



Young people's ability to create their own future

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Abstract

The future of young people is connected with sustainability challenges, which is why their future plans are directly depended upon global processes. The article presents climate change as a challenge for young people in the sense of them creating green jobs and lifestyle. We obtain the data and the information on workshops for young people on the Educational Polygon for Self-sufficiency Dole. The results show that young people want to include responsible eating habits and living into their future and that they want to have a fulfilling job.

Key words: climate changes, nature, green job, self-sufficiency, Polygon Dole.

1.0 Introduction

Climate change puts an enormous pressure on undeveloped regions: directly, through changes in weather patterns, habitability, and agricultural structure, as well as indirectly by causing mass migration to the region from North and Central Africa and the Middle East. Historically, the region has a wealth of data on the rise and fall of nations, which feeds into the envisioned model building and its verification with historical data. It has been argued that climate change had a strong impact on the development of nations during the past millennia, which motivates the study of these effects in the 21st century.

Considering planetary boundaries loss of biodiversity (IPBES, 2018; MEA, 2005), land system change (D'Odorico & Ravi, 2016), biochemical flows, and climate change (IPCC, 2014) are at increasing and high risk. Moreover, malnutrition at the same time as the excessive weight responsible for obesity (FAO et al, 2018) are recognised. In addition, unequal access to land and other natural resources (UN-Women & OHCHR, 2012), the prevailing poverty among peasants (Rapsomanikis, 2015) and the concentration of richness and power by large food multinationals is clear (Constance, 2016). Current global food systems contribute to these impacts (Hallmann et al., 2017; Sánchez-Bayo & Wyckhuys, 2019) and bring about the urgent need to reshape food systems in a sustainable way (Allen & Prospero, 2016), including bringing food back into its socio-cultural and physical territorial context, i.e., localizing it (Wiskerke, 2009).

It is increasingly recognized that only industrial production and processing of food and the globalized approaches are not the ways to provide healthy food and water as well as the required standard for all people. Therefore, the necessary initiatives at the local level were established to promote sustainable modes of food production and life, to create new jobs and many services and activities at the local level. For young people, climate change is an opportunity to create green jobs and be actively involved in caring for the Earth. For the development of green jobs, it is necessary to take into account the various dimensions of sustainability, which are briefly described in Chapter 2.

2.0 Dimensions of sustainability

Green jobs that are the future of young people are based on four starting points or dimensions (Figure 1):

- the ecosystemic dimension
- the dimension of integrity
- the dimension of prosperity and
- the dimension of self-sufficient supply and active public involvement

Defining sustainability dimensions

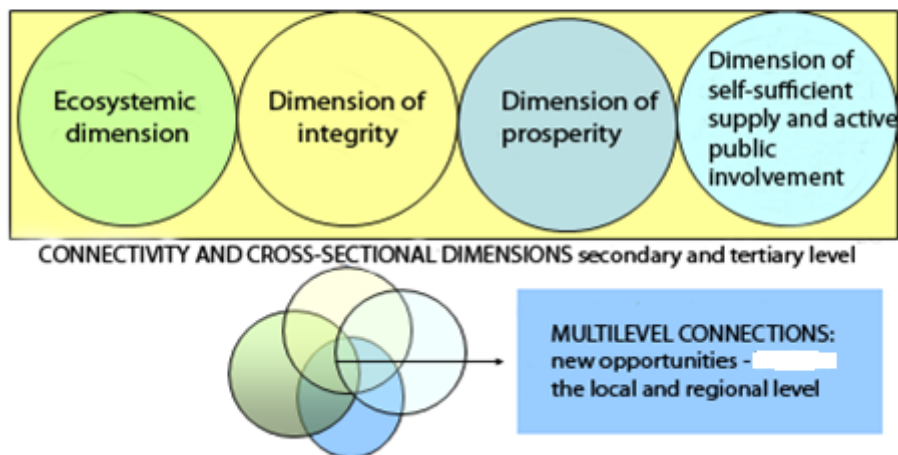


Figure 1: Four dimensions combined into a whole, representing a foundation for sustainability and future for young generations (Vovk Korže, 2011).

2.1 Ecosystemic dimension

Although in sustainable concepts the emphasis is on equally balanced development of the environmental, economic and social systems, more attention must be paid to the environment and nature in order to achieve prosperity. Ecosystems with their ecosystemic services are essential to our survival. Neglect of ecosystems has a negative impact on our well-being, on the quality and availability of basic resources and thus on our health. Therefore, in stressing the importance of the connection of all subsystems in the region or in local communities, the ecosystemic dimension, which provides

connections with other systems, should be highlighted as a priority. This dimension is therefore consistent with the ecosystemic approach, which has emerged in recent decades and may be identified as the most important dimension (Figure 2). The preservation of biodiversity and ecosystems, the ecosphere, is therefore an ecopolitical question that requires knowledge, responsibility and an integrated system approach that respects planet Earth as an important basis for our development and survival.

