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CULTURAL IDENTITY AND CONSERVATION OF INDIGENOUS AND NATIVE DIVERSITY

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ABSTRACT

The economic development of rural areas has rarely followed that of urban centres, with greater evidence of this in developing countries where the outlying communities have remained considerably more remote from the systems of cultural and economic growth. Even if this has had negative repercussions in terms of social equilibrium within the various countries, from a strictly agronomic point of view it has often resulted in the natural conservation of indigenous and native biodiversity. This has been affected by the natural and daily use of local plant extracts both for nutritional purposes and for a variety of other reasons. The exchange of genetic material between one community and another, often a sign of respect and friendship, has helped to increase plant diversity and to enhance its role in the everyday diet of rural populations.
Any activity aimed at conserving biodiversity cannot disregard the fact that native plant species (and even more indigenous species) now play a vital role in the cultural identity of rural communities, and that making such communities aware of this precious asset can also play a strategic part in the idea of promoting biological diversity as a way of developing local economies. Such evidence clearly emerged through the various activities conducted in the context of the project, FAO GTF/RAF/426/ITA *Promoting Origin-linked Quality Products in Four Countries in West Africa*, financed by the Slow Food Foundation for Biodiversity Onlus. This project, conducted in 4 West African countries (Sierra Leone, Guinea Bissau, Senegal and Mali), aimed to carry out a study of these 4 states and draw up an inventory of the traditional plant and animal species, to examine the link between these and the diet of rural populations, and to assess the risks of genetic erosion by actions to safeguard the native biodiversity.

INTRODUCTION

In some developing countries with a greater incidence of native and indigenous plants and animals linked to the cultural and dietary customs of the local peoples, any approach to the study of biodiversity and the use of this in diet is bound to introduce a more complex view of the situation. Such a vision is linked to questions concerning the concept of land ownership, the right to exploit native resources, and the guarantee of access to such resources, especially if they provide a substantial part of the local people's sustenance [1]. The Convention on Biological Diversity (1992 CBD) has already defined certain specific roles for the contracting nations, ensuring that conservation of biodiversity is linked to the knowledge and practices of indigenous peoples and local communities, in particular the rural populations [2]. In this sense, also, the conservation approach is geared towards interventions which respect the traditional ways of life: important for the conservation and sustainable use of biological diversity, in the broad sense, but also more vital in promoting any sort of conservation activity with the approval and involvement of the possessors of this knowledge, and in producing a fair division of the benefits that can derive from the use of such knowledge and practices.

This approach is substantially more valid in countries where development has been obstructed by a variety of factors, and where local genetic resources, whatever their geographic origin, represent not only an important aspect of subsistence but also play a not inconsiderable role in the field of medicine and medicinal treatments. This is a matter, in this instance, of forms of traditional knowledge that the indigenous populations and the local communities guard with jealousy and respect, fearing that they are more likely to disappear through use than through possession. There have been various attempts to identify methods of protection, but their management, even prior to their implementation, has always been very difficult to apply, especially in the context of that constant play between tangible and intangible components which often come together in traditional knowledge [3].

The relationships between traditional knowledge and natural resources have been the subject of extensive study over many years, and the developments connected with the implementation of the CBD have also resulted in significantly different approaches to the management of genetic resources (or more commonly biodiversity), in relation to rights to exploit them either as food or as commercial products [4]. What emerges in a meaningful way is that the

preservation of plant biodiversity is a process which is fundamentally linked to its use by the peoples most generally in contact with it. This clearly has very significant implications for all those species, varieties, accessions, and ecotypes of general nutritional interest, and which over the course of time have come to play a consistent role in the daily diet. However, the same can also be said for all those plant resources which are of medicinal interest, and which have been employed by custom and tradition as the natural solution for everyday problems, especially in rural areas cut off from the economic development which has characterised zones of greater industrialisation, and with greater access to financial resources, over the last hundred years.

