

GLOBALNI POSLOVNI INFORMACIONI SISTEM VLASNIČKIH PRAVA NAD FAKTORIMA PROIZVODNJE

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Rezime

Savremeni razvoj društva karakterišu intenzivne tehnološke, ekonomske i društvene promene koje, pored brojnih koristi, izazivaju sve izraženije pritiske na životnu sredinu i prirodne resurse. Ubrzana industrijalizacija, globalizacija i rast potrošnje doveli su do povećanja emisije štetnih gasova, degradacije ekosistema i klimatskih promena, zbog čega očuvanje prirodnog kapitala postaje jedno od ključnih pitanja održivog razvoja.

U radu se razmatraju mogućnosti unapređenja postojećeg sistema upravljanja prirodnim resursima kroz razvoj savremenog računovodstveno-informacionog sistema i redefinisane uloge države, privrednih subjekata i drugih učesnika u ekonomskom sistemu. Posebna pažnja posvećena je konceptu uključivanja prirodnog kapitala, odnosno kiseonika kao egzistencijalno važnog resursa, u proces ekonomskog vrednovanja i reprodukcije, sa ciljem unapređenja zaštite životne sredine i racionalnijeg korišćenja ograničenih resursa.

Zaključuje se da integracija računovodstva održivosti, transparentnijeg upravljanja javnim finansijama i savremenih institucionalnih rešenja može doprineti efikasnijem upravljanju prirodnim kapitalom, očuvanju životne sredine i ostvarivanju dugoročno održivog ekonomskog razvoja.

Ključne reči: održivi razvoj, prirodni kapital, računovodstveno-informacioni sistem, zaštita životne sredine, globalizacija.

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Uvod

Problematika zaštite životne sredine tokom poslednjih nekoliko decenija postala je jedno od najznačajnijih pitanja savremenog društva. Iako su prvi ozbiljniji naučni i stručni razgovori o negativnim posledicama industrijskog razvoja započeli još šezdesetih godina prošlog veka, intenzivna urbanizacija, tehnološki napredak i rast proizvodnje dodatno su povećali pritisak na prirodne resurse i ekosisteme. Danas se životna sredina posmatra kao sastavni deo ekonomskog razvoja, pri čemu održivost predstavlja osnovni preduslov dugoročnog društvenog i privrednog napretka (Rockström et al., 2023; United Nations, 2023).

Razvoj nauke i tehnologije omogućio je značajan rast životnog standarda i unapredio proizvodne procese, ali je istovremeno doveo do intenzivnijeg korišćenja prirodnih resursa, povećanja emisije gasova sa efektom staklene bašte i degradacije životne sredine. Zanemarivanje međusobne povezanosti tehnološkog razvoja, ekonomskih odnosa i društvene odgovornosti doprinosi nastanku brojnih ekoloških izazova koji direktno utiču na kvalitet života sadašnjih i budućih generacija (IPCC, 2023; Dasgupta, 2021).

U savremenim uslovima fiskalna politika predstavlja jedan od najvažnijih instrumenata za ostvarivanje ciljeva održivog razvoja. Poreski sistemi, ekološke naknade i drugi oblici javnih prihoda mogu doprineti racionalnijem korišćenju prirodnih resursa, smanjenju zagađenja i finansiranju mera zaštite životne sredine. Zbog toga savremene države sve više uvode ekonomske instrumente kojima se podstiče održiva proizvodnja i odgovorno korišćenje prirodnog kapitala (OECD, 2023; World Bank, 2022).

Međunarodna zajednica je tokom prethodnih decenija usvojila brojne deklaracije, sporazume i razvojne strategije kojima se naglašava potreba za očuvanjem prirodnih resursa i odgovornim upravljanjem životnom sredinom. Poseban značaj imaju Ciljevi održivog razvoja Ujedinjenih nacija (Sustainable Development Goals – SDGs), koji predstavljaju globalni okvir za usklađivanje ekonomskog razvoja, socijalnog napretka i zaštite životne sredine (United Nations, 2023).

