Primary Outcome 1. *Active yam breeding programs in four countries in West Africa (Nigeria, Cote d'Ivoire, Ghana and Benin) capable of developing and regularly releasing new varieties suited to market demand and local conditions*

It is expected that in the course of the project, Plant breeders and technicians working in the *Yam breeding programs at IITA and in national research organizations in Nigeria, Cote d'Ivoire, Ghana and Benin are strengthened to facilitate implementation of modern breeding approaches*

The focus will be on classical breeding (including pest and disease resistance and quality), development of phenotyping protocols and integration of molecular approaches into variety development. Project partners will also have the opportunity to study how the sequencing of the yam genome is impacting plant breeding in that crop.

In addition, hands-on trainings will be implemented for both breeders and technicians from partner countries on field techniques such as pollination, yam flowering, fruit and seed set production, physiological and genetic influence on flowering, environmental effects of flowering, varietal effect, treatments to increase flowering. The practical content of the training will include: preparation of tools and inputs, setting up crossing blocks, bagging and contamination, pollination: time, tools, pollen and male flower manipulation, identification and labeling, pollination data collection, pollination data management as well as vine propagation to improve the efficiency of breeding and selection.

A Yam community of practice (YCoP) has been established and is focused on accelerated breeding and distribution of farmer and market preferred yam varieties which are resistant to pests and diseases with good quality parameters. YCoP can be accessed through the AfricaYam project website at www.africayam.org .

The time frame required to complete a breeding cycle has being mainly affecting the long process to develop a new yam variety. On one hand, as the breeding cycle at international and national level have been based on phenotypic selection, the time to select a parent lasts between 9 to 11 years; on the other hand, as the national programs testing yam varieties are following the same phenotypic selection approach for varietal development, the time from creation to releasing a new variety last between 18 to 22 years for *D. alata* and *D. rotundata* respectively.

Multi-institutional responsibility between releasing and delivering new varieties' seeds to farmers is also affecting the efficiency of the scheme as the resources are always scarce. Participatory workshops with breeders and institution managers from the four participant countries will be held to create awareness about the impact in reduction of the breeding cycle when modern integrated genotypic and phenotypic technique are implemented.

A second level of awareness creation will be achieved through the policy decision-makers at national level associated to variety release and seed certification system. Systematic follow up to possible review and changes of policies will take special attention to create the environment to apply the outputs of the project and get short term changes as a guarantee of the sustainability of the project results.

In addition, linkages will be built with primary, secondary, and tertiary users of improved yam varieties to ensure prompt uptake of improved varieties.

The project will ensure that each program has adequate seed storage facilities in a location which is accessible for breeding activities. At these breeding sites, it is necessary to have facilities (e.g. irrigation, screen house, tuber treatment utensils) for establishing nurseries and early clonal trials.

To enhance sustainability, candidates will be selected from participating research organizations with preferences for those who are already within the yam program. The post-graduate training will be arranged as sandwich program in which the students will be registered in African universities but conduct most of their field research in their home countries under the guidance of University and IITA co-supervisors.