

## GREEN EDUCATION IN THE CONTEXT OF ECOSYSTEM SERVICES

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**Abstract:** Ecosystem services are considered on the basis of reciprocity. On the one hand, nature provides its services to society, on the other hand, society undertakes to mutually take measures to ensure sustainable development. In this regard, the role of green education in the context of providing ecosystem services is highlighted, when the beneficiaries not only seek to effectively use the benefits of nature, but also acquire the ability to prevent damage to ecosystems as much as possible. The article substantiates the expediency of using a transdisciplinary educational approach in the context of ecosystem services, whereby the end results of green education are not only the ability to apply environmentally friendly behavioral norms, but also the creative skills, that contribute to sustainable development.

**Keywords:** ecosystem services, green education, sustainable development, transdisciplinary educational outcomes, eco friendliness

**JEL code:** J121, J126

**Research goal:** highlight the benefits of a trans-disciplinary approach to ecosystem service framework.

**Research novelty:** the benefits of a trans-disciplinary approach to the provision of ecosystem services have been identified.

## **Introduction**

Ecosystem services are of key importance for the socio-economic sustainable development of society. People, in their daily life, constantly use the benefits provided by nature, businessmen use natural resources, often not properly assessing the real value of ecosystem services. Moreover, ecosystems do not only provide supply services, but within the scope of their activities support the provision of environmental balance, performing self-managing and regulatory functions (Tshughuryan A, Khachatryan N. 2023).

In this regard, it is considered relevant to realize the importance of ecosystem services by both business and membership and organize green education in this direction so that, on the one hand, the resources provided by nature are effectively consumed, and on the other hand, conditions are formed in the direction of self-regulation of ecosystems in order to ensure sustainable development (Fisher, J.A., Patenaude, G., Giri, K., Lewis, K., Meir, P. M., 2014).

The article discusses the issues of organizing green education in the context of ecosystem services, offering a comprehensive and trans disciplinary approach to environmental protection.

## **Research results**

The effective organization of green education is especially emphasized in the context of the provision of ecosystem services, being considered relevant not only among private (business partners, potential investors, managers of organizations), but also among beneficiaries pursuing public goals (local self-governing bodies, NGOs, state agencies, community population).

The consideration of green education in the context of ecosystem services is important to the extent that the beneficiaries are tasked with comprehensively assessing both the usefulness of the services provided by nature to humanity, as well as the possibility and risks of the reasonable realization of ecosystem services by humanity and the transfer of nature's benefits to generations.

In the professional literature, ecosystem services are interpreted from different perspectives, presenting them as directions contributing to human well-being, functions of reproduction and expansion of natural resources, services contributing to sustainable development. However, all of these are based on a general definition, according to which ecosystem services are the various benefits provided by nature to people, the consumption of which ensures the socio-economic sustainable development of the population.

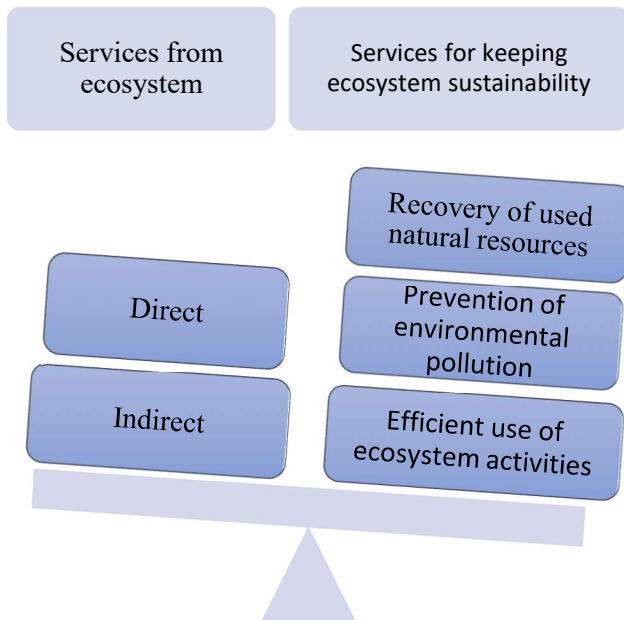
In general, ecosystem services are represented by the following groups: providing natural resources, regulating the environmental environment, and related to recreation and rehabilitation activities (Naeem S, Bunker DE, Hector A, Loreau M, & Perrings C., 2009).. At first glance, it may seem, that the majority of ecosystem services

provided to humanity fall on the supply of natural resources. Daily it is visible to us, what kind of benefits a person receives from nature in the form of natural wood, water resources, biological components, minerals, which are used in everyday life and production. In this sense, the provision of natural resources is also called direct ecosystem services in professional literature.

However, indirect ecosystem services, which may not be directly visible to us, but perform regulatory and environmental support activities (pollination, water purification, erosion and flood prevention, climate regulation, etc.) are no less valuable.

