Advertisement

Junior Professional Officer

Associate Scientist Genetic Diversity for Food Security

Bioversity International *Closing date: 20 May 2012*

I General information

Title:	Associate Scientist, Understanding and Using Genetic Diversity to Increase Food Security
Sector of Assignment:	Food security
Country:	Kenya with visits to Ethiopia and Mali
Location (City):	Nairobi
Agency:	Bioversity International
Duration of Assignment:	Initially one year with the possibility to extend up to 3 years
Grade:	P1 step 1 or P2 step 1 in the first year, depending on the level of education and relevant working experience

Note : this post is opened in the context of the Junior Professional Officer (JPO) scheme sponsored by the Government of the Netherlands and is addressed exclusively to **people with the Dutch nationality.** For criteria see the website of the Dutch Ministry of Foreign Affairs: http://www.minbuza.nl/en/key-topics/development-cooperation/associate-experts-programme

II Duties, responsibilities and Output Expectations

General

The JPO will be part of the team working within the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). Her/His work will be multidisciplinary and will have a major focus on the importance of enhancing food security by promoting more sustainable yields through the use of genetic diversity with potential to adapt to conditions projected under climate change, with particular focus on the dry areas in west and east Africa. A key goal of the JPO's research will be to provide a better understanding of the interdependency and interconnection between biodiversity and food production in the context of resource poor small-scale farmers, for whom the use of adapted genetic diversity can represent an important option for enhancing food security under climate change. The JPO will explore which type of existing and new genetic resources (i.e., cultivars, genes and alleles) are better adapted to biotic and abiotic stresses in the target sites and which are the best options to enhance the access to such genetic diversity by farmers.

The expected outcomes for the JPO will be multidisciplinary, and will include enhanced understanding of the value of genetic to enhance food security; and farmers' preferences, obstacles to enhancing food production through the use of such diversity; and the factors affecting the access to such diversity. The JPO will contribute to: i) Researching, using molecular and phenotype approaches, adaptive traits present in selected target varieties and species conserved in genebanks and on farm, to different biotic and abiotic stresses; ii) Documenting local knowledge on uses and

adaptive traits of target crops and species, and informal seed systems, as well as existing seed distribution mechanisms and their interaction; and iii) Determining the relationships between agrobiodiversity and the socio-economic context to reduce food and nutrition insecurity.

1. **Conduct molecular genetic analyses that will contribute to the understanding of genetic diversity among varieties of targeted cultivated crops that are important to local people**

Summary of duties and expected output

- the genetic structure, functional diversity and adaptive potential in target crops important for food security;
- the impact of farmer choices in breeding and seed systems on the amount, distribution and dynamics of genetic diversity;
- using participatory approaches to seed and breeding systems to enhance food security through agrobiodiversity.

2. **Develop a link with Biosciences Eastern and Central Africa (BecA) and other scientists to define molecular analyses to be carried out to better understand genetic diversity to enhance food security**

Summary of duties and expected output

- A link with BecA is established and proper methodologies for the above mentioned analysis are developed, agreed and implemeted
- Link with scientists from other CG centres involved in the research on the specific crops of interest are established and proposals are jointly developed

3. **Provide support to developing methodological approaches for collecting and analyzing data to show when and where crop genetic diversity is useful for climate change adaptation**

Summary of duties and expected output

- Priority areas in a climatic gradient in East Africa are identified for sample collection;
- Key genes relevant for the expression of adaptive traits are identified using appropriate molecular tools
- Phenotypic characterization is performed in different climatic conditions.
- Molecular and phenotypic data are analysed jointly

4. **Help design and conduct a relevant survey to understand the socio-economic constraints, strength and weaknesses of existing seed systems in the target areas and propose new test ways to promote the use of diversity to enhance food security**

Summary of duties and expected output

- With key scientists, develop a survey to characterize the seed systems;
- Identify key constraints of the seed systems that prevent farmers to access the required seeds
- Identify linkages between the actors in the seed systems and the diversity farmers use
- Promote diversity by integrating it in the seed system

5. **Help design and conduct participatory research on farm to test different options for the use of genetic diversity to enhance food security**

Summary of duties and expected output

- Design field trials to better understand the potential of different varieties
- Identify key constraints that limit farmers production
- Identify and implement solutions to address the identified production constraints

III Training component: Learning elements and expectations

Upon completion of the assignment the JPO will have/ will be able to:

- Received training the very specific technical elements of his/her job including molecular techniques and statistics

- Received training to the interdisciplinary elements of the work to be carried out by the AE, including socio-economic and cultural aspects of agrobiodiversity, information management, writing, presentation and didactic skills, participatory appraisal and other field techniques, and project formulation.
- Developed the ability to work across a broad range of social spheres, cultures, environments and disciplines,
- Developed practical skills in project management, grant and report writing, and in guiding the work of local project scientists

The JPO training programme includes the following learning elements:

Year 1:

- Learn the major problems related to food security in the target countries;
- Understand the role and importance of agrobiodiversity to address these problems and the methodology to better understand agrobiodiversity;
- Acquire the practical skills required for project cycle management, including preparation of work plan, budget and reporting;
- Be exposed to networking and will interact effectively and confidently with national and international colleagues and partners in a multicultural environment;
- Gain insights in to how the international agricultural research system and organizations operate and seek to address global development problems related to natural resource use and food security.