The approach offered by the project, FAO GTF/RAF/426/ITA *Promoting Origin-linked Quality Products in Four Countries in West Africa*, has taken on its own unique character in this respect. Starting from the assumption that there is a very significant risk of loss of plant diversity, especially in the area of agro-biodiversity (biodiversity connected to food and agriculture), it studied the role that many plant species (indigenous or simply native) still play in the daily lives of rural populations far from urban areas, evaluating the risk of their loss and adopting forms of sustainable promotion which directly involve the local populations.

The geographical area now recognised by the name of West Africa presents a series of specific characteristics which point to a reality unique in many respects [5]. There is clear evidence of a strong divide between the urban and rural areas, but also of significant geo-political turmoil, and this affects the development and growth of cultures that are very diverse, even if physically very close together [6].

Without entering into the merits of the various geo-political events, which nevertheless have had a significant impact, it is evident that the link between this part of the African continent and plant biodiversity is incredibly strong. There are many species which originated in West Africa [7], a surprisingly high number if one considers the relatively small size of the area when compared to the other main areas of plant origin and domestication around the world. African rice, in addition to African groundnuts, certain species of banana tree, sweet potatoes and many species of leaf and root vegetables, and so on, were all first identified in this zone [8]; and such species were subsequently diversified and selected by the local peoples in order to make them suitable for direct consumption, or for use as ingredients in traditional preparations.

In this respect, there is a body of absolutely tangible scientific evidence, not just in terms of the classic categorisations of *vegetative wild relatives* or ancestral species, but also through more accepted methods of botanical archaeology which demonstrate how many varieties belonging to species of sorghum, millet and rice do indeed date back thousands of years in terms of their presence, diffusion and use [9].Clearly, all this did not occur over the course of a few years, but is the result of an evolutionary process originating from a concentration of different climates to which such species were adaptable, and reaching us today through the excellent system of conservation of biodiversity to be found in everyday consumption.

It was the very variability of climates within this large geographical area which enabled the significant incidence of genetic diversification in these many different plant species. From the Sahel to the Atlantic Ocean, one passes through desert zones, arid zones, and fertile lands of fluvial origin, until finally reaching tropical forests. Here, there are a huge number of indigenous species which have prevailed as a result of their adaptability and their exploitation for nutritional and economic purposes. In alluding to the variations in climatic environments and agronomic and cultural factors, we are in fact referring to macro-areas which do not fall within the political borders which define the individual states [10].

The climatic areas and plant biodiversity

The *forest area* represents just a portion of the vast and varied rain forest system. The presence of a large variety of species with arboreal growth habit has led to many of these being widely cultivated. In Sierra Leone and Guinea Bissau, for example, palm oil, rubber from indigenous trees, cocoa, but also timber from various types of native tree, together with many other plant species, have played an essential role in the economic, cultural and social development of these areas.

The oil palm, for example, has always been a species of great indigenous interest for it oil and for cosmetics, obtainable by means of a rudimentary tree-tapping process. Traditional alcoholic beverages can be made from the trunk, and the leaves and fronds provide useful building materials and are primarily used for roofing houses. All these applications, therefore, account for the widespread use of this species in many West African countries. However, palm oil first became successful on an international scale with its export to Britain near the end of the 18th century, for its use first in industry and then in food production. Palm oil subsequently began to be exported to very many countries, attracting a lot of industrial concerns, and these ended by subverting the production techniques developed over many years by the indigenous populations. Not much remains of this original production, although some of the traditional palm groves have still been conserved. Here, you can still find a form of sustainable management which uses traditional cultural techniques and follows indigenous rules, both for the maintenance of the plantations and for the production of the palm oil. These areas represent just one example of what was once a form of production closely linked to the traditional cultivation of a species which was naturally and widely distributed throughout the forest zones of this large corner of the African continent. A similar story in some respects relates to the production of rubber from widely diffused native species. The peak of production follows, to some extent, the growth of the palm oil trade, at least until the end of the 19th century. However, there never existed formal plantations for the production of rubber: the local people just profited from a long period of commercial demand, collecting the product from the trees found spontaneously growing

around the forest.