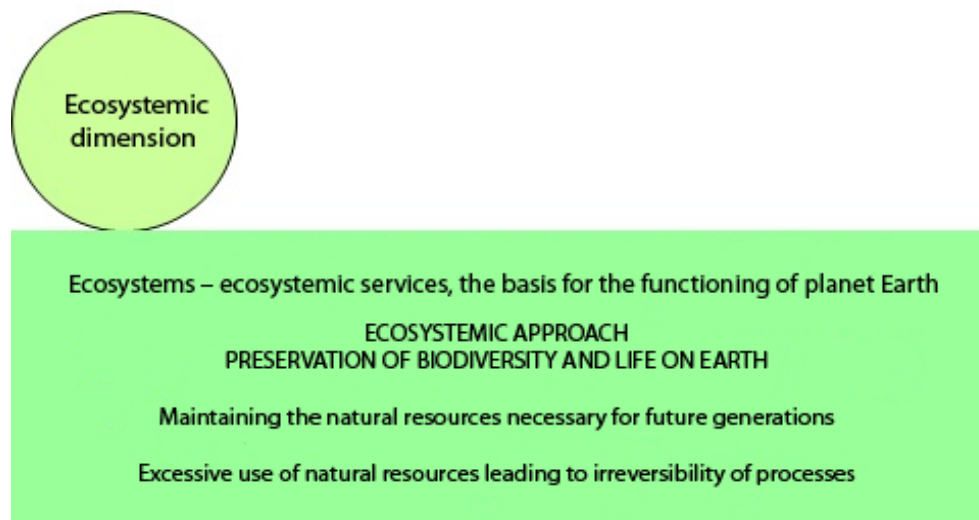


Figure 2: The ecosystemic dimension is the pillar of all sustainability dimensions.

2.2 Dimension of integrity

An important reason for the failure of sustainable development is the segmentation of development into economic, social, ecological, human and local development and the consequent support for each partial development separately. This approach has divided complex issues of progress into smaller problem sections, thus blurring their interrelations. This is even more controversial, since these relationships are often conflicting. The result is that we live in an era of partial developments, as governments try to add new adjectives by magic glue to the dogma of development and thus blur the view of the negative consequences of the developmental concept. Even if the adjective 'social' is added to the concept of development, economic growth will be supported. Even the concept of sustainable development, whereby governments are trying to prove the feasibility of an economically efficient, ecologically sustainable, socially equitable development of the democratic foundations that is geopolitically and culturally acceptable to diversification, does not support integrity of approaches (but divides development into separate components), which has proven unsuccessful. This means that it is necessary to combine components, in particular the capital of a certain region (environmental capital, human capital, economic capital), and to develop these together, not individually (Figure 3).

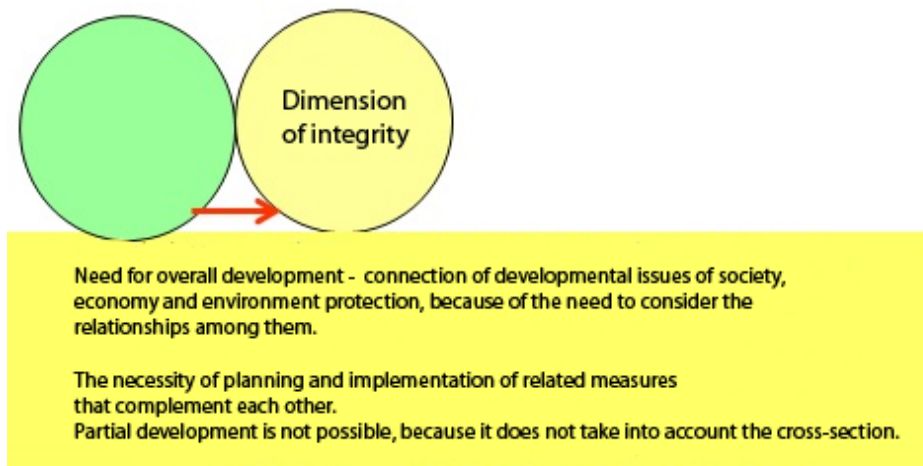


Figure 3: The dimension of integrity is based on the correlation of the economy, environment and society.

