

## DEFINING INDICATORS FOR INVESTIGATING TRADITIONAL HOME-GARDENS IN ROMANIA

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### **Abstract**

*Home-gardens are at grounding the definition of the cultural rural universe all over the world and are paving for centuries our entire existence as human civilizations. They are directly connecting people to nature and are securing our rapid access to genetic resources for food and agriculture in a close connectivity to all them believes and achievements. The natural landscape was sculptured towards the human needs and for centuries they represent the borders between human settlements and wild biodiversity. In Romania traditional home-gardens are not recognized yet as heritage values of our ancestors even certain papers are describing home-gardens but they are not considering that traditional home-gardens can still be found or investigated. Sibiu county has unique villages with peculiar attributes related to the organization pattern of households, the use of specific genetic resources into their home-gardens including landraces, the access of wild biodiversity for food as well as the connectivity maintenance with the main events of the Christian calendar. The scope of this paper is to scientifically ground a set of indicators to be discussed in order to define traditional home-gardens models for Sibiu county. Furthermore, they may become important milestones for ensuring food security in the region also considering climate-change dramatic effects.*

**Key words:** home-gardens, landraces, food security, biodiversity conservation

### **INTRODUCTION**

In the last years, many researchers and conservationists asked themselves about the right definition of traditional home-gardens and gardening and their role in connecting the today rural communities to the demands of society [1]. How can we define a framework of basic principles to start developing appropriate indicators and how can we monitor them? In this regard we are emphasizing that certain types of home-gardens, very well described by following these principles, are already part of our cultural heritage at the global level [12]. That means the monitoring system of the chosen set of indicators was already adopted in different countries all over the world, in a broader context and closely connected to the cultural heritage, as a core subject. Generally it is accepted that home-gardens are also essential for food chain suppliers, ensuring food security and are described in scientific papers of the past 10 years for New Zealand

[40], Japan [30], Central America [7], India [8]. Conclusions remarks of the above-mentioned authors are relevant subjects of reflections and analysis also regarding the landscape management in close conjunction with specific gardening activities. The way a home-garden is integrated into the household, its proportion towards the total arable land and so on.

As a follow-up, landscape development strategies have been proposed in direct connectivity with gardening activities and cultural heritage protection.

A specific example from Indonesia exists in the island of Borneo and defined as *Kaleka* a traditional garden settled in the proximity of forests, and proofing over centuries to applying the best measures of sustainable land management [25]. The integration of cultural heritage into traditional communities' protection as well as for biodiversity conservation in this case is more than obvious. At the roots of defining these traditional landscapes resides the complex

analysis of communities' benefits on *long term* also as a tribute to society. Among these relevant are ensuring the access to food and feed resources for all year-round by taking into account new developing factors. In this regard the authors are looking to momentum life cycle when it is taken into consideration the integration of a new project [13; 17].

The theory of *resources dependence* also supported by the last authors is placing this subject at the core of any community analysis when a new project should be integrated as it was defined by Pfeffer & Salancik since 1978, some 40 years before. According to these authors the economic and non-economic environments cannot be separated to each other in any analysis as all of them are based on a balanced access to required resources. This argument is very strong if it is taken into consideration the need for ensuring food security for the future and it should be consistent with *resource-dependent communities*. Following this approach, all traditional communities can be defined as *resource dependent* [19; 33].

Taking together all above mentioned concepts and ideas the best approach, to continue development into traditional communities is the life-cycle analysis *ad integrum* when a new project is implemented that should not interfere with already existing resource dependence. Why? Because these traditional communities can be quickly disrupted by any out-side factor if it is not well understood before acting and such negative examples have been already signalled [18].

Usually, these traditional lifestyles, rich in biodiversity, may be defined also as the best settlements into which it is most suitable to integrate the best food security policies with the support of local authorities [15; 27]. Moreover, the implementation of a monitoring system may be supported based on existing political commitments taken under the provisions of the Art. 5 of the International Treaty on Plant Genetic Resources for Food and Agriculture or Plant Treaty (i.e. ITPGRFA) [4; 5].

Summarising, different theories and models regarding traditional communities' maintenance, home-gardens definitions and

traditional gardening have been proposed during more than 40 years. However, lot of them are connecting non-economic and economic environments by considering specific financial mechanisms.