Predmet ovog rada jeste razmatranje odnosa između

ekonomskog razvoja, fiskalnog sistema i očuvanja prirodnih resursa, sa posebnim osvrtom na mogućnosti unapređenja postojećeg sistema upravljanja kroz primenu savremenih ekonomskih i računovodstvenih rešenja. Cilj rada je da ukaže na značaj sistemskog pristupa u zaštiti životne sredine i da prikaže kako integracija ekonomskih, pravnih i institucionalnih mehanizama može doprineti dugoročnoj održivosti i očuvanju uslova za egzistenciju ljudskog društva (Dasgupta, 2021; Rockström et al., 2023; United Nations, 2023).

1. Problemi očuvanja životne sredine

Problemi očuvanja životne sredine predstavljaju jedno od najznačajnijih pitanja savremenog društva. Dok su se u prošlosti negativni uticaji čoveka na prirodu često zanemarivali ili smatrali ograničenim, danas postoji širok naučni konsenzus da su klimatske promene, degradacija ekosistema i prekomerno iskorišćavanje prirodnih resursa među najvećim izazovima održivog razvoja. Posledice zagađenja vazduha, voda i zemljišta, kao i intenzivna seča šuma i dezertifikacija, direktno ugrožavaju kvalitet života stanovništva i stabilnost prirodnih sistema (IPCC, 2023; United Nations Environment Programme [UNEP], 2024).

Sve učestalije ekstremne vremenske pojave, poput dugotrajnih suša, velikih šumskih požara, razornih poplava i toplotnih talasa, potvrđuju da klimatske promene više nisu samo buduća pretnja već realnost sa kojom se suočava čitava međunarodna zajednica. Naučni izveštaji ukazuju da se intenzitet i učestalost ovih pojava povećavaju usled porasta globalne temperature izazvanog ljudskim aktivnostima. Iako su informacije o klimatskim promenama danas dostupnije nego ikada, reakcije društva i donosilaca odluka često nisu proporcionalne ozbiljnosti problema, pa interesovanje javnosti uglavnom raste tek nakon velikih prirodnih katastrofa (IPCC, 2023; World Meteorological Organization [WMO], 2024).

Klimatski sistem Zemlje predstavlja izuzetno složen i međusobno povezan skup procesa u atmosferi, hidrosferi, biosferi i litosferi. Zbog njegove osetljivosti, čak i relativno male promene prosečne globalne temperature mogu izazvati značajne promene u režimu padavina, intenzitetu oluja, raspodeli klimatskih zona i funkcionisanju ekosistema. Upravo zbog toga klimatske promene imaju globalni karakter i njihove posledice prevazilaze granice pojedinačnih država, zahtevajući koordinisano međunarodno

delovanje (IPCC, 2023; Rockström et al., 2023).

Napredak nauke i razvoj savremenih klimatskih modela omogućili su preciznije praćenje promena temperature, atmosferskog pritiska i drugih meteoroloških parametara, kao i pouzdanije projekcije budućih klimatskih kretanja. Ovi modeli potvrđuju da nastavak povećanja koncentracije gasova sa efektom staklene bašte može dovesti do dodatnog zagrevanja planete, što će imati dugoročne posledice po prirodne resurse, poljoprivredu, zdravlje stanovništva i ukupni društveno-ekonomski razvoj (IPCC, 2023).

Najznačajniji gasovi koji doprinose efektu staklene bašte jesu ugljen-dioksid (CO_2), metan (CH_4), azot-suboksid (N_2O) i fluorovani gasovi. Njihova koncentracija u atmosferi značajno je porasla od početka industrijske revolucije usled sagorevanja fosilnih goriva, industrijske proizvodnje, saobraćaja i promena u korišćenju zemljišta. Brojna istraživanja potvrđuju da upravo povećanje koncentracije ovih gasova predstavlja glavni uzrok savremenog globalnog zagrevanja i promena klimatskog sistema (IPCC, 2023; UNEP, 2024; World Meteorological Organization, 2024).

2. Sistemski pristup rešenja planetarne krize

Proces globalizacije predstavlja jednu od najznačajnijih karakteristika savremenog društva i utiče na ekonomske, političke i društvene odnose na globalnom nivou. Povezivanje nacionalnih ekonomija, razvoj međunarodne trgovine i ubrzan tehnološki napredak omogućili su efikasnije korišćenje resursa, brži protok kapitala i znanja, ali su istovremeno povećali pritisak na prirodne resurse i životnu sredinu. Zbog toga se održivi razvoj danas posmatra kao osnovni preduslov uspešnog funkcionisanja globalne ekonomije (United Nations, 2023; OECD, 2023; Rockström et al., 2023).

