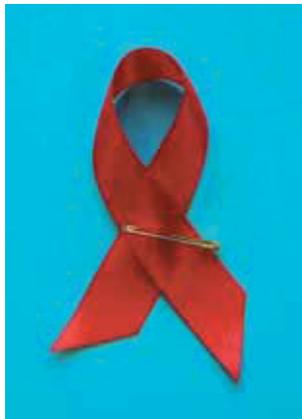


Agrobiodiversity

- an option for cushioning the consequences of HIV/Aids



Red ribbon. Photo: AVERT

HIV/Aids long ago reached the rural regions of the Third World – areas in which people’s lives are characterised by poverty and the lack of development opportunities. The disease has further exacerbated this situation.

The region most affected by HIV/Aids is sub-Saharan Africa. Two-thirds of all those infected worldwide live here. The pandemic

strikes at the vital core of these countries – at small-scale agriculture, the means of livelihood for two-thirds of the

population of sub-Saharan Africa. The work-force is dying, agricultural production is declining, knowledge is being lost, poverty and hunger among the rural population is increasing. Because of the cost, drug treatment for all who are infected is a fantasy; only 17 percent of those in sub-Saharan Africa who need antiretroviral treatment actually receive it.

The existing agrobiodiversity and the associated indigenous knowledge provide an opportunity for improving the living conditions of the rural population affected by HIV/Aids. However, both genetic diversity and indigenous knowledge are subject to creeping erosion, which is being accelerated by Aids. Only a comprehensive and integrated approach can halt this loss and make use of agrobiodiversity to cushion the consequences of Aids in rural areas.

Agrobiodiversity and possible strategies for alleviating the effects of HIV/Aids in rural areas

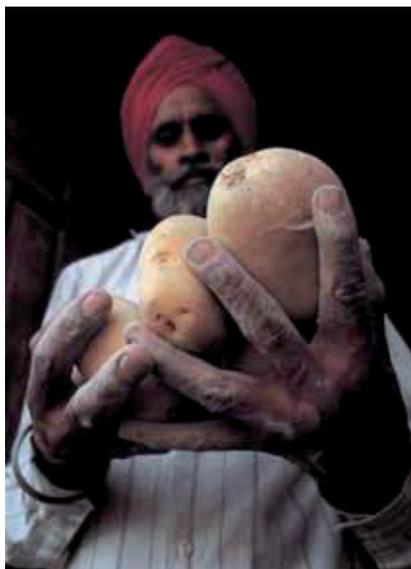
Strategic Components

Traditional, neglected and under-utilised plants
Agricultural diversification
Home gardens
Wild-growing food plants
Medicinal plants
Local seed systems
Animal husbandry and agropastoral systems

Goals

<u>Nutrition/health</u>	<ul style="list-style-type: none"> " balanced and better nutrition " optimal use of local plant and food resources " support for women and perception of their significance in agriculture, food production and nutrition " nutrition as "first aid" for AIDS sufferers " basic health care with medicinal plants
<u>Agricultural labour</u>	<ul style="list-style-type: none"> " labour-saving production methods, flexible labour input " opportunities for labour-extensive agriculture " optimisation, better distribution and use of labour
<u>Economic security</u>	<ul style="list-style-type: none"> " low input agriculture: lower costs of production, higher incomes " better and wider alternatives to generate income and market produce " sustainable agriculture: affordable fertilisers and plant protection " access to local seed, therefore independence for farmers from bought-in seed
<u>Conservation and maintenance of natural resources</u>	<ul style="list-style-type: none"> " better opportunities to cope with natural risks such as drought and plant diseases " use of marginal land possible " transfer of knowledge to children and adolescents " participatory research, farmers as "scientists" " maintenance of the basis to strengthen rural areas

(after Garí 2003)



High mortality rates among HIV sufferers lead to a loss of traditional knowledge and place an additional burden on following generations.

Photo:
Alejandro
Balaguer/ CIP

Diversity a prerequisite for healthy nutrition

Species diversity provides rural households affected by Aids with the opportunity, using the right plant mixture, to both respond to the distinctive labour situation and ensure that all members of the family receive adequate and as far as possible balanced nutrition. Traditional, neglected or little-used plants are particularly suited to this purpose. They are adapted to the soil and climate, often require less work than “new” plants and varieties and – another important point – the women know how to use them.