Many of the areas where oil palms could be found, or trees from which to extract rubber, were heavily exploited during the period of greatest trade and remained partially deforested or at least much beaten down. It was precisely in these areas that the development of cocoa palms became possible, and there was an immediate increase in the number of these plantations. It was the introduction of cocoa, reaching West Africa in the second half of the 19th century, which significantly altered the agro-environmental landscape, with plantations growing in number and encroaching ever further into the rain forests. Amongst other, more minor species, meanwhile, there was also a culture of coffee growing, which played quite a significant role although never reaching the levels of cocoa or palm oil production. Nevertheless, apart from various scattered and not very widespread fruit trees (pineapples, bananas, mangos, etc.), it is the cola tree which represents the most important species in terms of the link between indigenous cultivation and the forest. Cola nuts, traditionally collected from the trees scattered around the forests, from Ivory Coast to Sierra Leone, still act as a strong link between local traditions and the sale of plant products. They are used generically as stimulants by the people of the savannah and those living closest to the desert areas and have always been restricted to a relatively local trade, without ever finding space on more distant markets. Due to this limited diffusion, the traditions related to the gathering and processing of cola nuts have continued up to today. This is mainly thanks to the constant activity of the women, who have helped to maintain interest in this purely indigenous product, even if only at a local level.

Finally, in the typical forest areas, can be found a small number of species more directly linked to the diet of the indigenous population: mainly types of tuber (cassava, yam, etc.), and some trees such as the plantain. What is striking above all is the capacity of the women to profit from a range of spontaneous species whose tubers or leaves offer significant nutritional characteristics (in some cases, also medicinal), and which have come to form part of the daily diet of rural communities living in villages on the fringes of the forest. These forest areas become a source of edible species which prevail over those typically related to commerce and trade, emphasising the importance of the use of spontaneous, indigenous forms of biodiversity for the purposes of daily sustenance. This is really the very best form of conservation. However, it is also clear that forest zone is of lesser importance in terms of the species used in everyday nutrition, especially compared to the savannah region, to which the forest gradually gives way.

The *savannah*, as we have noted, is not an area uniformly spread throughout West Africa. It begins as very fertile territory, especially when close to river basins, and extends towards the Sahel with a succession of pedoclimatic zones which range from the humid to the very arid. The types of indigenous species to be found in these environments vary radically, as do the systems of agriculture and different methods of cultivation. There is widespread livestock farming, while rice, in the form of a native variety related to *Oryzaglaberrima*, is grown throughout the area and represents the staple food of the local populations.

The savannah of West Africa, during the time from the 18th to the mid-19th century, contained within it a vast array of very different species, some of which played a crucial role in the rural economy of the age. One of the crops with the greatest tradition and firmest links to the rural culture of this area was therefore rice, and this region was known at the time as the "*rice-growing belt*": a zone stretching from Casamance in Senegal to as far as the Ivory Coast.

However, within the Savannah, the ever greater scarcity of water resources and the alternation between very dry and very wet seasons, has become a very important factor in the selection of species and cultures which over time have become well established and have become essential to the nutrition of the local populations, especially the rural communities. Despite the fact that the continuing industrialisation of agriculture in Sub-Saharan Africa has contributed to the ecological degradation and impoverishment of the territory, there nevertheless still exist certain characteristic species in this area from which the indigenous populations derive a large part of their income, as well as, more importantly, a large part of their nutritional needs and sustenance. Indeed, the cultivation of groundnuts has been consistently important in West Africa, with some significant specifications. Until colonial times, the cultivation of groundnuts involved native and indigenous species: the *Voandzeiasubterranea* also known as *Vignasubterranea*, and whose common name is *Bambara groundnut*, originated in West Africa, probably in northern Nigeria, where it was first established as a distinct species. It was only with the arrival of the American groundnut (with a completely different use and purpose) that the *Vigna* began to diminish in importance. However, it still remains an important, basic species, especially in rural areas with a prevalence of subsistence agriculture, and is closely linked to the preparation of traditional dishes. There is no doubt that this species, with its special nutritional and dietary characteristics, especially in terms of its content of protein and high-energy oleaginous fats, has been an essential element in the diet of indigenous people, from Senegal outwards: also because it is easy to store. There have been many ethnic groups involved in its production over the years, from the Wolof in Senegal to the Bambara in Mali, who cultivate groundnuts in their fields alongside the traditional millet or cotton. This provides these people with an important sort of agronomic and economic "flexibility", which at certain times proves vital in helping them to overcome specific hardships.

