Overview
Episcopal Relief & Development partners with the Province de L'Eglise Anglicane du Burundi/Province of the Anglican Church of Burundi (PEAB) to implement a comprehensive sustainable livelihoods program aimed at transforming livelihoods through support in the areas of agriculture and the environment, health, and gender-based violence. The program has a four-year strategic plan that lays out a framework for operations from 2013-2016.

Under-nutrition has been identified as the foremost concern by program staff in all regions of the country. The International Food Policy Research Institute’s (IFPRI) most recent Global Hunger Index, which ranks countries based on a combination of the proportion of undernourished in the population, the prevalence of children under-5 underweight, and the under-5 mortality rate, placed Burundi last out of the 78 countries ranked. Burundi’s GHI score has worsened overall by 15% since 1990, with the country’s increasingly high levels of undernourishment contributing to this alarming score.

While Burundi is still recovering from a widespread conflict which lasted from 1993-2005, the nation also has the second highest population density in sub-Saharan Africa, an extremely hilly topography prone to soil erosion, and the challenges of crop disease, seed supply, infrastructure and market access which exist throughout East and Southern Africa.

The PEAB Food Security and Environment program focuses on a number of linked activities:
1. Working closely with farmer groups on the adoption of a variety of practices aimed at increasing yield sustainably and profitably.
2. Sourcing new and improved seed and managing regional seed multiplication centers with the objective of trialing and distributing successful varieties to local farmers. Crops targeted include maize, beans, cassava, banana, pineapple and sunflower.
3. Restoring land by reducing erosion on hillsides through planting of trees and digging of anti-erosion trenches with stabilizing grasses along the length of slopes. This is combined with the planting of agro-forestry trees amongst crops and the use of locally produced compost on fields.
PEAB’s Provincial Development Office located in Bujumbura manages the sustainable livelihoods program and is headed by a Development Coordinator. A program manager for the health and gender activities and a monitoring & evaluation officer assist the coordinator. They also have a local coordinator for each Diocese, as well a number of animateurs (facilitators) in each diocese who work closely with program participants and report to Diocesan Coordinators.

The scale of the program is national, with a goal to reach about 100,000 households by 2016. In 2014 they are working in eight provinces, with about 22,000 people. See map of 2014 food security and environment program locations and participants.

Description of Program Activities

The objectives of the Food Security and Environment program are:

1) Increase food production by improving and diversifying agriculture in 40 locations, by 2016.

2) Conserve and manage land and environmental resources through reforestation and reduced soil erosion, in 76 locations, by 2016.

Increasing food production and diversifying agriculture

Since 2008 the program has been setting up seed multiplication centers, and currently has five in operation. These centers are used to multiply seed of targeted crops – maize, beans, cassava, banana, pineapple, and sunflower - sourced from the national agricultural research center, the Ministry of Agriculture, and certified seed sellers. Seeds or cuttings are sourced by head office staff, and distributed to the seed multiplication centers to be managed by diocesan coordinators. Participating farmer groups can then obtain improved seed in designated amounts, while at the same time assisting with the seed growing process. Farmers which receive improved seed also agree to share saved seed/cuttings which can be used again by additional farmers in the area in subsequent years. Examples of varieties sourced in recent years are listed in the table below.
<table>
<thead>
<tr>
<th>New varieties of targeted crops</th>
<th>Advantage</th>
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<tbody>
<tr>
<td>Maize: Elite, ZM621</td>
<td>Short cycle of production (3 months) High production and resistance to streak disease</td>
</tr>
<tr>
<td>Beans: Vuninkingi, Moré</td>
<td>High Production and resistance to disease caused by fungi</td>
</tr>
<tr>
<td>Cassava: MM 96/5280</td>
<td>Short cycle of production (1 year), High production, resistance to cassava severe mosaic</td>
</tr>
<tr>
<td>Banana: FIA17, FIA 23</td>
<td>High production, resist to disease (BXW: Bacteria) and contribution to stabilize hill slopes in mixed cropping systems</td>
</tr>
<tr>
<td>Pineapple: Local varieties</td>
<td>High production and flexible to different ecosystem</td>
</tr>
<tr>
<td>Sunflower: K.Fedha</td>
<td>High concentration of oil with short cycle of production</td>
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A second key objective of the seed multiplication centers is to share knowledge with farmer groups on techniques which may help them increase yields and deal with environmental and climate challenges. In areas where there is not a seed multiplication center agronomists and animateurs work with groups using a section of an individual farmer’s land. The techniques shared range from cultivation and planting methods through to crop harvesting and storage for each of the targeted crops, and are detailed in the box below.