A case study from Cameroon was focused on traditional agroforestry [38]. In this case, the analysis is going down to the richness of biodiversity as a platform for further analysis in the most complete manner of the management of resources. The researchers discussed the term "home garden" in close connectivity to annual field crops and traditional forests gardens. The final conclusions set the connectivity between species richness and landscape sustainable management [34]. Furthermore, challenged by current policies and climate change effects the analysis of traditional gardens brought into the frontpage food security for the future [22]. The interconnectivity between old and new, was in all cases identified. However, it is essential to grounding the development of new local strategies for food security maintenance as an asset for society. The main feature of *home gardens* is that they provide direct access to food, that being their major attribute grounding any food security strategy development for a region or a country.

How may be possible to fully ensure the direct access to PEGFRA to a country population? This concept also is not new, and it was very well underline by Brownrigg since 1985 [10]. Considering that gardens are evolved landscapes into human settlements and very deep integrated into their daily existence with a history of more than 10,000 years, may be a good start into taking into consideration more historical factors acting on the analysed communities.

Currently for European countries lot of scientific articles described different traditional gardens [6; 20; 24; 37]. For each of them resource dependence and management measures have been described. At the core of their analysis stood the principle of describing these traditional gardens as being integrated into specific traditional landscapes [32].

In case of our country the current interest in defining home-garden was the developing of circular economy that can open the door for

analysing them in specific rural areas for the first time [23].

The scope of this article is to define a *framework of indicators* to be used in the process of describing traditional home-gardens for food security in the historical region of South-East Transylvania, mainly located in Sibiu county, Romania. Even indicators connecting home-gardens to nature conservation have been defined it is relevant to underline some peculiarities of the Eastern former communist countries that should be taken into consideration as well as the richness in terms of biodiversity compared to Western European countries [9].

## MATERIALS AND METHODS

**Study area.** During the last 10 years of around 60 missions in Sibiu's county villages it was obviously that people still use local seeds such as landraces and apply traditional mixed with modern agricultural practices. All 53 main localities of Sibiu county have been surveyed, at different extents, for landraces' presence and traditional agricultural practices. 80% of these localities have also been also surveyed for genetic resources for food and agriculture such as: Alma Vii, Alțâna, Apoldu de Jos, Arpașu de Jos, Ațel, Axente Sever, Bârghiș, Biertan, Boița, Chirpăr, Cârțișoara, Cristian, Gura Râului, Hoghilag, Iacobeni, Jina, Loamneș, Ludoș, Marpod, Merghindeal, Micăsasa, Mihăileni, Moșna, Nocrich, Orlat, Păuca, Poiana Sibiului, Racovița, Rășinari, Râu Sadului, Roșia, Sadu, Slimnic, Șeica Mare, Șeica Mică, Șelimbăr, Șura Mare, Șura Mică, Tilișca, Târnava, Turnu Roșu, Valea Viilor and Vurpăr.

**Questionnaire applied** In all these cases a common questionnaire was applied that was recently published (Antofie et al., 2019). The questionnaire includes relevant information related to the landscape, geology, climate, but also to agricultural practices (i.e. from traditional to modern), applied equipment and machinery, irrigation. A relevant part of the questionnaire was oriented to the covering of the family' needs for an annual consuming. The access to the wild flora and fauna as genetic resources for food and feed were also

investigated. Another subject of relevance is the religious calendar use for planning agricultural practices and without any exception in all villages the traditional knowledge (TK) related to agricultural practices is connected with the major religious feasts of Christianity due to over 2000 year of constant coverage of this religious over pre - Christianity knowledge.

Our investigations covering the entire Sibiu county were made with the support of 86 students of the two specializations of Montanology and Environmental Protection belonging to the Faculty of Agricultural Sciences, Food Industry and Environmental Protection of the University "Lucian Blaga" of Sibiu and took place between 2010 and 2019. The main scope to involve students was to raise awareness among them regarding the presence of TK related to agricultural practices and use of landraces as the major step before starting to implement any new agricultural practices or to introduce a new crop. By applying an adaptive strategy should further be more beneficial to villages in terms of sustainable development.

## RESULTS AND DISCUSSIONS

The first reason to define traditional home-gardens is the presence of TK related to traditional plant genetic resources for food and agriculture (PGRFA) cultivation for more than 100 years in the same agro-ecosystem. The lack of official recognition in Romania of traditional home-gardens triggered us to start this study in our attempt to further support the development of reliable food security strategies for rural communities.

However, certain authors are not describing any historical backgrounds and are not citing any historical resources in this regard [16]. The scarcity in historical evidences became obvious and this should be taken into consideration. This case is similar to former communist countries and can provide an interest due to peculiarities of the countries. However, compared to the Western European countries, having no interruption into their historical democracy, Romania has a gap of 45 years of democracy disruption when

traditional home gardens were removed from countryside with small exceptions (i.e. local communities into hilly-mountain areas). What really happened? How people faced this new situation? Do they continue to cultivate home gardens? Do they change the former traditional landscape? The TK related to home gardens is diminishing gradually into the heart of rural communities up to 1989 when the arable land was again returned to the former owners without any resources considering the sequestration of all agricultural tools and equipment after 1945 [14; 26]. It was a dramatic transformation of TK among people of different generations and accessing a completely new landscape governed by the principle: *the good of the people!* The land was not anymore part of their culture and civilization but rather an exchange coin.