2.3 Dimension of prosperity

Economic growth focused on the production of material goods should not have such a fatal influence on the processes in society and nature as it had in the past. Latouche believes that a de-growth society should be created. In order to achieve prosperity, we must first answer the question of what it means when the economy dominates everything else in life - in theory and practice, especially in our minds. The concept of de-growth primarily introduces a re-definition of the boundaries of economic rationality. The beginning of the de-growth-concept goes back to the early seventies, when economic growth was becoming more and more self-sufficient. The concept of de-growth was first used in 1971 by the mathematician and economist Nicholas Georgescu-Roeg in his book, *The Entropy Law and the Economic Process*. He drew on the laws of thermodynamics, which means inter alia, that the consequences of our actions are often irreversible, so we have to think long term. In economics, this means according to Meadows, a system theorist and co-author of the book *Border Growth*, that the leaders should not be rewarded for short-term successes and that in politics the time between elections should be extended. Georgescu-Roeg defended the 'minimum bioeconomic program' aimed at preservation of energy and material stocks, leaving these intact for future basic human needs. By considering the dimensions of prosperity we could avoid threats in advance, warning that if we will not change our behavior, future generations will live in hostile conditions (Figure 4). Research shows that the population living on Earth in 2050 will experience heat waves, droughts, floods and storms. Many of today's plants and animals will die out because of the construction of new infrastructure and the use of phytopharmaceutical resources in

agriculture. Quality of life and economic growth will be reduced because of the loss of biodiversity, which provides a balanced ecosystem.

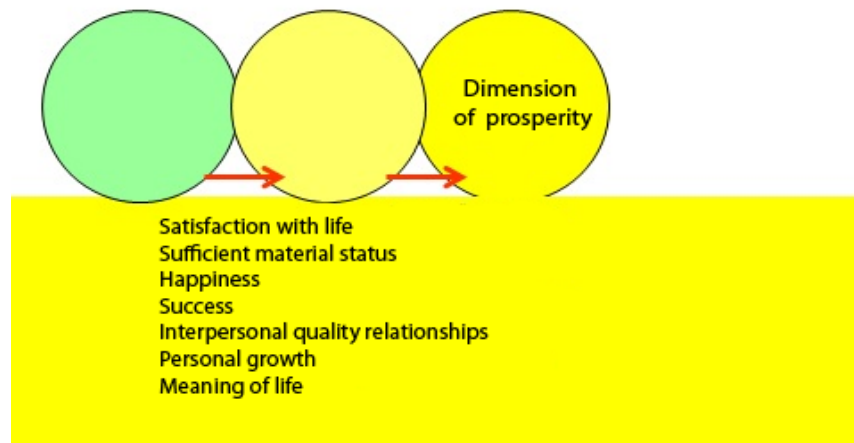


Figure 4: Prosperity is a personal dimension, eliminated from the concept of sustainability.

2.4 Dimension of self-sufficient supply and active public involvement

The activation of neglected potential, relations between people and motivation of society as well as regulated legislation are all of key importance for initiating self-sufficient supply. Following the ideas of John Venna, who in 1880 invented a diagram for a graphic representation of relations among groups, this diagram can be used for self-sufficient supply. Regions have systems of social (S), natural (N) and economic (G) capital (or subsystems, which are dead in themselves, as long as they are not connected to each other). It is important that they are connected to each other with the content that they have in common. From the cross-sectional perspective, this means that the contents of S, N and G vary from region to region, and it is not feasible to use the same approach to their relationship/connection, if their backgrounds are unknown. The connection of N, G and S is the basis for the integrated treatment and progress, in particular prosperity, of the region's self-sufficient supply. Integrated effects appear only cross-sectionally. The dimension of self-sufficient supply also means the activation of many interests, which through shared vision lead in the same direction; this differs radically from “beacon” approaches, which are externally visible, but basically unenlightened – this is a metaphor for big projects that do not bring long-term prosperity to the region but the contrary (Figure 5).

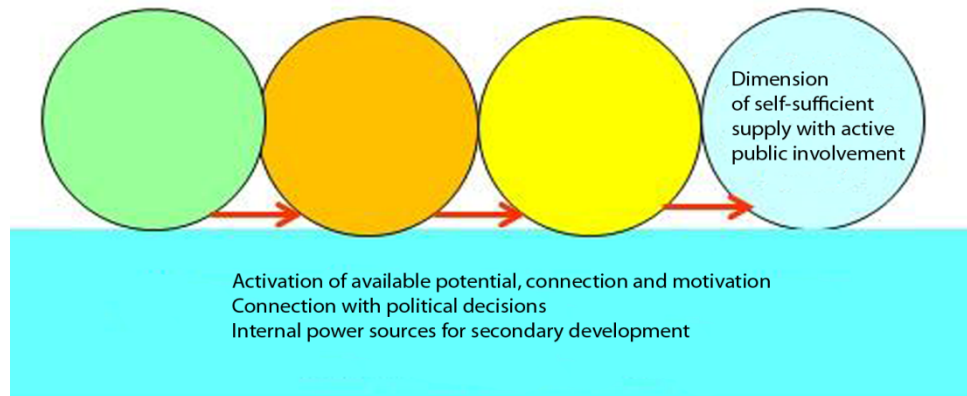


Figure 5: Dimension of self-sufficient supply and active public involvement.