Indeed, the West African savannah is a concentrated area of production for millet, sorghum, maize and rice, which, almost exactly in this order of importance, have represented a productive system of agriculture as well as a basic nutritional system. To a lesser extent, durum wheat is also grown, but principally many and varied types of pulses. Since their growing season intersperses with that of cereals, they can be used to enrich the diet of the local people as well as helping to maintain the fertility of the soil by fixing nitrogen through their roots. It is, in any case, fascinating to observe the differentiation of species their variety according to the specific climatic conditions of the savannah. The alternating wet and dry seasons make it necessary to cultivate varieties with short growth cycles: varieties able to use the end of the dry season for germination and harvesting, and also capable of withstanding the limiting conditions

imposed by the aridity of the period which immediately follows. Where conditions have permitted small artisan systems to be established for water management and irrigation during the dry season, the cultivation of vegetables, tobacco and rice has proved to be extremely fertile and productive.

Rice has always played a fundamental role in Sub-Saharan Africa. Until the introduction of Asian rice (*Oryzasativa*), all the varieties spread through in Africa, and in the western part in particular, were descended from *Oryzaglaberrima*, a native, indigenous rice variety which provided the essential staple for the local populations. These varieties of rice were used for a multifaceted form of cultivation, from the classic paddies to rice fields on dry hillsides, and from areas with high salinity in the middle of mangrove swamps to the "floating" varieties, with their long stems and short growth cycles: proving in a definitive way the huge genetic variability of this plant and its great adaptability to environmental conditions.

Over the course of the decades, while Asiatic rice has come to dominate in peri-urban agriculture, due to its larger yield and consistency of production, the rural areas have consistently maintained their cultivation of *Oryzaglaberrima* and its different varieties managed by local farmers. Between the 1960s and 1970s, Porterés observed a considerable number of native African rice varieties, identifying just a few morphological differences between them, which were mainly related to the size and colour of the paddy. At the same time, he described their agronomic characteristics, emphasising, in particular, their high resistance to fluctuations in water level [11] [12].

In some rural villages, therefore, the native rice still plays an important role, and the few varieties that come down to us today have been maintained primarily because they are always grown together. Indeed, one very well-established tradition is that different varieties of rice with different characteristics should always be grown together in the same fields, as a way of guaranteeing production even in the event of unexpected adverse conditions which could affect any variety: a rare and also very efficient method of protecting and conserving biodiversity. This strategy is implemented largely due to the expert knowledge of the local women, who are able to distinguish the different cultivars just from the paddy, and therefore know how to create the right mixture at the time of sowing. Their choice, therefore, is based on different types of adaptation to the soil, or resistance to adverse conditions, and acts as a useful instrument which contributes to the movement of varieties from village to village. Indeed, these women exchange seed with the women of other villages so as to ensure the maximum morphological and agronomic diversity between the seed types they intend to sow [13].

