

Underutilized Plant Species Research and Development Activities – Review of issues and options

**A report submitted to the to the chairs of the GFU Steering Committee
and the ICUC Scientific Advisory Board**

by

**Geoffrey Hawtin¹
31 July 2007**

Executive Summary

¹Manor Farm House, 17 Front Street, Portesham, Dorset, UK. Phone: +44 01305 871043
Email: geoffhawtin@hotmail.com

SUMMARY

More than 7,000 plant species have been used for human food. However, recent decades have seen a small number of crops come to dominate agriculture, to the exclusion of many others. Yet a large number of crops that are now overlooked have the potential to play a much more important role in sustaining livelihoods and enhancing environmental health. ICUC and GFU are both active internationally in promoting and backstopping efforts to realize the potential of such species. While both are making an extremely valuable contribution, they recognize that there are areas of overlap and opportunities for building further on their complementarities. They have thus, in an unprecedented and voluntary move, expressed the desire to integrate their efforts. This report represents an attempt to evaluate the continuing need for services such as those provided by ICUC and GFU, and to suggest an appropriate institutional profile for a successor.

The report is based on published documents and databases, interviews and a survey of key stakeholders to which 35 individuals responded. The author is very grateful to all who took the time and effort to express their views.

Designing an optimal institutional profile requires an understanding of the major opportunities for, and barriers to the increased use of underused species, as well as knowledge about the work of other key actors in the field.

Opportunities for expanding use of underused species include:

- a growing interest in agricultural, market and dietary diversification;
- the effects of globalization and the opening up of new markets;
- a growing demand for familiar but possibly 'lost', traditional foods;
- increasing opportunities for Fair Trade and e-commerce;
- a growing interest in organic and nutritionally healthy foods;
- an expanding demand for herbal medicines;
- a growing interest in agro-tourism, increasing demand for local foods;
- greater interest by donors NGOs and others in safeguarding local culture;
- new opportunities for the production of biofuels.

Barriers to capitalizing on these opportunities include:

- the erosion of traditional culture, values and practices,
- the often high level of home processing required;
- the lack of effective market research and intelligence;
- insufficient entrepreneurial expertise and product promotion skills;
- poor organization and weak links among actors along the value chain;
- lack of market access;
- inability to supply/obtain quality products when and where needed;
- a lack of access to affordable credit;
- a lack of genetic diversity, suitable varieties, and effective seed systems;

- uneconomic and/or unsustainable cultural practices;
- remoteness, seasonality and/or harshness of traditional production environments;
- high levels of loss and quality deterioration in storage;
- a lack of attention to, and investment in, developing novel products.

Underpinning the above is the lack of readily available information and awareness of their potential contribution, resulting in insufficient attention to creating a favourable policy environment and inadequate investment in R&D.

Thus, the proposed new entity should focus at least on the following:

- Creating awareness: especially to help raise the status of underused and traditional crops, and create a more favourable policy environment;
- Promoting better information about, and access to markets,
- Supporting institutions that are addressing germplasm and production issues to help facilitate their work and to help provide a marketing perspective

Many players are active in R&D of underused species: universities; international, national and state governmental institutions; NGOs; private companies and many others. Of particular importance as potential partners for the new entity are those that provide services to the underused crops community.

Perhaps foremost among these potential partners are the Centres of the CGIAR and similar international or regional research centres (e.g. AVRDC, CATIE, SPC, and ACSAD). Several CGIAR Centres have worked on underused species for many years, e.g. ICRISAT on minor millets, ICARDA on grasspea, CIP on Andean roots and tubers, ICRAF on agroforestry species, IITA on Bambara groundnut, ICARDA, ILRI and CIAT on forages and Bioversity International (previously IBPGR and IPGRI) on a wide range of different species.

The new 'System Priorities for CGIAR Research, 2005–2015' opens the way for expanding work on underused species. Priorities include:

- Promoting conservation and characterization of under-utilized PGR
- Genetic enhancement of selected high-value species
- Increasing income from fruits and vegetables
- Promoting sustainable income generation from forests and trees
- Improving science and technology policies and institutions
- Making international and domestic markets work for the poor

The CGIAR has considerably expanded its work on underused crops in recent years and in addition to work on specific species, broader services are offered such as the on-line Agroforestry Tree Database at ICRAF, the Information Centre for Tropical Fruits at CIAT and the Platform for Agrobiodiversity Research at Bioversity International. Several non-CGIAR international institutions also offer

international services, including the Global Horticultural Initiative hosted by AVRDC and the species-level information services provided by PROTA and PROSEA.