The balance of mutual ecosystem services is also highlighted (see Figure 1), when assessing what humanity has received from nature and what society has subsequently given back in favor of environmental sustainability. And if for a long time that balance is formed in favor of the consumption of ecosystem services by humanity, and not the expansion of resources for environmental activities, then there are risks of disrupting the sustainable development of ecosystems (Tshughuryan A., Grigoryan L. 2024).

In this sense, the demand for green education is increasing intensely. Humans cause enormous damage to existing ecosystems by their production and household activities. In pursuit of private interests, individuals and organizations generally do not pay attention to the negative consequences of their activities on the environment, which ultimately creates environmental and social risks, disrupts the sustainable development of the economy. Therefore, it is important to develop such a methodology of green education that targets the learning of individuals throughout life.



***Figure 1. Balancing services provided and received in the context of existing ecosystems<sup>1</sup>***

But on the other hand, in terms of methodology, there is still no unified approach to the organization of green education in the context of ecosystem services, despite the fact that from preschool to higher educational institutions, students are introduced to the behavioral norms of environmental protection, and the principles of sustainable development are explained. Along with that, awareness of a friendly attitude towards the environment is also formed in non-formal, and even informal educational systems (Iluta Arbidane., Nonna Khachatryan, & Narine Martirosyan, 2023).

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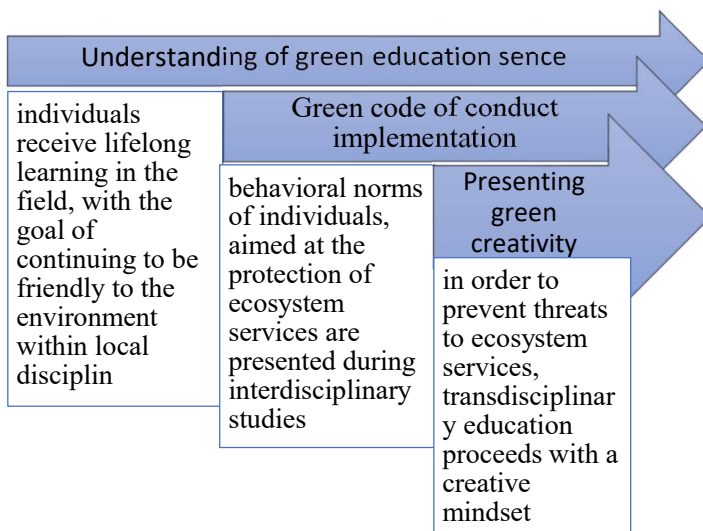
<sup>1</sup> Composed by author

Therefore, it is currently a problem to effectively organize green education in such a way, that it continuously accompanies the individual throughout his life and has flexible transformational foundations among different age groups.

In general, "green education" is multi-layered and multi-sectoral, the implementation of which takes place throughout the life of an individual and plays an important role in the toolkit of "green behavioral" expression. In this sense, the methodology of green education is formed mainly in three dimensions (see Figure 2).

The first dimension accompanies the individual throughout life, and green learning perhaps begins in pre-school age. The second dimension of the green education methodology works more effectively when the individual experiences eco-educational maturity, consciously approaches and is consistent with the behavioral norms of environmental protection. The third dimension pursues the highest standards of green education service delivery methodology, with the aim of developing creative behavior in the individual to encourage a friendly attitude towards the environment.

Thus, if the school student is taught the importance of protecting the environment and the behavioral norms of the individual contributing to it, then when providing educational services in the university environment, an attempt is made to form a creative mindset in the student, to develop skills and knowledge related to green practices within the scope of his specialty. For the sake of development of channels.



***Figure 2. The key directions of the formation methodology of green education in the context of ecosystem services<sup>2</sup>***

In this sense, we suggest considering green education in the context of ecosystem services with the following goals:

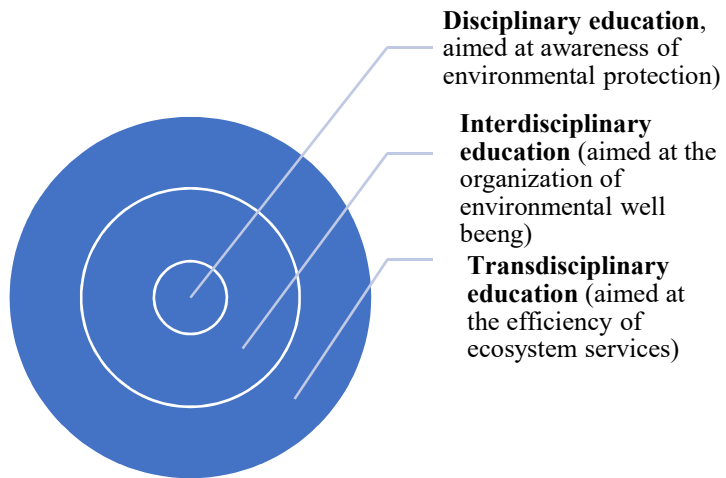
- ✓ aimed at awareness of environmental protection,
- ✓ aimed at the organization of environmental protection,
- ✓ aimed at effective organization of ecosystem services (see Figure 3).