Year 2:

- Gain an understanding of the extent of genetic diversity available in genebanks and on farm to address food security, including the diversity in key adaptive traits;
- Gain an understanding of the farmers' preferences and main seed systems in different sites and areas, and main cultural aspects regulating the availability of genetic diversity in farmers' fields.

Year 3:

- Understand the performance of different varieties/species under farmers' conditions and their potential usefulness to enhance food security;
- Gain knowledge on how to prepare documentation to share research results with a broad range of stakeholders to ensure adoption and impact of research findings in enhancing food security.

IV Supervision

Title of supervisor: Senior Scientist, Genetic Diversity

Content and methodology of supervision

The JPO will receive direct on-site supervision in Nairobi from the Senior Scientist, Genetic Diversity with significant support and direction for specific research components provided by scientists based in other Bioversity offices, mainly in Rome (Italy), Cali (Colombia) and Benin. The JPO will have a chance to interact with the scientists based in Bioversity's Nairobi offices on the management of genetic diversity, including social, nutritional and economic aspects, with scientists based in BeCa for the molecular work, and more generally with the stimulating environment offered by ICRAF campus in Nairobi. The JPO will also interact with scientists based in the national research organizations of Ethiopia, Kenya and Mali, with farmers and development workers.

The AE will participate in the comprehensive and integrated Performance Management process of Bioversity International. The process involves the setting – in agreement with supervisors - of individual objectives linked to strategic plans; the identification of specific outputs and measures; regular review of progress made towards the achievement of objectives; formal feedback sessions with identification of strengths and weaknesses; final appraisal of work objectives with behavioural indicators; and lessons learnt for the next cycle. This formal process provides the framework within

which the planning, execution and supervision of the AE's work will take place and is part of a system that encourages professional growth and valorisation of the incumbent's potential. The AE will receive a formal induction during which he/she will be given a thorough brief about the performance management process by the Human Resources Unit and will have a first chance to interact with the scientists that will be relevant for the implementation of her/his programme.

V Required Qualifications and Experience

Education:

A Masters degree in biological sciences with a fair knowledge of the following:

- Statistics and data analysis
- Population genetics
- Evolutionary biology
- Basic knowledge of GIS is desirable
- Basic knowledge in social science and community-based approaches

Working experience :

Preferably 2 to maximum 4 years relevant working experience, including voluntary work and internships

- Research experience in analysis of genetic diversity (animal, fish, agricultural crops or trees), or evolutionary biology with a good background in molecular genetics approaches.
- Practical experience with genomics molecular techniques
- Experience in statistical analytical requirements of diverse data sets is desirable.
- Working experience in developing countries with local communities is highly desirable

Languages : Proficient in written and spoken English with excellent communication skills

Key competencies

- Knowledge of open source software, preferably R and other statistical software.
- Ability to understand and to interpret data originating from different sources and from different research questions, including surveys on farmer knowledge and other social science topics, genetics, morphology.
- Ability to take initiative and work independently even under difficult circumstances with flexibility, creativity and perseverance.
- Ability to be innovative in planning and organizing research and training activities**.**
- Ability to work in multicultural, multi-disciplinary teams.
- Sensitivity to and respect for cultural and religious differences and social dynamics.

VI Background information on Agency/Department/Section

Bioversity International ("Bioversity" for short) is the world's largest organization undertaking research on agricultural biodiversity, dedicated to addressing global issues related to food security, poverty, climate change and environmental degradation. We are a nonprofit organization, active in over 100 countries worldwide, with more than 350 staff working from some 16 country offices. We are one of 15 centres of the Consortium of International Agricultural Research Centres (CGIAR).

VII Information on living conditions at Duty Station

The Associate Expert will be located at Bioversity's Sub-Saharan Africa office, located at the World Agroforestry Centre (ICRAF) Campus in Gigiri at the northern outskirts of Nairobi, Kenya, next to the UNEP HQ and the US Embassy. Nairobi, located at 1660 m altitude, with a pleasant climate throughout the year, offers a good choice of shops, restaurants, entertainment, sports facilities and more. A range of housing options are available. Furnished houses are rare but furnished service apartments are available. *General Security:* Like many other growing cities/countries in the world,

security of persons and property should not be taken for granted. Bioversity follows the regular security advice provided by ICRAF's Security Officer and provides an allowance for residential security services. Having a car will be necessary.

VIII How to apply

Please apply online through Bioversity Job Opportunities web page (http://www.bioversityinternational.org/about_us/job_opportunities.html) by clicking the "Apply" button, completing the online application and attaching the required information, no later than **20 May 2012.**

Please note that in the application you are required to provide the contact details (address, telephone number and e-mail address) of at least three referees, which Bioversity will contact for short listed applicants.

Applicants will receive acknowledgement of receipt of their submission
Only shortlisted candidates will be contacted.