The significant genetic erosion of native African rice largely took hold after the 1960s with the start of a real and prolonged period of drought, which, combined with a pronounced population increase, led to a need for rice imports. Apart from a few brief periods, average rainfall decreased by a third - and in some years even by half. It was therefore thought necessary to rely on varieties with very short growth cycles, which would not grow excessively high and would maximise yield in the shortest possible period. For this reason, Asiatic rice became increasingly widespread, while at the same time research programmes were launched by African and European institutions to try to develop consistent improvements to varieties by combining the genetic characteristics of *Oryzaglaberrima* with the high yield of *Oryzasativa*.

The role of women in the conservation of biodiversity

It is interesting to note how, in this context, the different roles of men and women are perfectly balanced: the men till the soil and sow the seeds, while the women harvest the crops, select the product, and maintain diversity by deciding what should be kept for the next sowing and in what proportions. Paradoxically, this part of the world has become one in which this sort of balance and form of relationship has assumed increasingly differentiated connotations. On the one hand, this form of equilibrium is still very much alive and rooted in the indigenous social culture of outlying rural communities: especially those remote from cities. But on the other hand, in many urban areas close to zones of expansion and colonial domination, this system of balance has profoundly changed, and women especially have lost the valuable and decision-making role which they have always traditionally played within the African family. This aspect alone helps to highlight how, and to what extent, colonialism helped to set in motion and then to consolidate a series of social and political changes, with a consequent impoverishment which has not yet been put into reverse, and with a succession of *coups d'état* and periods of political and economic volatility which have certainly not promoted social stability.

The indigenous peoples - and women in particular - have been the most significant victims. Their communities were the ones that best preserved the biodiversity: that biodiversity of which there was once an inexhaustible supply in West Africa. For all these reasons, the rural areas furthest from the cities and large centres of population have somehow managed to counteract this trend towards impoverishment. Indeed, they have assumed the role of guardians of a significant part of this native and indigenous heritage, and have become living proof of the traditional ways and knowledge: factors which have so often helped the indigenous peoples to overcome major problems in relation to sustenance, and to political and social issues.

The colonist, in fact, were never very accommodating to changes in their own customs, instead exerting heavy pressure on the local traditions by the importation of new species, new habits of consumption and new approaches to everyday nutrition and diet. Nevertheless, as in other parts of the world, and especially in developing countries, these African women remain the repositories of that essential knowledge on which the sustenance and nutrition of the whole nuclear family depends. The women know where to go in the forest, and how to collect the leaves, stems and roots of

plants. They know how to recognise them, and to cleanse them of any alkaloids or dangerous substances. They know how to mix them together to make a complete meal, or to provide the ingredients for a useful and nutritious dish. Indeed, apart from certain cultivated plants, wild herbs almost always form the basis of the most traditional African recipes.

THE PROJECT ACTIVITY

The implementation of the project, *Promoting Origin-Linked Quality Products in Four Countries*, has enabled the creation of a sizable inventory of the species, varieties and types of plants associated with the traditions of the local people; selecting as case studies 4 West African countries characterised by the great richness of their biodiversity. On the basis of knowledge of the region, and by building up a dialogue with the local people, it was possible to draw up a substantial inventory, which could be exploited by applying the special methodology developed by the Slow Food Foundation for Biodiversity. It was aimed at promoting those products related to traditional history and culture: products with a high organoleptic and nutritional value, of either native or indigenous origin, which were habitually collected by women and so handed down the generations.

Starting with these types of products, a process of investigation, assessment and selection was then carried out. This was aimed at establishing various projects to evaluate at least one product per country, and envisaged the direct involvement of small producers, local farmers, and expert women involved in the preservation of such knowledge. This could form the basis for a demonstration exercise for the rural populations, leading to the creation of small scale but very viable economic systems.

An evaluation process was established, aimed at exploring markets able to enhance the value of products originating from very particular areas, and a system was developed to promote knowledge of “local eating” in two parallel ways. This involved working firstly in the villages, to emphasise the importance of local foods, their consumption and nutritional benefits, lending added value to products once considered exclusively poor; and secondly in the large cities, where contact with local production risks becoming more and more sporadic, and loss of knowledge risks opening the door to increasing genetic erosion and loss of biodiversity.

