

# Approaches and Decision Steps for the Promotion and Development of Underutilized Plant Species

This leaflet aims to provide a number of key decision steps for stakeholders involved in planning and implementation of projects and other activities with regard to the promotion and development of underutilized plant species. It seeks to assist in the identification of appropriate working approaches and in establishing sound objectives, intervention areas, activities and strategic partnerships with local relevance. The decision steps presented here are the result of an International Workshop on Underutilized Plant Species, which was held in Leipzig, Germany, in May 2003.

## What are underutilized plant species?

Underutilized plant species are those with a potential, not yet fully exploited, to contribute to food security and poverty alleviation. They represent an enormous range with different attributes and potential. Whereas some of them are more important for food security, others will have a greater potential for income generation, for non-material benefits or for environmental services, such as soil fertility maintenance, biological control, etc. relevant to the poor.

## Approaches for the promotion of underutilized plant species

Recognizing the diversity of underutilized species it becomes obvious that promotion and development approaches will be equally diverse to match specific circumstances. However, they should have the following key characteristics to successfully target and benefit poor people:

- recognition of underutilized species as public goods to ensure the continued availability and accessibility of the genetic resources to present and future generations
- fair and equitable sharing of benefits derived from the use of underutilized species for sustainable agriculture and food security
- strengthening the capacity of marginalized people in negotiations with the private sector and government
- access to information for all stakeholders to ensure equal positioning in decision-making
- participatory and multi-stakeholder-oriented approaches to provide for inclusion and consideration of different interests and needs.

The consideration of such characteristics within a promotion approach will help to achieve social acceptability, cultural empowerment and self-determination. These points (though probably far from complete) provide a useful checklist to monitor and evaluate ongoing and past initiatives in order to assess the appropriateness of the approaches used and to guide future initiatives in the selection of pro-poor promotion approaches.

## Decision steps

The following decision steps should be considered in the situation analysis and for developing an appropriate strategy for the promotion and development of underutilized plant species. For each step, a selection of key questions is provided, which need to be further adapted to the specific situation.

### 1. What are the objectives of enhancing the sustainable use of underutilized species?

- Food security and health
- Income generation
- Safeguarding non-material benefits
- Conservation of biodiversity and environmental services

### 2. What are the characteristics of the underutilized species available in the local context?

- What skills and knowledge are available regarding the species (indigenous, common, specific, scientific, intermediate)?
- What is the domestication status of these species (domesticated, semi-domesticated, wild)?

- Are the species endemic, invasive, endangered or widespread?
- What are the functions of these species (spiritual, food culture, educational, social, institutional, cultural landscape)?
- Do they have an identified added value at local, national or global level?
- To what extent are they adapted to different agro-ecological zones?

### 3. What are the inherent strengths and weaknesses of the respective species for a particular objective?

- Are these species locally available and accessible?
- Are their seed/ breeding systems established?
- Does local knowledge about their management, use and post-harvesting exist?
- Are these species adapted to the local environment?
- Do the species possess multiple uses?
- Do the species have marketable traits and image?
- Do these species have a wide genetic diversity?

### 4. What are the main opportunities for and threats to their promotion with regard to the objectives?

#### (i) Food security and health

- Do these species require external inputs?
- Is there an identified market potential?
- Are their nutritional and medicinal properties known?
- Are research, education and extension services knowledgeable and in place?

#### (ii) Income generation

- Is there a market potential (niches, windows) identified and on what level?
- Is the necessary market infrastructure (i.e. information, processing, packaging, distribution channels, etc.) available and accessible?
- Is there access to credit or economic incentives?
- Is there a conducive political and legal framework for marketing in place?
- Are the technology and relevant knowledge for value adding available?
- Are mechanisms in place to avoid overexploitation?

#### (iii) Non-material benefits

- Do these species contribute to the cultural identity and empowerment of local communities?
- Who holds the knowledge about management practices and use?
- Are these species multi-purpose or are they limited to a specific purpose?

