.
- Developing and implementing an incentive structure to award performance in environmental management, as enshrined in the Five Year SPENRS will encourage best practices and positive attitudes towards sustainable use and value adding investments in ecosystem-related sectors such as agriculture.
- Establishing suitability zones for production of different crops in which crop and agro-ecosystems match, as well as designing and promoting strategies to ensure production according to crop suitability will increase adoption of appropriate ecosystem management practices for sustainable land and water resources use and ultimately improve food security.

### THE CHALLENGE

Rwanda faces high levels of food insecurity and ecosystem degradation. For instance, the country's Food Security Indices for 2014, 2015, and 2016 are 29.9, 33.7 and 40.7, respectively (GFSI, 2014; 2015; & 2016), and the level of stunting among children under five years of age was 37% in 2015 (Hjelm, 2015). Besides, out of the total 165,000 hectares of wetlands in Rwanda, more than half (92,000 hectares) were reported as unsustainably used for agriculture (REMA, 2009). The country loses soil nutrients through erosion estimated at 945,200 tons of organic materials, 42,210 tons of nitrogen, 280 tons of phosphorus, and 3,055 tons of potash annually, causing environmental impacts downstream, including silting of streams and rivers (USAID, 2008). This constrains provision of land resources-based ecosystem services that are vital for a number of development sectors, and, consequently, hampers the country's economy as well as the people's livelihoods.

For instance, REMA and PEI (2006) reported an equivalent of US\$ 34,320,000 economic loss due to soil erosion, corresponding to 1.9% of the country's GDP. They also mentioned a 25% drop in agricultural production due to soil erosion resulting from the degradation of Gishwati forest. Also, ROR (2006) reported unexpected additional daily expenditure of US\$ 65,000 by ELECTROGAZ on diesel to generate supplementary power to meet the shortfall caused by reduced generating capacity of hydro-electric power stations fed by the degraded Rugezi wetlands. As a consequence, the electricity bill hiked from 48 Rwandan francs to 120 per unit of power consumption, an increase of 250% (EIU, 2006).

### THE APPROACH

A major approach to mitigate the trend of ecosystem degradation is to understand and address the gaps in the complex interrelationship existing between food trade, agriculture, ecosystem management, gender and food security; a relationship that evidently lacks coordination and holistic representation in the various policies addressing ecosystem management and food security.

Thus, Kilimo Trust together with other institutions in East Africa<sup>1</sup> led a review of how relevant policies and agricultural production systems influence regional trade as well as on how the inter-linkages between agricultural production systems, gender and the state of ecosystems influence food security in the EAC region.

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Implementing  
partners:



Kenya Agricultural & Livestock  
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Maize, beans and rice crops were used as case studies, while the national policies and strategies under trade, agriculture, environment, land and water were reviewed.

## THE EVIDENCE

### Gaps in national policies hamper sustainable management of ecosystems and gender equality

- There is no valuation of ecosystem services to guide production of food staples; and neither the environment nor trade frameworks have mechanisms of attaching ecosystem value in pricing and marketing of agricultural goods and services.
- Ecosystem-related policy frameworks do not define environmental thresholds for ecosystem resources used, and the frameworks therefore do not fully support enforcement of sustainable utilization and management of environmental resources.
- Inadequate incentives and strategies for investment in sustainable management and use of environmental resources exist, beyond the mineral fertilizers subsidy program.

### GIS databases and maps show that crop production does not match agro-ecological suitability

- Production of food staples does not necessarily match with agro-ecological suitability. For example, over 90% of the arable land in Rwanda is marginally suitable for bush beans production. Similarly, about 70% of the arable land falls under marginal suitability for maize production. However, these crops are grown in almost all parts of the country compared to climbing beans where land exhibit over 70% moderate suitability yet the crop occupies just about 35% of bean area in the country.
- Crop production under unsuitable agro-ecologies increases the need for inputs such as water and nutrients for the crops' growth, but far beyond what the environment can provide. This subsequently exacerbates degradation of ecosystem services. To the contrary, producing under suitable areas is capable of providing significant productivity increases and enhanced ecosystem services (FAO, 2011).

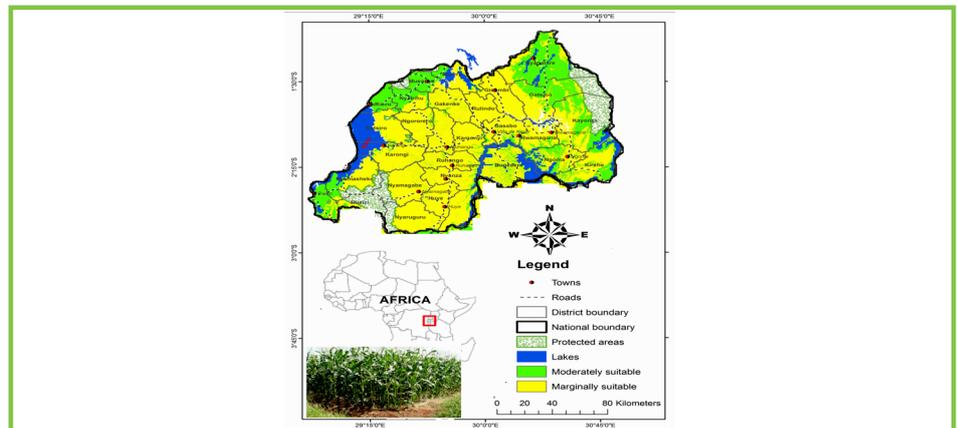


Figure 1: Rain fed maize suitability map for Rwanda



Fig 2: Terracing for sustainable agriculture production in Rwanda

## KNOWLEDGMENT:

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