3 Sustainable dimensions as basis for green jobs

In addition to local natural resources, local traditional knowledge and skills, which have been developed in a specific environment and tested over a long period of time, are also essential. Such knowledge and skills represent a sustainable coexistence of society in nature and enable the efficient use of natural resources or can replace additional inputs of energy, matter and money into agroecosystems (Dalgaard et al., 2003). Some of the traditional knowledge and skills encompass simple methods and tools for water and soil conservation and management, promotion of high biodiversity, development of multifunctional farms and landscapes, and social cohesion with collaboration (Altieri et al, 2011).

Although tradition is crucial, it is also important to integrate technological innovations, notably robotics, sensors, remote sensing, modeling and geographic information systems (Vovk Korže, 2017). Traditional technologies or low-tech green solutions in the form of ecoremediations are also useful to prevent soil degradation and ensure wastewater treatment (Vovk Korže, 2017). It is beneficial to integrate tradition with high and green technologies in order to design new approaches and farms that are tailored to local circumstances (Nicholls and Altieri, 2018).

Green was categorized in two broad categories, which need to be addressed when designing and managing sustainable agroecosystems. These include co-natural practices – green jobs for the bio-physical dimension of space (management of natural resources, such as water, soil, heat, biodiversity), and social practices for the socio-economic dimension of the space (strengthening social cohesion and responsibility with self-sufficiency, green jobs and community integration) (Table 1).

Table 1: Sustainable dimensions are a base for green jobs

	Area	Agroecological practice
Co-natural practices	Water	Green and organic mulch, drip irrigation, buried clay pots, eco-melioration ditches, water retention channels, rainwater collectors, deep seeding, raised and hugel beds, sand filters, constructed purifying wetlands
	Soil	Green and organic fertilization, animal manure, split fertilization, crop rotation, fallow, shallow soil cultivation, no tillage, composting, silica sanding, terracing, coffee sediment, ash, kitchen waste, ground eggshells, biochar, vegetation barriers
	Heat	Ponds, metal outdoor water heaters, stones and bricks, sunny expositions and slopes, greenhouses, hobit house, yurt, compost heat
	Biodiversity	Polyculture, forest garden, under-tree beds, autochthone and allochthone species, perennials, vegetation borders, biological pest control, dense planting, mixed planting, good neighbors, honey plants, habitats for insects and other animals, natural plant products for fertility and against pests and diseases, push and pull systems
Social practices	Self-sufficiency	Food production, traditional processing in the form of drying, pickling, soaking and fermentation, renewable energy generation from solar cells and small windmills, sustainable building, medicinal preparations, recycling and reuse of materials, use of local materials such as wood, stone and gravel, natural preparations for fertility and against pests and diseases, seed collection
	Green entrepreneurship	Food products such as jams, syrups, tinctures, herbal blends, sauces, teas, crafts for processing clay, biomass and rocks, energy from renewable sources such as biomass, ground, sun and wind, tourism, educational programs, short supply chains, online and direct sales, degradable and reusable packaging
	Community integration	Co-operatives, common branding, community-supported agriculture, direct farm sales, charity, community gardens, eco-villages, gender equality, inclusion of vulnerable groups, poverty reduction, social movements, counseling and knowledge transfer, cooperation with international and educational institutions



From the content of the Table 1 it can be seen, that in Slovenia many sustainable practices for management of scarce natural resources exist. Common characteristic of these practices is, that they are inexpensive and easily used. Concerning their potential implementation in less developed countries, especially useful are multifunctional practices, such as organic mulch and different beds, which conserve water and improve soil fertility, since there are prerequisites for other activities. Besides these, diversifying plants used in a form of polyculture and mixed planting is important, but also incorporating existing natural vegetation such as grasses and trees. Among the social practices predominantly practices for autonomous self-sufficient lifestyle were discovered, which also includes cooperation with different stakeholders, so that internal market of goods and services can be established (Davidović, 2018).