#### (iv) Biodiversity and environmental services

- Are the species likely to increase future options for responding to environmental change?
- Are these species of a known wide genetic diversity?
- Have they been subject to breeding and improvement activities?
- Is their use protected by national/international laws?
- Are the species endangered or invasive?
- Do the species provide certain environmental services and fit into diversified production systems?

### 5. What are the main intervention areas to build on the strengths and opportunities, and to overcome the weaknesses and threats?

- Access, conservation and improvement of genetic resources



- Post-harvest handling and processing
- Policy and legislation
- Awareness creation and lobbying
- Marketing
- Capacity building
- Information generation and management
- Inter-sectoral interventions

### 6. Which of the following strategic elements have to be implemented within the selected intervention areas?

#### (i) Access, conservation and improvement

- Promotion of in situ conservation and crop improvement
- Selection and evaluation of cultivars
- Improvement of seed supply systems
- Development of appropriate technologies
- Conservation of germplasm
- Targeted collection of new germplasm
- Farmer experimentation and innovation
- Support to gene banks to expand collection efforts

#### (ii) Post-harvest handling and processing

- Improved storage technologies
- Promotion of existing technologies
- Promotion of value adding
- Scaling-up of existing technologies
- Validation/improvement of processing and storage technologies
- Technical advice on product development
- Funding for primary processing facilities at rural level

#### (iii) Policy and legislation

- Establishment of international property rights legislation for underutilized plant species
- Establishment of links to existing conventions/treaties
- Establishment of community registers
- Link to food safety aspects/novel food regulation
- Establishment of policy working groups and local policy dialogue fora
- Survey of existing legal and institutional regimes and recommendations for changes to eliminate obstacles
- Positive policies promoting underutilized plant species integrated into international development policies/programs
- Regulatory framework for equitable benefit-sharing
- Ratification of International Treaty on Plant Genetic Resources (ITPGR)

- (iv) **Awareness creation and lobbying**
  - Lobbying with conservationists and potential investors
  - Integration into national development agendas
  - Conduct food security and health needs assessment
  - Increase public awareness through recipes for food preparation and promote cultural/ local products through festivals and fairs
  - Broaden the clientele (restaurants, shops, etc.)
  - Inform communities about rights and policies
  - Social mobilization through stakeholder analysis and institutional mapping
  - Develop clear extension messages in local languages for farmers
  - Optimum use of mass media (rural radio, fairs, folk songs, etc.)
- (v) **Marketing**
  - Certification of products and introduction of quality standards
  - Changes in market regime to encourage sustainable use
  - Optimize market potential through value adding at different levels
  - Promote access to credit for the development of new products
  - Promote producers associations
  - Establish information systems on markets, prices, etc.
  - Explore national and international markets
  - Changes in market regime to avoid overexploitation and to assure equitable sharing of benefits
- (vi) **Capacity building**
  - Assess institutional capacities to deal with underutilized plant species
  - Promote professional associations
  - Enhance capacities of producers (small businesses) and clients
  - Training of intermediary organizations (CBO's, NGO's, government organizations, private sector) on technical and organizational aspects
  - R&D-based NGO's network building in poor regions
  - Include underutilized plant species in training curricula of schools and universities
  - Link local and scientific knowledge
  - Local leadership capacity building
- (vii) **Information generation and management**
  - Documentation/synthesis of existing information and success stories
  - Linking with databases of the Environmental Convention/Convention on Biological Diversity, etc.
  - Identification of focal point for information sharing
  - Documentation of indigenous knowledge on nutritional and medicinal properties
  - Identification and documentation of species (community biodiversity register)
  - Knowledge generation through farmer experimentation and innovation
  - Development of information tools and decision support systems
- (viii) **Inter-sectoral interventions**
  - Mainstreaming underutilized species in other sector initiatives
  - Networking through inter-agency working groups
  - Linking to educational and cultural programs
  - Promoting vertical integration
  - Linking to UNESCO programs
  - Linking to credit facilities

## 7. Which stakeholders/actors need to be involved in the implementation of these strategic elements?

This decision step is very much dependent on the specific intervention context and needs to be elaborated for each individual situation.