African rice (*Oryza glaberrima*) is one such neglected food plant. It is adapted to a great range of biogeophysical conditions, has low labour requirements and a flexible planting time and is therefore suited as a relatively ready source of food. Another plant is amaranth: it contains plenty of protein and essential micronutrients such as calcium and vitamin A and also requires minimal labour. Onions, guava and cowpeas are also a source of vitamin A; furthermore, cowpeas provide calcium, folic acid and iron. All these plants are locally available, can be grown either in the field or in the home garden and require little or no expensive input such as fertilisers or pesticides.

With a varied and carefully chosen mixture of plants small farmers can make the best possible use of their land, minimise the risks posed by drought or plant diseases and secure the nutrition of their families. A diverse agricultural system with local and traditional species and varieties also improves farmers' seed security and renders them independent of bought-in seed (*see also the issue paper: “Agrobiodiversity and emergency response” in this series*).

As far as possible, extension services should therefore foster forms of agriculture that require little input but result in high yield. Households should be encouraged to grow plants containing all the necessary nutrients; families

Chihali – diversity in the field

The Gogo are agropastoralists; their home is the Dodoma region of central Tanzania. The Aids rate here is very high – in some villages it is 25 percent. Households affected by the pandemic are particularly dependent on the traditional Chihali cultivation system. It is characterised by a great diversity of food plants and is very flexible with regard to labour input. Its unusual feature is the seed mix that the farmers sow. All the plant species are sown at the same time. The basic mixture consists of local varieties of pearl millet and sorghum, cowpeas and an additional type of bean as well as various cucurbitaceous plants. The first crops can be harvested a mere two months after sowing. The cultivation system is based on the local plant diversity and the indigenous knowledge of the farmers. The traditional plant mixture provides the family with a balanced range of nutrients and with food security even during the dry period. Studies have shown that the households affected by HIV/Aids reduce the area of land cultivated but nevertheless retain the Chihali system as the basis of their nutrition.

should keep poultry and other animals to provide a source of protein. The plants grown should have a short vegetation time as well as being affordable and easy to grow. Just as important as agricultural advice is nutritional advice, which helps to ensure that the produce of garden, field and pen is used in the best possible way. Only thus can nutrition be improved both qualitatively and quantitatively in the long term.

Good, healthy nutrition strengthens an infected person's immune system, supports the effect of Aids medication and thus enables those affected to lead a longer, more healthy and more productive life.

Medicine from nature

Wild-growing plants are even more important for traditional medicine than they are as a source of food. They can help to treat the concomitant infections to which those who are weakened by Aids are often subject. For example, various plants of the spurge genus can be used to treat herpes zoster; *Hydrocotyle manii*, an umbellifer, and *Priva cordifolia*, which belongs to the *Verbenaceae* family, are effective for diarrhoea.

Often, patients are closer to traditional healers, both geographically and culturally, than to academically trained doctors. While in Asia traditional and modern medicine complement each other to a degree, this is not yet common practice in Latin America and Africa.



Medication for Aids sufferers can decisively prolong people's lives and help keep whole families together. Photo: WHO

For example, with the support of the World Bank the governments of Zambia and Ghana are in the process of forging a link between health and the environment as part of the fight against HIV/Aids – in the form of an initiative for the conservation and sustainable use of biodiversity for medicinal purposes. The authorities are focusing on conservation, capacity building and communication. For example, training is being provided to traditional healers. The issues dealt with cover a wide range including changing behaviour with regard to HIV/Aids, the understanding of ecosystems, nutrition, toxicology, principles of virology and epidemiology, and immunology. Furthermore, traditional healers receive basic information on legal bases concerning their field of work and on human rights. The initiative is accompanied by newsletters, radio and television programmes, plays and leaflets. There is also a literacy programme, so that healers who were previously unable to read and write can register their patients and document their indigenous knowledge in writing.

Food from the wilderness

Wild-growing food plants are an important and moreover free source of food, particularly in drier areas. Members of households affected by Aids, especially children, are often dependent on blossoms, leaves, nuts, fruits, roots, fungi and on game to complement their diet. Food from the wild is often a good source of vitamins and minerals, which are essential for good nutrition and thus for health. Gathering these essential micronutrients wherever they can be found is an alternative for all those who do not have a garden. However, to avoid endangering species diversity, instruction in sustainable gathering methods needs to be provided. Gatherers must know that they must not uproot plants, as they would then not grow back – and there would then be nothing left to gather.