Starting in 2014, the program will be putting a particular emphasis on the control of cassava and banana diseases which are impacting farmers, Cassava Mosaic Virus (CMV) and Banana Xanthomonas wilt (BXW). To address these diseases, they will be providing training on specific disease management techniques through participatory demonstration. They will also be using the seed multiplication centers to grow and maintain clean planting material to distribute to farmers. They will be collaborating closely with other national stakeholders who are working to control these diseases for the latest information and techniques.

**Techniques Shared through Agricultural Projects**

1) Cultivation Methods
   - Planting along ridges
   - Planting perpendicular to slope of land

2) Ferlization Techniques
   - Household production of compost using manure and grasses, and use on land.
   - Appropriate use of chemical fertilizers (urea, DAP, Kcl) where available. Use of particular amounts of each for each type of crop.

3) Sowing and Planting Techniques
   - Measured seed/cutting/tuber spacing to give plants appropriate room to grow
   - Staggered seed/cutting/tuber spacing to take advantage of rainfall and prevent erosion
4) Crop Maintenance
   - Disease and Pest control – selecting pest resistance crops, using crop rotation, monitoring and removal of infected plants, using appropriate chemicals when necessary and available
   - Weed control – hand weeding and other techniques
   - Soil management – ridging, aerating

5) Harvesting Techniques
   - Ordered timing of harvest to prevent spread of crop infection

6) Crop Storage Methods
   - Construction of appropriate structures
   - Monitoring and Maintenance

In addition to working to improve production, the program specifically attempts to assist farmers in diversifying their household production. It does this through improving access to planting material of the six targeted crops and, starting in 2014, through support for kitchen gardens for targeted women.

This aspect of the program will target women farmers (especially those who have less than 1 ha of land) through the establishment of kitchen gardens that will grow a wide variety of fruits and vegetables. The women will be able to produce a variety of small-scale crops. The species of fruit and vegetable include papayas, mangoes, citrus, avocados, passion fruits, tomato, onions, carrot, aubergin and cabbages. Women will have a choice of what to plant, though only those known to grow successfully in the area will be provided, and an emphasis will be placed on varieties with higher nutritive value.

Conserve and manage land and environmental resources

In order to support hillsides and decrease erosion, the program supports communities in an integrated soil erosion-control approach. First, large trenches are dug along hills, in order to stop soil from moving down the hill during rains. Trenches are dug along the contours of the hillsides, up to one meter deep, and are placed between 25-40 meters apart, depending on the slope of the land. The trenches will extend along the length of the hill, for as long as is needed to protect the land below. Second, double-rows of hedge grasses are planted alongside the trenches to stabilize the soil. Finally, crops are planted in between the trenches in the newly protected area, and agro-forestry trees are planted along with the grasses and amongst crops to improve soil fertility.

As of the end of 2013, program participants had established approximately 760 kilometers of trenches. Communities are actively engaged in the trench planning, digging and planting, and when combined with the activities which improve their access to quality seed and agronomic training, enthusiasm and sustainability have been very high.
In addition, to combat environment degradation and climate change, PEAB began a large-scale tree planting effort with communities. This includes forest trees to reforest hillsides, agro-forestry trees, including Calliandra calotyris, Leucoena leucoena, and Grevillea robusta, which are planted amongst crops to improve soil quality and structure, mentioned above, and fruit trees such as avocado, mango, pineapple and citrus to diversify livelihoods and improve nutrition.

The program establishes forest management committees in each community where they are doing tree-planting work. These committees are then supported to establish tree nurseries, and are trained on nursery management, tree-planting and tree management techniques. Working together, as of 2013 over 5 million trees had already been planted, and PEAB has a target to plant an additional 400,000 trees in 2014.

**Monitoring of Impact**

As part of the 2013-2015 program strategy, the following outcome indicators will be monitored to evaluate program impact.

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Outcome Indicators</th>
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| 1) Increase food production by improving and diversifying agriculture in 40 locations, by 2016. | • Yield increase from targeted crops  
• Amount of seed stored for next planting per household (grain)  
• Amount of improved seed produced by local multiplication centers  
• Percent of farmers using improved seed of targeted crops  
• Number of households using 3 of the targeted farming techniques during the third cycle  
• % increase in children’s and women’s diet diversity index scores  
• % decrease in household hunger scale |
| 2) Conserve and manage land and environmental resources through reforestation and reduced soil erosion, in 76 locations, by 2016. | • Percent increase in land available for cultivation due to recovery activities (ha protected by erosion trenches)  
• Survival rate of trees planted (#trees living/# of trees planted after 6 months) |