The specific aims of the project can therefore be summarised as follows:

- to promote all initiatives aimed at the conservation of biodiversity and local traditions, by identifying those products associated with indigenous history and culture in 4 West African countries (Sierra Leone, Guinea Bissau, Senegal and Mali).
- To apply the evaluation system of the Slow Food Foundation for Biodiversity, using the criteria for various products and selecting those suitable for developing a Slow Food protection project in each of the 4 countries;
- To help develop a small-scale production organisation in relation to the local social and cultural hierarchies and structures, and to contribute at the same time to improving (where possible or necessary) the production techniques related to agronomy, health and hygiene, and also to the packaging of the final product.
- To promote and improve access to these products in local markets, within the individual countries involved, and on an international scale.
- To improve the knowledge of the local population with regard to native and indigenous products; to the importance of their consumption; to the link between their consumption and improvements in nutrition, the conservation of biodiversity and an increase in environmental sustainability, and, in short, all the befits which derive from these various interconnections.

The case studies – the 4 West African countries

It is difficult to speak exclusively of one or other of these countries without referring to the larger geographical zone (i.e. West Africa), since biological evolution is certainly not defined by political borders. Indeed, it is abundantly clear that the entire region has undergone a similar process of evolution in terms of the domestication of plants, the development of agriculture and the close relationships with local traditions in the rural areas. A study of the region reveals a strong link between dietary traditions, closely connected to a huge variety of products, including species from the vegetable plot, types of fruit, cereals, and especially pulses. Sweet peppers, tomatoes, aubergines, cucumbers, beans of every type, different forms of tuber, and species of tropical fruit-tree and palm-tree are all traditional features of the West African landscape. Many of these products are also linked to the distant past, both in terms of their cultivation in the different countries, and because of their associated use in preparing dishes of varying complexity, or in a range of processes after harvesting.

The obvious geographical isolation of the rural areas has certainly impeded economic and social development, but has also substantially helped to conserve an unparalleled cultural and agricultural heritage. One can still witness the preparation of so-called “poor” dishes; the result of the harvesting and combining of ingredients derived from wild species or traditionally cultivated plants. The skill of the village women in selecting wild plants for use in cooking is still a source of amazement today, and confirms the existence of a repository of extraordinarily valuable knowledge. This is an asset to be explored, studied and disseminated in order to help maintain a culture of local consumption: a

culture of sustainable consumption which encourages biodiversity and enhances the social fabric.

It therefore seems clear that in order to implement a process of reviving and enhancing plant and animal biodiversity – that same diversity that is ever more closely linked to local consumption in marginal areas - one must inevitably undertake a process of investigation, monitoring and cataloguing, of studying and researching the different plant species and varieties [14] [15]. It was from this perspective and with these specific objectives (as noted previously) that the present study was conducted, using certain specific activities which led to the identification of products with very strong links to their areas of origin: products of great prestige, characterised by a history firmly rooted in local traditions, and with significant connotations in regard to the nutrition and sustenance of the indigenous populations.

The methodology

The activity envisaged in the project, '*Promoting Origin-linked Quality Products in Four Countries*' (GTF/RAF/426/ITA), was divided up into a number of stages, entailing detailed bibliographical work, and a series of visits to the 4 countries involving many contacts with local personalities, farmers, small producers, shopkeepers and local officials. This method allowed the project team to identify and learn about various products of significant local interest in terms of food, including those which had been subjected to processing. According to the project plan, the evaluation of the various products had to be subject to a checking process, involving a series of criteria used by the Slow Food Foundation for Biodiversity in relation to the programme leading to the establishment of Presidiums.

