PERMACULTURE – AN INTELIGENT DESIGN SYSTEM

PERMACULTURA – UN SISTEM DE PROIECTARE INTELIGENT

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Abstract. *In the early seventies there appeared a new ecological design system, a system called Permaculture aiming to sustain in an intelligent way a community set in a natural environment in order to create lasting strong independent ecosystems to protect the soil, the biodiversity and nature. The name of Permaculture has been obtained by combining two words: agriculture and permanent (lasting). The present work aims at introducing this concept to the public, a concept that is to be applied to unconventional agriculture since. Permaculture can be based on a biodynamic, organic, ecological, synergic agricultural method. There will be displayed principles and ethics which constitute the foundation of Permaculture, such as: the care for the soil, the care for the people, the equal division of the excess (surplus) and the setting of limits of consumption and reproduction, as well.*
Key words: permaculture, ecological system, unconventional agriculture.

Rezumat. *Începând cu anii '70 a apărut un nou sistem ecologic de proiectare numit Permacultură, menit să susţină în mod inteligent, în toate aspectele sale, o comunitate umană într-un mediu natural, pentru a putea crea ecosisteme durabile, rezistente şi autonome pentru protecţia solului, a biodiversităţii şi a naturii. Noţiunea de Permacultură a apărut prin îmbinarea celor două cuvinte: cultură (agricolă) şi pemanent(durabil). Lucrarea de faţă îsi propune să facă cunoscut acest concept cu aplicabilitate în agricultura neconvenţională, întrucât, Permacultura poate avea la bază o metodă agricolă biodinamică, organică, ecologică, sinergică etc. Vor fi prezentate etici şi principii care stau la baza conceptului de Permacultură, cum ar fi: grija faţă de pamânt, grija faţă de oameni, împarţirea echitabilă a surplusului, precum şi stabilirea unor limite de consum şi reproducere.*
Cuvinte cheie: permacultură, sistem ecologic, agricultură neconvenţională.

INTRODUCTION

The general notion of Permaculture was issued in the Modern Era, in the 1960s. The first man to work on Permaculture was the Austriac agriculturist, Sepp Holzer. His ideas were borrowed and improved later by the Australians Bill Mollison (scientist, professor, biologist) – the author of an important work in this field:" Permaculture - a designer's manual", published in 1974 and by his student, David Holmgren who managed to enlarge and develop this concept (Hazelip, 2014; Hemenway, 2015).

In Romania, Permaculture was talked about for the first time in 2008 when there were held the first courses about the concept, courses certified by a specific Certify of Design in Permaculture. As a reference we can mention the" Ermitaj

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Malin" farm in Transilvania (where there have been courses since 2010), "The Romanian Permaculture Research Institute" (RPRI) that is a non profit organization founded in 2014 and "Baza Ulmu" in Maramures (a permacultural didactic household) where many workshops are held.

MATERIAL AND METHOD

This present work has many objectives:

1.To promote the concept of Permaculture, among young people in particular and especially among the students studying about this field at specific universities.

2.To suggest alternative ideas of designing and reorganizing the hardly accessible areas (the mountains areas or those far away from the city) and the areas struggling with poverty.

3.To promote a healthy lifestyle and mentality, providing enough food to sustain the population's needs and using unconventional agricultural systems (the biodynamic, ecological, organic and synergic agriculture)

4.To provide information to the farmers that make a transition to the ecological agriculture, in order to create sustainable communities.

The name of Permaculture has been obtained by joining two words: agriculture and permanent (lasting).

Permaculture may be defined in many ways and that is why we should be careful not to limit this concept but instead try to clarify it (Holmgren, 2014).

Permaculture is a science that unlike other sciences refers to designing "living systems" (plants, animals, humans) in a permanent motion and change, meaning a way of designing the whole system of the humans' life, which contains (Holmgren, 2014; Mollison and, Reny Mia Slay, 1991) :

- Agricultural systems of unconventional farming;
- Ecological constructions;
- Producing and saving electrical energy;
- The intake and the distribution of rain water;
- Systems of water cleaning filters;
- The relationships with other people (the Social Permaculture);
- The recycling of household waste (composting).