Savremeni društveno-ekonomski sistemi zasnivaju se na međusobnom delovanju realnog, finansijskog, javnog i međunarodnog sektora. Njihovo efikasno funkcionisanje zavisi od usklađenosti interesa države, privrednih subjekata i stanovništva. Privredni subjekti nastoje da raspoložive resurse koriste što racionalnije radi ostvarivanja konkurentске prednosti i dugoročne profitabilnosti, dok država kroz fiskalne, regulatorne i razvojne politike nastoji da obezbedi ravnotežu između ekonomskog razvoja, socijalne sigurnosti i zaštite životne sredine (World Bank, 2022;

OECD, 2023; Dasgupta, 2021).

Tradicionalna ekonomska teorija kao osnovne faktore proizvodnje prepoznaje rad, kapital, zemljište i preduzetništvo, odnosno znanje (Gojkov, 2025). Međutim, savremena istraživanja sve više ukazuju na značaj prirodnog kapitala kao posebnog izvora stvaranja vrednosti. Koncept prirodnog kapitala podrazumeva da prirodni resursi i ekosistemi imaju ekonomsku vrednost jer obezbeđuju ekosistemске usluge neophodne za funkcionisanje privrede i društva, uključujući proizvodnju kiseonika, regulaciju klime, prečišćavanje vode i očuvanje biodiverziteta (Dasgupta, 2021; United Nations et al., 2021).

U tom kontekstu, ideja predstavljena u ovom radu da se kiseonik posmatra kao faktor proizvodnje može se razumeti kao autorski koncept koji ukazuje na potrebu ekonomskog vrednovanja prirodnih resursa. Iako savremena ekonomska teorija kiseonik ne tretira kao klasičan proizvodni faktor, brojna istraživanja potvrđuju da očuvanje prirodnog kapitala i ekosistemskih usluga predstavlja jedan od ključnih uslova dugoročnog ekonomskog razvoja i održivosti društva (Dasgupta, 2021; Rockström et al., 2023).

Zbog toga savremeni modeli upravljanja sve češće integrišu ekološke pokazatelje u procese donošenja odluka. Razvoj zelenog računovodstva, obračuna prirodnog kapitala i sistema održivog finansijskog izveštavanja omogućava da se troškovi degradacije životne sredine uključe u procenu poslovnih performansi i vrednosti organizacija. Na taj način stvaraju se uslovi za odgovornije upravljanje resursima i efikasnije ostvarivanje ciljeva održivog razvoja (United Nations et al., 2021; IFRS Foundation, 2023; EFRAG, 2023).

2.1. Računovodstveno-informacioni sistem u funkciji rešavanja planetarne krize

Računovodstveno-informacioni sistem predstavlja jedan od osnovnih instrumenata za prikupljanje, obradu i prezentovanje ekonomskih informacija neophodnih za donošenje poslovnih i javnih odluka. U savremenim uslovima njegova uloga više nije ograničena isključivo na evidentiranje poslovnih promena i izradu finansijskih izveštaja, već obuhvata i praćenje uticaja ekonomskih aktivnosti na životnu sredinu i društvo. Zbog toga računovodstvo održivosti postaje značajan deo savremenog sistema upravljanja organizacijama (IFRS Foundation, 2023a, 2023b; EFRAG, 2023;

United Nations et al., 2021)).

Polazeći od osnovne ideje ovog rada, može se zaključiti da efikasno upravljanje prirodnim resursima nije moguće ukoliko njihova vrednost nije na odgovarajući način evidentirana u informacionom sistemu. Ono što se ne meri i ne iskazuje u poslovnim evidencijama teško može biti predmet ekonomskog odlučivanja ili sistemske zaštite. Iz tog razloga autor predlaže razvoj računovodstvenog modela kojim bi se prirodni resursi i negativni uticaji na životnu sredinu uključili u proces ekonomskog vrednovanja (United Nations et al., 2021; Dasgupta, 2021).