In the context of this project, the process divided into four different phases:

- *Inventory*: The creation of a list of local products with related data sheets. This list was planned to be wide-ranging and thorough, and took account of information collected in situ; through interviews and meetings with small producers and inhabitants of rural villages, exchange of knowledge with people from various countries, and from institutions which carry out carry out cooperative activity and sharing of expertise at a local level. The information obtained was then put together with the evidence acquired from extensive bibliographical research, involving both the science of agronomy and sociological, archaeo-botanical and geopolitical aspects.
- *Selection:* This involved the list of criteria for creating a Slow Food Presidium. Each product identified was given an in-depth description and related data sheet, and then evaluated using the criteria established by Slow Food for accessing the Slow Food Presidium programme. This process helped to highlight the strengths and weaknesses of the product in terms of its potential for development and its contribution towards the conservation of local resources.
- *Presidium Project*: Together with all the local players involved, this entailed a process of development for those products which met the criteria for Slow Food Presidiums (http://www.slowfoodfoundation.com/presidia). This action plan began with an assessment of the potential of each individual product in terms of the safeguarding of cultural, social and natural resources, and also in relation to the economic development and involvement of consumers and of the Slow Movement network on the spot.

RESULTS

A data sheet was created for each of the local products identified, and this was used to evaluate possible successive action. In this way, an inventory was produced of about 50 traditional products from the 4 West African countries. These were products of either native or indigenous origin which have an important role to play in the agronomic, social and cultural life of these 4 countries. This list certainly does not exhaust the full potential of any of these countries, and it can be gradually expanded as the increase of the association's activities within the country leads to a spread of the Slow Food philosophy and a consequent highlighting of products of interest.

The inventory forms part of a clear strategy, whose aim is to develop a virtuous circle based on the promotion of good quality, traditional products. Each data sheet contains a large quantity of information in relation to the botanical identity of the product, with detailed facts regarding the origin and distribution of the particular species or variety. It also includes data in relation to its prevalent use and main characteristics in relation to food preparation, diffusion throughout the territory, possibilities for commercialisation, and all aspects of its nutritional value. Each product is then subjected to an evaluation process based on the selection criteria for the Slow Food Presidiums, to check whether it possesses the requirements to access the promotion stage, in line with a process already tested in many countries and every continent. This results in a selected list of products with suitable characteristics for the Slow Food programme (bottom-up type micro-interventions). This list can be included in priority series of interventions, enabling the identification of possible actions to propose to financers at the time when the Slow Food Foundation for Biodiversity is in a position to propose and set up new projects in developing countries.

The products chosen at the end of the evaluation phase are those which succeed in fulfilling all the criteria mentioned. The Somè Dogon Presidium products, which met these conditions, were not considered because they were already the subject of a Slow Food project following previous activity by the Foundation in West Africa. The **Cola of**

Sierra Leone, the **Palm oil of Guinea Bissau**, the **Salted millet couscous of Senegal** and the **Kattapasta of Mali** are, on the other hand, products which managed to fulfil all the necessary criteria of the rigorous selection process. These products, therefore, have now embarked on a process of development and promotion, calling for the full involvement of the small producers. They are products which have fulfilled all the conditions required for setting up a Slow Food Presidium, in relation to small-scale production, quality and good taste, sustainable systems of production and management, and risk of extinction for the product of production system. Each Presidium is equipped with production guidelines, drawn up by joint agreement during a moment of social interaction between the producers, who had the opportunity to present their various products at the Terra Madre 2012 international event.

CONCLUSIONS

As already noted, plant species in the rural areas have been able to maintain real diversification, somehow integrating the production of rice, maize and tubers as well as fruit and vegetable products, in addition to an increase in livestock and dairy farming. All this is partly related to farming enterprises developing next to family concerns, but without the presence of proper agro-food businesses.

In general, the agro-food market in West African countries lives in a state of constant antagonism between a timid defence of local production and small producers and a growing interest in importing products from abroad, both from other African countries and from the EU. In this way, various bodies and action groups have been established with a protectionist attitude to indigenous production, and these have been opposed and often impeded by those concerns which manage to import and distribute foreign products with considerable ease [16].