RESULTS AND DISCUSSIONS

Permaculture is a design system starting from small scales and moving to large scales, such as a farm, aiming at obtaining fertile soils by using specific technologies and a series of principles and ethics. These „rules" have been comprised in three ethical ones and twelve principles (Mollison, 1979; Hemenway, 2015; Ross, 2005).

The three ethical rules of Permaculture are:

1.The care for the soil (soil, natural ecosystems);

The care for the soil refers to the fact that the soil is considered a living organical structure, the main source of life on Earth and that man was handed in this treasure to take care of it. By taking care of the soil is implied the combining of old traditional techniques with new scientific research as the quality of the soil is seen as the instrument that measures the health of the future generations. The

way the soil is being taken care of is a much disputed topic as there isn't a limit to which one can interfere. One thing is sure, that irrational exploitation of the lands can lead to the desctruction of the capacity the soil possesses to regenerate (Holmgren, 2014; Holzer, 2006; Stoleru *et al.*, 2014).

2. The care for the people (There are sustainable systems created for people, systems that reject slavery);

The care for people begins with the care for ourselves then for our family, our neighbour and for the community we live in. This pattern was respected by all ethical, traditional, tribal systems and not only.The more we manage to cut down the addiction to global economy, replacing it with local or family economy we reduce the negative effect caused by current disparities. „Look after yourself!" is not an urge to greadiness or selfishness but on the contrary an invitation to self responsabilities and self sufficiency (Holmgren, 2014; Hazelip, 2014; Hemenway, 2015).

3. The equal distribution of excess (surplus), setting limits of comsumption and reproduction.

The equal distribution of the excess imposes setting some limits to be able to underline the right distribution of the surplus. The apparent contradiction between these two concepts, abundance and limits, imposes us to speak about these concepts in nature (Holmgren, 2014).

When we speak about abundance in sense of richness, we refer to the gifts that nature offers us, in relation with the human activities (Holmgren, 2014)

We speak about limits when we think that everything in nature, including ourselves, has a limited time and space. We have the tendency to waste hoping to fulfill our most pretentious needs (Holmgren, 2014; Mollison, 1979).

Redistributing the surplus of the resources implies helping people who live outside the area where we live, the equal distribution of the material excess but a redistribution of information and of our time, as well (Munteanu and Stoleru, 2012).

The principles of Permaculture are:

1. Observe and interact (a way of learning)

A good design depends on a free balanced relationship with nature and the people around, in which the careful observation and interaction provides inspiration for the project. This way we can wearingly design with a solution of reduced energy (Holmgren, 2014; Mollison and Reny Mia Slay, 1991; Stoleru, 2013).

2. Collect and store energy, use and value the reusable services and resources

We must learn to save and preserve energy on a long term so that the future generations could enjoy a decent life, too. Man is a specific consumer of energy, guiding himself by the most important yet non-renewable sources of energy on Earth (Holmgren, 2014; Munteanu and Stoleru, 2012)

3. Obtain a yield (make sure you will have crops - natural patterns, plant competition, local species etc.)

Crops or a certain profit functions as a reward that encourages, maintains and develops the system that leads to those crops. This way the successful systems are proliferated and expanded (Howard, 1984; Holmgren, 2014; Mollison, 1979).

4. Self - Regulate and accepts feedback (be open to modify dysfunctional behaviours)

This principle speaks about aspects that limit and discourage inadequate "behaviours". By understanding the best way possible how a positive or negative feedback works in nature, we can design systems that have an effective self regulation (Holmgren, 2014; Munteanu *et al.*, 2008).