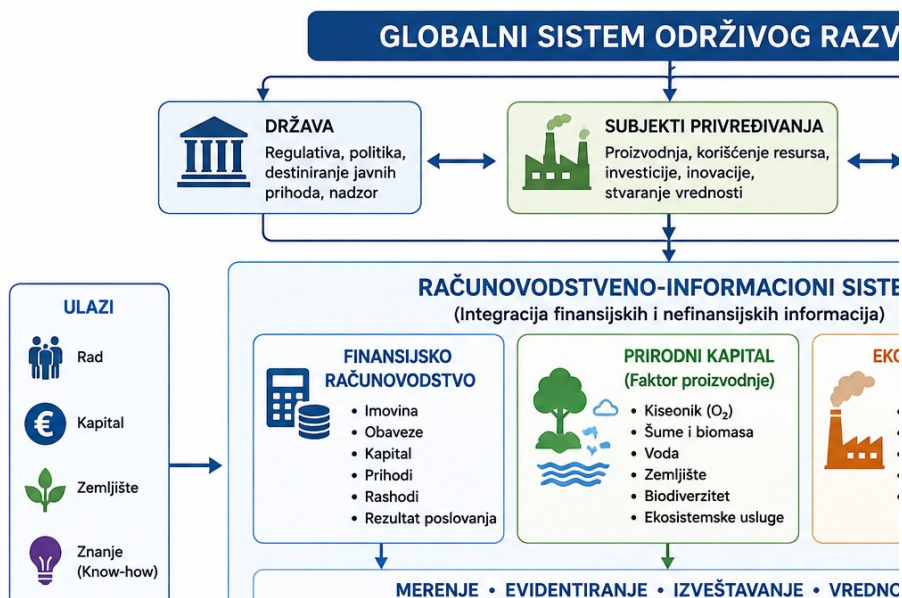
Država ima značajnu ulogu u ovom procesu kroz kreiranje fiskalne politike, raspodelu javnih prihoda i uspostavljanje regulatornog okvira koji omogućava transparentno finansiranje aktivnosti od javnog interesa, uključujući zaštitu životne sredine. Savremeni sistemi javnih finansija sve više se zasnivaju na namenskom korišćenju pojedinih javnih prihoda, čime se povećava transparentnost, odgovornost i efikasnost upravljanja javnim sredstvima (OECD, 2023; World Bank, 2022).

Autor rada posebno ističe značaj destiniranja javnih prihoda, odnosno njihovog usmeravanja prema unapred definisanim namenama. Takav pristup mogao bi omogućiti efikasnije finansiranje zaštite životne sredine i veću kontrolu trošenja javnih sredstava. Savremena istraživanja potvrđuju da transparentno upravljanje javnim finansijama doprinosi većem poverenju građana i efikasnijem ostvarivanju ciljeva održivog razvoja (OECD, 2023; United Nations, 2023).

Jedan od ključnih doprinosa rada jeste predlog da se kiseonik, kao osnovni uslov života i proizvod funkcionisanja prirodnih ekosistema, posmatra kao poseban faktor u procesu reprodukcije. Iako ovakav koncept nije deo klasične ekonomske teorije, može se dovesti u vezu sa savremenim konceptom prirodnog kapitala, prema kojem ekosistemi stvaraju usluge od presudnog značaja za društvo i privredu, uključujući proizvodnju kiseonika, regulaciju klime, očuvanje biodiverziteta i prečišćavanje vazduha i vode (Dasgupta, 2021; United Nations et al., 2021).

U skladu sa tim, računovodstveno-informacioni sistem trebalo bi proširiti tako da, pored finansijskih pokazatelja, obuhvati i podatke o korišćenju prirodnih resursa, emisiji štetnih materija i drugim eksternalijama koje utiču na životnu sredinu. Takav sistem omogućio bi objektivnije vrednovanje poslovnih subjekata,

kvalitetnije upravljanje prirodnim kapitalom i donošenje odluka koje doprinose dugoročnoj održivosti ekonomskog razvoja (IFRS Foundation, 2023a, 2023b; EFRAG, 2023; United Nations et al., 2021)).



Slika 1. Model globalno održivog sistema

U okviru ovako koncipiranog modela bilo bi moguće razviti posebne računovodstvene evidencije i konta namenjena praćenju prirodnog kapitala i ekoloških eksternalija (Milojevic, et. al 2012). Evidentiranje troškova korišćenja prirodnih resursa, kao i koristi koje proizlaze iz njihovog očuvanja, predstavljalo bi osnovu za objektivnije iskazivanje vrednosti poslovnih subjekata i efikasnije upravljanje održivim razvojem. Na taj način računovodstveno-informacioni sistem prerasta tradicionalnu funkciju finansijskog izveštavanja i postaje važan instrument očuvanja životne sredine i racionalnog upravljanja ograničenim resursima (United Nations et al., 2021; IFRS Foundation, 2023; Dasgupta, 2021).