There is therefore a very conflicting situation: on the one hand, the increase in imports reduces the costs of food products, increasing their ready and constant availability, but also causing fierce competition, without any of the guarantees offered by local production. On the other hand, activities to protect and promote local products certainly cannot see any chance of success in the immediate future, but require a prolonged programme of information, research, and the sharing of experiences and skills. All of this must be directed towards reviving awareness in relation to the importance of a healthy, balanced diet, based on local products which require less energy input for their production, with a consequent increase in agronomic, social and economic sustainability.

In these social contexts, the opportunity to implement activities aimed at the conservation and promotion of biodiversity, as through the Slow Food Presidiums, seems to be of great importance not just for purposes of conservation, but also because it is by the diffusion of information about the consumption of indigenous plant products that one can more practically achieve the general aims of the rural communities [17].

The great pressure to which this biodiversity is subjected every day, quite apart from any connection to the period of European colonisation, depends heavily on an ever-growing demand for food, and the need to satisfy it within certain timescales and in sufficient quantities. Indeed, local production is not characterised by very high yields, but often (or rather, almost always) responds to the needs to resist constrictive climate conditions, and the ever-present threats of biotic or abiotic stress, while also demonstrating an unequalled nutritional capacity. A demonstration of this is the increasing activity in the field of genetic enhancement, which, independently of the methods employed or the parent strains used, has had a wide-reaching effect in quantitative terms, while also leading to an impoverishment in the nutritional potential of various foods and a growing risk of genetic erosion amongst plant species [18].

The work carried out by the project, '*Promoting Origin-Linked Quality Products in Four Countries*', was aimed at highlighting the approach of the Slow Food Foundation for Biodiversity with regard to local products and traditions, and the process of selecting and creating a Slow Food Presidium in an area as complex as the one under review in West Africa. The innovative aspect of the approach adopted by the Slow Food Foundation for Biodiversity consists in creating relationships which do not involve a one-way connection between the project developer and the beneficiary but which are instead circular systems. These are systems where everyone, by contributing to the creation of the activity, becomes one of its beneficiaries, and where even small producers become main players in enabling the success of the project. In such a context, there is no contradiction between the actions of the individual and of the community, for they both benefit from each other within a network of generally positive relationships. Indeed, sustainable production does not only benefit the individual who puts it into practice, but also the entire community who live with and consume these products. In the same way, being part of a community allows the individual producer who works, for example, in marginal areas, to overcome the restrictions imposed by physical isolation which made it hard for him to access and compete on the market. In view of these considerations, it is possible to underline certain key points in the model for the Slow Food Presidium Project, which has provided a means of integration and consolidation in both West Africa and other parts of the world:

- in varied parts of the world and with very different products, it has managed to apply the same basic operational formula, even though it had to adapt the specific action to the context involved;
- the implementation of these activities, like their support and control, is ensured by a cooperative structure on the spot, and by the presence of a community which shares the key values of the SF philosophy and which does not therefore require the presence of ex-patriot personnel on the ground;
- the Slow Food movement and the Terra Madre network promote the spread of their philosophy through the

creation of a relationship of circular exchange between the various individuals who form a part of it;
- there is continuity of the activity over time, in that the SF network allows an indefinite life and visibility for the project, with no determined end to the operation, in that it makes up an integral part of the SF system.

Using this approach, the movement has operated in West Africa, reaching the end of a process of evaluation which has allowed it to come into close contact with the rich legacy of native and indigenous plants which is still present and still used, although sometimes at grave risk of extinction due to the constant pressure of foreign products. The rural communities have managed to put up a strong defence, but now recognise the importance of projects able to give voice to their skills and knowledge, applied to the use of the biodiversity which they know how to value and recognise. Valuing and promoting this legacy through projects which put the indigenous people at centre stage and make them masters of the success of their enterprise, has also proved to be a winning formula in relation to preserving the agro-biodiversity still in existence today.

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