Of course no plant remedy can provide a cure for HIV/Aids, but with the judicious use of medicinal plants, the support of traditional medicine and a balanced diet it is nevertheless possible to treat concomitant infections and strengthen patients' immune systems.

Less knowledge, less species diversity

Indigenous knowledge plays a major role in the traditional agriculture of small farmers. Through working together children learn from their parents. HIV/Aids breaks this chain: because of the gender-specific division of labour and the associated knowledge in traditional agriculture (see also the Issue Paper "Women, men and agrobiodiversity" in this series), the surviving parent is often not in a position to pass on the missing knowledge to the children.

Aids accelerates the loss of indigenous knowledge and thus also the loss of biodiversity. This is the conclusion of numerous studies that have been carried out recently in the countries of sub-Saharan Africa.



Wild vegetables are an indispensable source of nutrients for families affected by HIV/Aids, since the time spent caring for family members makes it difficult to tend household gardens.

Photo: Guenay Ulutunçok

For example, a study of the FAO LinKS (Local Indigenous Knowledge Systems) project in the Chókwè district of southern Mozambique found that the effects of the disease on agriculture were already noticeable. These effects are felt in particular by the women. Households headed by a female cultivate significantly smaller fields than those headed by males, and they grow a smaller number of species. However, the women have more knowledge of traditional plants than the men, though this knowledge is not only gender-specific but also age-specific. While the majority of those over 45 could name at least one traditional variety of manioc, groundnut or cucurbitaceous plant, younger individuals had considerable difficulty doing so. It can be concluded from this that certain types of knowledge are only passed on to the younger generation when they have attained adulthood.

As the study also showed, households affected by the disease have only limited access to seed and the associated knowledge. According to the researchers this must be urgently changed, before the erosion of local knowledge undermines seed security and thus food security too.

Emergency sales diminish the genetic base of farm animals

Many families affected by Aids sell their livestock in order to pay for drugs or funeral costs. Often, too, the animals are slaughtered for funeral ceremonies.

Studies have shown that this disposal of farm animals can affect the genetic base of a breed – for example, if an entire village has only one breeding bull, as was frequently the case in Germany, too, even into the 1960s. The sale or slaughter of this bull has a direct effect on cattle breeding for everyone in the village. Gradual decimation of herds also has medium- and long-term effects on the farm animal genetic resources of a community or a region, since it diminishes the stock of breeding animals and thus the genetic base. Furthermore, the knowledge of the animal keepers is lost, and this too has an effect on animal stocks. For example, in pastoralist communities the death of the “specialists” has led to the loss not only of indigenous veterinary knowledge but also of the expertise needed in the event of difficult births.

As yet, however, no detailed information is available on the extent to which HIV/Aids and the resulting emergency sales of animals have already had an effect, either at local or at national level, on individual farm animal breeds.

HIV/Aids as a cross-sectoral task in development cooperation work

Because HIV/Aids is not only a health problem, development agencies such as GTZ are adopting a multi-sectoral approach. Their aim is to identify and contain both the

causes and effects of HIV/Aids. This means that in rural development interventions, the effect of the pandemic on agrobiodiversity must be acknowledged and the potential of agrobiodiversity in relation to HIV/Aids must be recognised and incorporated into relevant programmes. These programmes must in turn be linked to national HIV/Aids strategies, particularly to those designed for rural development. The most important strategies that are used in connection with HIV/Aids measures are summarised in the box on page 1.

International and national development experts have the task of raising awareness and developing and implementing appropriate measures for tackling the disease and its effects.

The removal of gender inequalities in agricultural programmes has a preventive effect in the battle against the disease and against species loss. This is the only way to ensure that women have equal access to resources and can participate in all activities. Yet this often requires the adjustment of agricultural policies and programmes.

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The Issue Paper series “People, Food and Biodiversity” aims to:

- stimulate an interest in the conservation and sustainable use of biological diversity,
- present quickly and clearly concrete actions and experiences,
- explain new concepts and issues relating to the topic of biological diversity,
- encourage and stimulate the mainstreaming of this topic within development cooperation projects and programmes.

We look forward to your suggestions and experiences so as to enable us to improve this series.

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Text: Dr. Susanne Gura
Editor: Beate Wörner
Contact: Annette von Lossau,
Dr. Marlis Lindecke
E-mail: annette.lossau-von@giz.de,
marlis.lindecke@giz.de
Homepage: <http://www.giz.de>