In addition to IARCS, national government sponsored R&D institutions also provide partnership opportunities. Perhaps foremost among these are agencies that provide technical assistance internationally such as CIRAD and GTZ.

A number of universities around the world provide information and other services and are important potential partners. These include the New Crops Centre, University of Purdue, USA; the Australian New Crops Information Service, University of Queensland; the Southampton Centre for Underutilised Crops, UK; the International Initiative for Non-food Crops, Imperial College, UK; and AlternativeCropsCanada.org, University of Guelph.

Many NGOs are also involved, ranging from small, local organizations (e.g. farmers' associations) to international development NGOs and scientific societies. While most tend to focus narrowly on a few crops and/or locations, others, such as ISHS, have a wide and dispersed range of activities and could be important partners for the new entity.

Private for-profit organizations range from small seed merchants and processors to multinational agro-industrial conglomerates and supermarket chains. They are an important client group and some could become key partners.

Donors do not normally implement projects, although a few are actively involved in the projects they fund, such as the McKnight Foundation (USA) and ACIAR (Australia), both of which support projects on underused species.

A number of networks/consortia are also potentially important partners including both national networks such as the All India Coordinated Research Project on Underutilized Crops, and international ones such the INBAR-led GFAR Partnership Programme on Non-timber Forest Products.

Given the large number of institutions active in R&D of underused plants, is an additional entity needed, and if so, with what objectives? With respect to the first question, the answer is a definite 'yes'. The large majority of respondents to the questionnaire recognized the importance of the new entity; valuable services would certainly be lost, and missed, if GFU and ICUC ceased to exist.

There would also appear to be broad agreement that the mission of the new entity should encompass: enhancing the role of underused crops in improving the livelihoods and wellbeing of the world's poorest people, in sustaining human cultures and in achieving a better stewardship of the environment.

Overall, the new entity would have its greatest comparative advantage at the international and regional rather than national and local levels. It should give highest consideration to the following activities:

- 1) Providing information and communication services, building upon the work of GFU and ICUC: acting as a knowledge broker, or clearinghouse at the meta-level, providing a one-stop-shop to assist stakeholders;
- 2) Pro-actively analysing and synthesising data and disseminating results;
- 3) Promoting two-way communications;
- 4) Catalysing, supporting and adding value to the research efforts of others;
- 5) Fostering the creation of, and participating in (though rarely leading) regional and international consortia and networks;
- 6) Influencing policies, especially at the international and regional levels, through policy analysis and preparation of policy briefs;
- 7) Raising awareness among donors and key policy- and decision-makers, and thereby seeking to raise financial, political and other support;
- 8) Promoting improved market access through:
 - maintaining a database, or linking to existing databases, of marketing expertise, both of individuals and institutions;
 - conducting case studies and producing guidelines on best practice;
 - promoting consortia that link producers, processors and markets;
 - promoting the concept of value chains;
 - supporting training in entrepreneurship, processing, marketing etc;
 - improving access to local and international market information
- 9) Although not a primary provider of education or training, the new entity should develop and provide access to training materials, influence curricula and provide information on education and training opportunities.
- 10) While maintaining good donor relations and undertaking effective fundraising to support its own needs are essential, the case for helping to raise funds for others is less clear and should generally be avoided.

If resources allow, the new entity might also give consideration to one or more of the following:

- 1) Undertaking analyses of secondary data and/or supervising students;
- 2) Developing and maintaining primary databases. However, this should only be taken on if there is a very clear need and a gap in existing services;
- 3) Promoting and supporting broad communities of practice. This might involve hosting web-based services such as on-line discussion fora and/or through an international newsletter;
- 4) Promoting and facilitating the development of generic concepts, models and decision tools – generally in partnership with other institutions;
- 5) Proactively facilitating the development of regional and international priorities and strategic frameworks, especially for regions not yet covered;
- 6) Providing guidelines and advice in monitoring and evaluation

There are perhaps two main options for the *modus operandi* of the new entity: an institution conducting hands-on research, or a facilitating and catalytic service based largely on information and knowledge management. It is suggested that the second option is the most appropriate, although a minor role in research, especially in synthesising and analysing secondary data, should not be excluded.

Institutional options for the new entity include establishing it as:

- a programme of another national or international institute.
- a System-wide Programme of the CGIAR
- a Challenge Programme of the CGIAR
- a consortium or platform for action
- an autonomous or semi-autonomous institution hosted either by a CGIAR Centre or other international or national institution
- a 'free-standing' international institution

Based on the analysis of these options by Jaenicke and Hoeschle-Zeledon (2006) and feedback from the questionnaire and interviews, it is recommended that it be established as a new, semi-autonomous entity, hosted by a well-functioning, technically appropriate institution. There should be a reasonable measure of independence from the host institution while at the same time being well positioned to capture programme synergies.