3. Promena vlasničke strukture ekonomskih faktora

Savremeni ekonomski sistemi zasnivaju se na različitim oblicima svojine, među kojima dominiraju privatna i javna svojina. Njihova uloga ogleda se u obezbeđivanju pravne sigurnosti, efikasnoj alokaciji resursa i stvaranju uslova za održiv privredni razvoj. Bez jasno definisanih vlasničkih prava nije moguće ostvariti efikasno funkcionisanje tržišta niti dugoročno planiranje investicionih aktivnosti (North, 1990; Acemoglu & Johnson, 2005; World Bank, 2022).

U uslovima globalizacije pitanje vlasništva dobija novu dimenziju, jer se ekonomski odnosi sve više odvijaju u međunarodnom okruženju. Globalni finansijski tokovi, razvoj digitalne ekonomije i rast međunarodnih investicija zahtevaju harmonizaciju pravnih i institucionalnih okvira koji će omogućiti zaštitu vlasničkih prava i efikasnije upravljanje ekonomskim resursima (OECD, 2023; United Nations, 2023).

U ovom radu polazi se od pretpostavke da bi budući sistem održivog razvoja trebalo da obuhvati i prirodni kapital kao važan element ekonomskog vrednovanja. U tom kontekstu, razmatra se mogućnost da se određeni prirodni resursi, pre svega kiseonik kao rezultat funkcionisanja ekosistema, posmatraju kao resurs od posebnog značaja za opstanak čovečanstva. Ovakav pristup predstavlja autorski koncept i može se dovesti u vezu sa savremenim teorijama prirodnog kapitala i vrednovanja ekosistemskih usluga, koje ukazuju da prirodni resursi imaju značajnu ekonomsku i društvenu vrednost, iako se ona često ne iskazuje u tržišnim transakcijama (Dasgupta, 2021; United Nations et al., 2021).

Razvoj vlasničkih odnosa kroz istoriju pokazuje da promene ekonomskog sistema zahtevaju i odgovarajuće prilagođavanje pravnog i institucionalnog okvira. Proces privatizacije u brojnim tranzicionim zemljama predstavlja primer transformacije društvene svojine u privatnu, pri čemu je država imala ulogu regulatora i posrednika u prenosu vlasničkih prava. Cilj ovih procesa bio je stvaranje efikasnijeg sistema upravljanja kapitalom i jačanje tržišnih mehanizama (Estrin et al., 2009; World Bank, 2022).

Sa aspekta održivog razvoja, budući modeli upravljanja prirodnim resursima trebalo bi da obezbede jasnije definisanje odgovornosti za njihovo korišćenje i očuvanje. Savremeni koncepti prirodnog kapitala ukazuju da precizno definisana vlasnička prava,

odgovarajući institucionalni mehanizmi i transparentno računovodstveno evidentiranje doprinose racionalnijem korišćenju resursa i smanjenju negativnih eksternalija po životnu sredinu (Dasgupta, 2021; Ostrom, 1990; United Nations et al., 2021). Računovodstveno iskazivanje vrednosti prirodnih resursa i uključivanje ekoloških troškova u finansijsko izveštavanje predstavlja jedan od osnovnih preduslova za razvoj održive ekonomije. Integracijom prirodnog kapitala u sisteme poslovnog odlučivanja stvaraju se uslovi za objektivnije vrednovanje poslovnih subjekata, efikasnije upravljanje resursima i dugoročno očuvanje životne sredine. Takav pristup u skladu je sa savremenim razvojem računovodstva održivosti i međunarodnim okvirima za ekonomsko vrednovanje prirodnog kapitala (IFRS Foundation, 2023a, 2023b; EFRAG, 2023; United Nations et al., 2021)).