However, after 1989 the old generation from rural communities quickly accessed their traditional memory and reintegrated again their home gardens into the existing landscape. A former public market network disappeared, and new small markets emerged without political support for networking. During the past 30 years, most of the landowners loosed from economic point of view their capacity to continue working their arable land [39]. However, less and less of them continued to develop and disseminate the knowledge connected to crops cultivation, nature connection and religious calendars and contributed further to safeguard food security for their own communities. Seeds considered as lost before 1989 have been collected during certain missions into rural communities having home gardens [31; 35; 41].

Another group of researchers from Romania already published and considered that home gardens of the 18<sup>th</sup> century were mainly dedicated to edible and aromatic plants [36] in the historical province of Transylvania, specifically focused on a closed rural community. However, the description of species planted into the home gardens at least one century before is not yet published up to 1953 [21]. Traditional knowledge related to wildness is already described as existing in Romanian rural communities not encapsulated into the public goods after 1945 [16].

However, home gardens are not described yet for Romania even it is highly recognized that we have one of the richest countries in terms of biodiversity in Europe, namely in rural areas [11].

Home-gardens are constant parts of all investigated villages in Sibiu county. What is relevant to be define and to be discussed further in future articles.

1. *The historical topography* of home-gardens inside a household. This subject becomes relevant when the proportion of home-gardens inside the village (i.e. urban planning) is discussed against that of the outside village (non-urban planning) due to urban planning and households needs; Such an indicator was already described as 0.54% as general proportion at the country level related to all arable land [29]. In fig. no 1 is the oldest house in Moşna commune dated 1794 and which respect the ancient topography of the households: 1:10 constructed area towards green area (home-garden, orchard and vineyard).



Fig. 1. The oldest household: no. 204, Moşna Commune has one of the representative ancient home-garden of the region. The first image is the original basement's beam of the house. The second is the entrance into the home-garden, paved by ornamental species.

Source: Original photo, 18 August, 2019, Antofie MM.

2. *Genetic resources for food and agriculture* present in home-gardens. This is associated with a survey of potential local landraces and also with their proportion in use that were already investigated in our country [28]. The famous landrace at the county level Moşna cabbage was recorded in several home-gardens (Fig.2).



Fig. 2. 'Moşna cabbage' is a landrace famous for very thin, elastic, and compacted leaves and very flattened heads, excellent for pickling over the winter. It is also cultivated in home-gardens positioned outside urban area, in direct connectivity to the beach forest. It belongs to the householders at the no 254 of the commune of Moşna.

Source: Original photo, taken on 20 August 2019, Antofie MM.

3. *The integration of wild genetic resources* into the household needs. This subject is relevant for integrating biodiversity as a whole with agricultural biodiversity in order to create an appropriate balance for the preservation of wild fauna and flora [2; 3]. The direct connectivity to natural forest habitats can be seen in fig no. 3.

4. *Vulnerabilities and risks regarding traditional knowledge erosion* due to existing national policy for agriculture. Usually national policies are supporting farming systems based on large agricultural surface use. However, in this case arable land is highly fragmented and the major benefit is that due to this fragmentation the resilience [2; 3].



Fig. 3. Home-gardens in the outside urban area, in direct connectivity to the beach forest. It belongs to the householders at the no 254 of the commune of Moşna. Source: Original photo, taken on 20 August 2019, Antofie MM.

5. *Capacity building at the local level* related to the recognition of TK and PGRFA as heritage values for local communities.

## CONCLUSIONS

Traditional home-gardens still exist in Romania and they are already described in Sibiu county. The cultural value of crops cultivation are well integrated into the seminatural and natural landscapes further supporting the idea that this should be the main characteristics of our traditional home-gardens. Moreover, their continuing existence into the same agro-ecosystems and substantiation by historical evidences may further support the idea of a full analysis for these communities. The main subjects should be: a full inventory of genetic resources domesticated or wild for food and agriculture. Their connectivity to their culture or TK. The way of using urban and outside urban areas may also support the definition of the traditional home-garden and further to define different evolved garden types, slightly different compared to ancestral models. As complex a community is in integrating and preserving genetic resources for food and

agriculture they are more prepared to become relevant resilient communities for the future.

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