### *Access, conservation and improvement*

International Agricultural Research Centers (IARCs) and National Agricultural Research Systems (NARS) are required to collect, conserve, characterize, evaluate, domesticate and improve existing germplasm as well as to develop and adapt production technologies. Providing access to information and genetic resources is crucial. At the local level, conservation and improvement is managed by the farmers together with CBOs through farmers' research and community biodiversity registries.

### *Post-harvest handling and processing*

The primary tasks of the private sector in this area are product development and the development of processing technologies. The private sector is also requested to establish production units at community level and to ensure sustainable harvesting of the species to be processed and marketed. NGO's and NARS should develop and adapt appropriate processing technologies for rural households including the improvement of storage facilities at household level to allow storage of seasonal mass production.

### *Policy and legislation*

Underutilized species should be closely linked to the CBD and the International Treaty. Key actors at the international level are the IARCs, the national focal points of the CBD and the Treaty, but also international donors and NGO's such as IUCN and WWF. A review of the existing international treaties is necessary and this should be



initiated by the CGIAR, UN organizations such as FAO and other international organizations such as the World Intellectual Property Organization (WIPO). Farmers' Unions, local development NGO's and cross-community networks should initiate and lead local policy dialogue fora with the aim of influencing the inclusion of underutilized species in national agricultural and development policies. The relevant national ministries have to ensure that national laws are revised in such a way that the intellectual property rights are guaranteed for the rural communities.

#### **Awareness creation and lobbying**

The traditional authorities, village councils and chiefs are also important in creating awareness on the intellectual property rights that people possess. National information centers and extension agencies can play a role in lobbying at national level to include underutilized plant species and their cultural values in agricultural extension programs. The private sector is important and should be responsible for creating awareness of the economic value of underutilized species among consumers and producers.

#### **Marketing**

As mentioned above, it is crucial that the role of the private sector is increased. At the national level, the private sector has to explore markets, develop marketable products and organize value-adding activities, such as organic certification and processing. The task of the NGO's is to advocate on equitable benefit-sharing along the supply chain. National governments must put in place regulatory incentives for investors in underutilized species. At the international level, governments should abolish non-tariff trade barriers that hinder products from developing countries entering their markets (e.g. EU Novel Food Regulation).

#### **Capacity building**

At the local level, the traditional authorities, village committees, spiritual leaders, innovative farmers and individual households are responsible for the education of the younger generation and the transfer of knowledge

about underutilized species to them. At the national level, it is the responsibility of the respective ministries (education, culture, community development) to include underutilized species in the curricula of schools and other education programs. A vital role should be played by NGO's in providing training to farmers and CBO's on technical, marketing and organizational aspects in participatory research and farmers' seed production. Lending institutions, UN organizations such as FAO and UNIDO, and bilateral donors should provide resources.

#### **Information generation and management**

At the international level, the IARCs should support national gene banks to expand the information collected. They should conduct surveys of indigenous knowledge to complete existing information and to fill in gaps. National governments have to undertake an assessment of existing information at national levels. Workshops at local and regional level are a good way of stimulating information exchange. The traditional authorities and the CBO's have to be more active in local information flows.

#### **Inter-sectoral interventions**

For the future promotion of underutilized plant species, it is crucial that underutilized plant species are integrated into existing international programs and initiatives. At the national level, the underutilized species have to be mainstreamed in all sectors to which they are relevant (i.e. agriculture, rural development, health, culture education). Local NGO's and development organizations should bring this issue to the attention of governments.

## **Conclusions**

Underutilized plant species need to be mainstreamed in ongoing research and development initiatives, in order to become more visible and attract more attention. In general, strategic elements for promotion should build on the existing strengths of underutilized species and target the identified opportunities. They are, therefore, context-specific and require a detailed analysis as outlined above.



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