In our opinion, transdisciplinary green education provides the most comprehensive and desirable results in the context of ecosystem services. If interdisciplinary educational models are

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<sup>2</sup> Composed by author

presented as a combination of different academic disciplines taught (such as the synthesis of sociology, economics, environmental protection) with the aim of providing narrow professional abilities and skills, then transdisciplinary education covers a wider range, already going beyond the scope of interdisciplinary educational models (see diagram 3).



***Figure 3. Framework for designing green education in the context of ecosystem services<sup>3</sup>***

As a rule, transdisciplinary education targets the provision of capacities and skills to contribute to social change, applying not only the integration of knowledge from different disciplines, but also the continuous application of experiences from non-academic sources and the participatory involvement of non-academic stakeholders.

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<sup>3</sup> Composed by author



Thus, the main end result of the "Environmental Protection" subject program, which is a disciplinary education, can be the formation of awareness of the cleanliness of the river basin in the student, that is, the importance of being passionate about environmental protection. And the educational end result of the interdisciplinary subject "Economics of Environmental Protection" can be the formation of abilities to use resource-saving technologies related to the river basin and to apply the environmental norms of water basin use in the field of entrepreneurship. Finally, the end results of the transdisciplinary educational module "Management of the Water Basin Ecosystem" will mainly be aimed at strengthening the creative thinking of the effective use and restoration of water resources of the river basin, which the student acquires from the research results formed outside the scope of the academic environment, as well as the beneficiaries (LGs, NGOs, territorial activist residents of the river water basin) with participatory results.

And it turns out that the methodology of transdisciplinary green education appears with some additions, such as the strengthening of the research component, the provision of an analytical feedback mechanism with the beneficiaries of ecosystem services, the requirement of participatory manifestations of non-academic beneficiaries in the system of providing educational services. which ultimately contribute to the formation of creative skills.

In this sense, in the methodology of transdisciplinary education, analytical, situational assessment, information processing learning tools for feedback from stakeholders play an important role, using which a university and non-academic academic community of green education is formed, a "reversed audience" is used, when dominates

the student's independent work, oriented towards creativity, as well as judgments aimed at improving sustainable development (Weathers, K.C., Young, K.R., & Curran, L.M. ,2015).

## Conclusion

Green education accompanies us throughout life. However, it manifests itself at different levels. In this way, individuals receive green education in formal or informal subject disciplines, through which an eco-philanthropy consciousness is formed in them. When narrow professional environmental subjects are taught, interdisciplinary forms of education already work effectively here. And green education supporting the provision of ecosystem services increases its effectiveness by applying transdisciplinary educational forms, targeting academic and non-academic resource participatory approaches, also aiming to develop creative skills in the field of ecosystem services management.

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### **Նոննա Խաչատրյան**

Երևանի պետական համալսարան, տ.գ.թ., դոցենտ

**Բանալի բառեր** - էկոհամակարգային ծառայություններ, կանաչ կրթություն, կայուն զարգացում, տրանսդիսցիպլինար կրթական վերջնարդյունքներ, էկո բարյացակամություն

Էկոհամակարգային ծառայությունները դիտարկվում են փոխադարձության սկզբունքով: Մի կողմից, բնությունը իր ծառայություններ է մատուցում հասարակությանը, մյուս կողմից, հասարակությունը պարտավորվում է փոխադարձաբար միջոցներ ձեռնարկել կայուն զարգացումն ապահովելու համար: Այս առումով, կարևորվում է կանաչ կրթության դերը էկոհամակարգային ծառայությունների մատուցման համատեքստում,

երբ շահառուները ոչ միայն ձգտում են արդյունավետորեն օգտվել բնության բարիքներից, այլև հնարավորինս ձեռք են բերում էկոհամակարգերին հասցվող վնասների կանխարգելման կարողություններ:

Հոգվածում հիմնավորվում է էկոհամակարգային ծառայությունների համատեքստում տրանսդիսցիպլինար կրթաձևի կիրառման նպատակահարմարությունը, որով կանաչ կրթության վերջնարդյունքներ են հանդիսանում ոչ միայն շրջակա միջավայրի պահպանման վարքագծային նորմերի կիրառման ունակությունները, այլև կայուն զարգացմանը նպաստող ստեղծարար հմտությունները: Էկոհամակարգային ծառայությունների մատուցմանը օժանդակող կանաչ կրթությունը իր արդյունավետությունը բարձրացնում է, կիրառելով տրանսդիսցիպլինար կրթաձևեր, թիրախավորելով ակադեմիական և ոչ ակադեմիական ղեկուրսների մասնակցային մոտեցումներ, նպատակադրելով նաև զարգացնելու ստեղծարար հմտությունները էկոհամակարգային ծառայությունների կառավարման ոլորտում:

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