Zaključak

Savremeni razvoj društva i intenzivna globalizacija doneli su brojne ekonomske, tehnološke i društvene koristi, ali su istovremeno značajno povećali pritisak na prirodne resurse i životnu sredinu. Klimatske promene, zagađenje i iscrpljivanje prirodnog kapitala ukazuju na potrebu uspostavljanja novih modela upravljanja koji će omogućiti ravnotežu između ekonomskog razvoja i očuvanja uslova za život budućih generacija.

Analiza sprovedena u ovom radu pokazuje da postojeći sistemi upravljanja prirodnim resursima i finansijskog odlučivanja nisu u dovoljnoj meri prilagođeni savremenim izazovima održivog razvoja. Zbog toga je neophodno razvijati modele koji će povezati ekonomsku efikasnost, odgovorno korišćenje resursa i zaštitu životne sredine kroz savremene institucionalne i računovodstvene mehanizme.

Poseban doprinos rada ogleda se u razmatranju mogućnosti proširenja reproduktionog sistema uključivanjem prirodnog kapitala kao značajnog elementa ekonomskog razvoja. U tom kontekstu, koncept uvođenja kiseonika kao posebnog faktora proizvodnje predstavlja autorski model kojim se naglašava značaj očuvanja prirodnih resursa i njihove ekonomske valorizacije u procesu održivog razvoja. Takav pristup ukazuje na potrebu da se vrednost prirodnih dobara posmatra ne samo sa ekološkog već i sa ekonomskog aspekta.

Posebno mesto u ostvarivanju ovih ciljeva ima računovodstveno-informacioni sistem, čija uloga prevazilazi tradicionalno evidentiranje poslovnih događaja. Njegov dalji razvoj trebalo bi da omogući evidentiranje prirodnog kapitala, praćenje troškova nastalih usled negativnih uticaja na životnu sredinu i objektivnije iskazivanje poslovnih performansi organizacija. Integracijom finansijskih i nefinansijskih informacija stvaraju se uslovi za kvalitetnije upravljanje resursima i donošenje odgovornih poslovnih i javnih odluka.

Uspostavljanje savremenog globalnog sistema zasnovanog na održivom korišćenju prirodnih resursa, većoj transparentnosti javnih finansija i unapređenju računovodstvenih modela moglo bi doprineti efikasnijoj raspodeli resursa, jačanju odgovornosti svih učesnika ekonomskog sistema i dugoročnom očuvanju životne sredine. Takav pristup predstavlja važan korak ka ostvarivanju održivog ekonomskog razvoja i stvaranju kvalitetnijih uslova života za sadašnje i buduće generacije..

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GLOBAL BUSINESS INFORMATION SYSTEM OF OWNERSHIP RIGHTS OVER FACTORS OF PRODUCTION

Original scientific paper

Summary

Modern social development is characterized by intensive technological, economic, and social changes which, in addition to numerous benefits, are creating increasingly strong pressures on the environment and natural resources. Accelerated industrialization, globalization, and growing consumption have led to increased emissions of harmful gases, ecosystem degradation, and climate change, making the preservation of natural capital one of the key issues of sustainable development.

The paper examines possibilities for improving the existing natural resource management system through the development of a modern accounting and information system and the redefinition of the role of the state, businesses, and other participants in the economic system. Particular attention is given to the concept of including natural capital, specifically oxygen as an existentially important resource, in the process of economic valuation and reproduction, with the aim of improving environmental protection and ensuring more rational use of limited resources.

It is concluded that the integration of sustainability accounting, more transparent public financial management, and modern institutional solutions can contribute to more efficient management of natural capital, environmental protection, and the achievement of long-term sustainable economic development.

Keywords: sustainable development, natural capital, accounting and information system, environmental protection, globalization.

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Introduction

The issue of environmental protection has become one of the most important issues in modern society over the past several decades. Although the first serious scientific and professional discussions about the negative consequences of industrial development began as early as the 1960s, intensive urbanization, technological progress, and the growth of production have further increased pressure on natural resources and ecosystems. Today, the environment is viewed as an integral part of economic development, with sustainability representing a basic prerequisite for long-term social and economic progress (Rockström et al., 2023; United Nations, 2023).

The development of science and technology has enabled a significant increase in living standards and improved production processes, but it has also led to more intensive use of natural resources, increased greenhouse gas emissions, and environmental degradation. Ignoring the interconnection between technological development, economic relations, and social responsibility contributes to the emergence of numerous environmental challenges that directly affect the quality of life of present and future generations (IPCC, 2023; Dasgupta, 2021).