To help ensure the new entity achieves its own strong institutional identity, it is suggested that it be established in its own right *de novo*, and not through a formal merger of GFU and ICUC or a take-over of one by the other.

While the new entity will probably have to come under the overall fiscal, programmatic and governance arrangements of the host institute, to the extent possible the entity should be free to pursue its mission unhindered and in line with the directions set by its own oversight body. Such a body could take a number of forms, from a purely technical advisory body to an executive steering committee having both programmatic and managerial decision-making authority. A small (6-8 member) Programme and Budget Oversight Committee might be one configuration worth considering, comprising individuals acting in their own capacity together with perhaps two *ex-officio* members: the entity's CEO and a representative of the host institute.

With respect to possible host institutions, the overall advantages of an international host seem compelling in terms of ability to provide an appropriately supportive environment. The ideal host institution would be working on topics that are closely related to the interests of the new entity and it should regard such hosting as being in its own programmatic interests.

Institutions that best meet these criteria include, *inter alia*, AVRDC, Bioversity International, CIAT, FAO, ICARDA, ICRISAT, IITA and the World Agroforestry Centre. All have experience with hosting arrangements of the kind desired.

Given the likely small number of staff members, it is probably best to centralise the institution in a single location. However, consideration should be given to out-posting staff to other locations as and when opportunities and resources allow.

A developing country location has the advantage of being close to a sample of the beneficiaries and 'action', and sends a strong message of commitment to development. Local staff and office costs are generally lower, but the pool of skilled people may be smaller than in a developed country. A developed country location, on the other hand, would help ensure that all developing regions get treated equally – or at least would help to assuage fears that this might not be the case. Developed countries also, in general, tend to have better telecommunications and international travel connections. Fears that there could be less donor support if the entity were to be located in a developed country are probably largely unfounded. Whatever location is decided upon, it should ideally afford opportunities for interaction with a range of other relevant national and international institutions.

Given the above, it is suggested that the following, at least, be considered as possible hosting institutions:

- Bioversity International, either at its HQ in Rome, Italy, or possibly at one of its regional offices
- FAO in Rome
- World Agroforestry Centre (ICRAF), Nairobi, Kenya
- World Vegetable Centre (AVRDC): with the Global Horticultural Initiative's headquarters at AVRDC's regional office for Africa in Arusha, Tanzania

While it is believed that, overall, Bioversity International offers the best institutional hosting option, in large part because of the very strong programmatic affinity, others should not be ruled out. It is suggested that each leading candidate be canvassed regarding their interest in hosting, and under what terms and conditions. Once such information has been assembled, together with cost estimates of the various options, a final decision can be made.

Funding realities are likely to determine that, at least at the outset, the staff complement be small. Expertise might initially be considered in the following four areas:

- crop production (diversification strategies together with participatory research and/or value chains)
- socio-economics/policy
- marketing/product development
- information management

One of these positions would be the CEO, with an added responsibility for management and fundraising. If additional positions were possible, consideration should be given to communications/public awareness and/or post harvest technology/processing.

Of equal or greater importance to the disciplinary background of the staff is their 'people skills': their ability to communicate and network, to build partnerships and to inspire confidence and trust.

Given the proposed nature of the new entity, it is likely that it can serve a useful function for many years to come. However, it should be subject to regular 5-year external reviews with a possibility of termination if it is judged that the need for its services no longer exists or if it fails to meet clear milestones.

Concerning the name of the new entity, the terms 'underutilized' and 'neglected' are considered to have a somewhat negative connotation and are probably best avoided. A term like 'Service' might be preferable to 'Facilitation Unit' - and both would give a more accurate impression of the entity's proposed function than 'Institute' or 'Centre'. Given the advice for simplicity, 'Global New Crops Service', 'World New Crops Service' or 'New Crops Service International' might be considered, or for greater simplicity, 'New Crops Service', 'New Crops International', 'Crops of the Future' or simply 'NewCrops' or 'Novoplants'

In conclusion, there is a clear and on-going need for an international entity to help catalyse, backstop, promote and publicise work on underused crops. However, there is undoubtedly a minimum size – and critical mass of staff – below which the entity would risk failure. It is very much hoped that donor support will be forthcoming to not only guarantee such a minimum operation, but to go well beyond it, enabling the new entity to work and provide services across a much broader front. Such an entity would have much to offer and could help underpin the success of current and future efforts worldwide to capitalise on the potential of underused crops in the fight against poverty and malnutrition and to sustain the environment.