One of the best practices of sustainable management of agroecosystem in Slovenia and educational centre for green jobs for youth is Educational Polygon for Selfsufficiency Dole. The 1.5 ha estate is designed according to the closed system approach, so that minimum inputs are required – all unused biomass is composted, available water harvested, seeds collected, electricity produced and preparation for plant resilience personally made. The Polygon is also engaged in the processing of crops to compotes, sauces, pickled vegetables, teas, spices and juices. In addition to food and energy, sustainable buildings are also set up. Besides mentioned elements, Polygon supports educational, touristic and research activities. Polygon is a good example of green jobs, because this multifunctional property is involved in food and energy production and service activities despite unfavorable natural conditions (Figure 6).



- a. Hobbit house
- b. Yurt
- c. Greenhouse
- d. Winter garden
- e. Pond
- f. Water retainer
- g. Compost toilet
- h. Hugel beds with mulch
- i. Raised beds
- j. Beds on pallets
- k. Spiral beds
- l. Forest garden
- m. Terraces
- n. Natural playground
- o. Learning boards
- p. Educational soil profile
- q. Benches from recycled plastic
- r. Pet house
- s. Wildlife feeder
- t. Insect house



Figure 6: Green jobs at Educational polygon for self-sufficiency Dole.

4 Education for green jobs in schools

Education about the sustainable dimensions of life and development requires a re-direction from information to processes, relationships and attitudes, which requires cognitive learning skills, project-based learning, and cross-curricular integration. Some innovative forms of teaching for a comprehensive treatment and in-depth understanding of cross-curricular subjects are summarized below, according to the different theoretical starting points provided by (Breken et al., 2018): self-reflection, critical and (eco-)system thinking, problem-based learning, project-based learning, action learning, research, learning in nature, interdisciplinarity /multidisciplinarity, group learning/collaborative learning, connecting learners with various stakeholders, two-way communication and teacher – moderator.



Most classroom activities are linked to the curricula, which do include the possibility of innovative pedagogical practices, which means that they offer a different way of achieving the learning objectives about green jobs within the classroom. Nonetheless, it was observed that teachers are rather reluctant with regard to the truly innovative approaches that would "spread the wings" of youths and actively involve them in acquiring knowledge. In theory, namely, most of the approaches described by teachers as innovative are not really innovations, because they do not propose new ways of acquiring knowledge in a truly effective way; rather than that, they can be seen as supportive, or complementary activities to teaching, for example, learning about bees, attitudes towards pollinators, attitudes towards food. The methods they use are still traditional methods; the teacher is still "in charge" of the learning process, and students are still in the process of acquiring knowledge, which they partially reinforce later on, however, there are no guarantees to ensure that they truly integrate this knowledge into their way of life or use it as a means of changing their life styles.

The types of content most strongly emphasized by the schools included in this study are related to: bees and pollinators, waste, food, local raw materials and recycling. These types of content are taught by teachers outside of traditional classes, as complementary activities, which is why by the very definition they are considered as cross-curricular and interdisciplinary. They include skills of understanding, comparing, connecting, sharing knowledge and communicating, but they do so in a traditional manner; it is here that we would like to have seen new approaches that would be typical of vocational schools and would indicate the interest of teachers to prepare young people for new jobs and professions, required by the changing society of today. Cross-curricularity is noticeable in all described cases of best practices in our schools, and it is also a requirement of national curricula; however, it is limited primarily to subject areas. We would like to have seen dimensions such as entrepreneurship, marketing, digital technologies, and new online approaches included, which would bring the content described by the teachers as 'innovative practices' closer to young people and are important influence on green jobs.

5 Conclusion

Food and water availability and management of natural resources is a major topic which should be addressed more rapidly and drastically. Scientists indicate that modern lifestyle needs to change in the next decade, if climate crises is not to be worsened. Some climate related problems can be solved with developing technologies, but because they are financially and knowledge intensive, their implementation is limited, especially in less developed countries, which contribute the least to the climate change, but will experience most of its negative effects. This makes it more important to explore less expensive and simpler alternative solutions, which are adaptable to specific local conditions.

The article was concerned with recognizing the practices – green jobs for youth, which encompass practical methods and tools for providing food, water and income in a more environmentally and socially responsible way. Different qualitative research methods enabled the discovery of many useful practices for management of bio-physical and socio-economic dimensions of agroecosystems. These include practices for harvesting and retaining water, increasing soil fertility, diversifying biodiversity and promoting



self-sufficiency, green jobs development and cooperation. Many green jobs are based on traditional knowledge, which is adapted to specific environment, so tradition can serve as an inspiration for innovations in future and as a solution for green jobs for the youth.

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