5. Use and value the renewable resources and services

Sources of renewable energy: the soil, the water, the trees, the seeds etc. (Davidescu and Davidescu, 1994; Holmgren, 2014; Munteanu *et al.*, 2008; Stoleru, 2012).

6. Produce no waste

The waste resulted from an activity (process) turns into resource for another activity, recycling (Davidescu and Davidescu, 1994; Holmgren, 2014; Munteanu and Stoleru, 2012; Stoleru, 2012).

7. Design from Pattern to Detail (observe natural/ social patterns and apply them to design - the forest, the neighbourhood)

Learning how to master a pattern brings benefits with application on a wide range of phenomena, some of them complex, the others simple. It's important to understand the relevance of seemingly irregular organic patterns in nature, patterns that can be an inspiration for the human systems (Howard, 1984; Holmgren, 2014; Mollison, 1979).

8. Integrate instead of separating (capitalize on haw things together, integration in the environment)

Each natural element has several functions and each function is sustained by many elements (Hazelip, 2014; Holmgren, 2014; Munteanu and Stoleru, 2012).

9. Use Small, Slow Solutions (local resources and responses, manageable scale)

We design from small to big and from pattern to detail so that the speed of each living organism (plants, animals), in various sectors, should be reduced to the minimum. When not constrained by different factors, plants with slow growing – with longer life- have a higher value (Howard, 1984; Ross, 2005).

Perennial plants, with slow growing, offer many benefits in designing sustainable ecosystems (Toncea *et al*., 2014).

10. Use and value diversity (diversity leads to greater resilience)

The problem of biodiversity is a topic highly discussed by various scientist, leading to a public acknowledgement of the loss, at a fast pace of the biodiversity, caused mainly by the humans. A fundamental redesigning is approached in order to find strategies of biodiversity conservation so that it could become a valuable and functional part of the world we live in (Fortier, 2018; Hazelip, 2014; Hemenway, 2015; Holmgren, 2014; Stoleru *at al.*, 2014).

11. Use and value "the marginal", (important things happen at the intersections - the border, the end, the shore)

The coming together of two bioregions where species of plants and animals from both territories live together, is called „an marginal", edges or an ecotone. It was noticed that the biodiversity in the ecotone is much larger than the one in the other two neighbouring regions (Holmgren, 2014; Toncea *et al*., 2014).

12. Creatively use and respond to change (use them constructively, flexibility and intervene in effective ways)

We must understand change, using it deliberately and creatively. We should have the capacity to design, interfering beyond what is under our control, reacting and adapting to change (Fortier, 2018; Holmgren, 2014; Munteanu and Stoleru, 2012).

In Permaculture we can speak about organizing in various zones (zoning), as follows below (Holmgren, 2014):

Zone no. 1 is the center of the other zones, being the closest to the main activities (the home, the farm);

Zone no. 2 is larger, being the next zone with fewer elements (vegetables, an orchard etc.);

Zone no. 3 consists of larger systems of the farm (the household), the pastures, the lakes, large fields;

Zone no. 4 is a forest zone (wood, mushrooms, plants of spontaneous flora, hives etc.);

Zone no. 5 is considered an observation zone. (the environment, the natural system).

CONCLUSIONS

1. Permaculture tries to create conditions for all forms of life so that the biological cycles could keep a balance and the living organisms could keep on living and reproducing. This system aims that all people should have the necessary resources to live in a satisfying way (to get food, have a home, get an education, a job, social interaction etc.).

2. Permaculture is not only a system of ecological design or just a horticulturist's skill to care for a garden and nor does it refer to building energetically effective ecological buildings, only.

3. Permaculture is the ability of designing, of making possible the management and the improvement of all things mentioned above, to which the individual effort and that of the family (the community) is added, in order to create a sustainable future.

4. In conclusion, Permaculture is the solution of a sustainable future that can build an adequate agricultural system, protecting the environment with a biodynamic, organic, ecological, synergic agricultural method as its own basis.

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