Under modern conditions, fiscal policy represents one of the most important instruments for achieving sustainable development goals. Tax systems, environmental charges, and other forms of public revenue can contribute to more rational use of natural resources, reducing pollution, and financing environmental protection measures. For this reason, modern states are increasingly introducing economic instruments that encourage sustainable production and responsible use of natural capital (OECD, 2023; World Bank, 2022).

Over the past decades, the international community has adopted numerous declarations, agreements, and development strategies emphasizing the need to preserve natural resources and ensure responsible environmental management. The United Nations Sustainable Development Goals (SDGs) are of particular importance, as they provide a global framework for aligning economic development, social progress, and environmental protection (United Nations, 2023).

The subject of this paper is the relationship between economic development, the fiscal system, and the preservation of

natural resources, with particular focus on the possibilities of improving the existing management system through the application of modern economic and accounting solutions. The aim of the paper is to point out the importance of a systemic approach to environmental protection and to show how the integration of economic, legal, and institutional mechanisms can contribute to long-term sustainability and the preservation of the conditions necessary for the existence of human society (Dasgupta, 2021; Rockström et al., 2023; United Nations, 2023).

1. Problems of environmental protection

Problems related to environmental protection represent one of the most important issues facing modern society. While in the past the negative impacts of human activities on nature were often neglected or considered limited, there is now broad scientific consensus that climate change, ecosystem degradation, as well as the overexploitation of natural resources are among the greatest challenges to sustainable development. The consequences of air, water, and soil pollution, along with intensive deforestation and desertification, directly threaten the quality of life of the population and the stability of natural systems (IPCC, 2023; United Nations Environment Programme [UNEP], 2024).

The increasing frequency of extreme weather events, such as prolonged droughts, large-scale wildfires, devastating floods, and heatwaves, confirms that climate change is no longer merely a future threat but a reality faced by the international community as a whole. Scientific reports indicate that the intensity and frequency of these events are increasing as a result of the rise in global temperatures caused by human activities. Although information about climate change is now more accessible than ever, the responses of society and policymakers are often not proportional to the seriousness of the problem, with public interest generally increasing only after major natural disasters (IPCC, 2023; World Meteorological Organization [WMO], 2024).

The Earth's climate system represents an extremely complex and interconnected set of processes in the atmosphere, hydrosphere, biosphere, and lithosphere. Due to its sensitivity, even relatively small changes in the average global temperature can cause significant changes in precipitation patterns, storm intensity, the distribution of climate zones, and the functioning of ecosystems. For

this reason, climate change has a global character, and its consequences go beyond the borders of individual countries, requiring coordinated international action (IPCC, 2023; Rockström et al., 2023).

Advances in science and the development of modern climate models have enabled more precise monitoring of changes in temperature, atmospheric pressure, and other meteorological parameters, as well as more reliable projections of future climate trends. These models confirm that continued increases in greenhouse gas concentrations can lead to further warming of the planet, which will have long-term consequences for natural resources, agriculture, public health, and overall socio-economic development (IPCC, 2023).

The most significant greenhouse gases are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and fluorinated gases. Their concentrations in the atmosphere have increased significantly since the beginning of the Industrial Revolution due to the burning of fossil fuels, industrial production, transport, and changes in land use. Numerous studies confirm that the increase in the concentration of these gases is the main cause of current global warming and changes in the climate system (IPCC, 2023; UNEP, 2024; World Meteorological Organization, 2024).

2. A systemic approach to solving the planetary crisis

The process of globalization represents one of the most important characteristics of modern society and affects economic, political, and social relations at the global level. The integration of national economies, the development of international trade, and rapid technological progress have enabled more efficient use of resources and faster flows of capital and knowledge, but they have also increased pressure on natural resources and the environment. For this reason, sustainable development is now viewed as a basic prerequisite for the successful functioning of the global economy (United Nations, 2023; OECD, 2023; Rockström et al., 2023).

Modern socio-economic systems are based on the interaction of the real, financial, public, and international sectors. Their effective functioning depends on the coordination of the interests of the state, businesses, and the population. Businesses seek to use available resources as efficiently as possible in order to achieve competitive advantage and long-term profitability, while the state,

through fiscal, regulatory, and development policies, seeks to ensure a balance between economic development, social security, and environmental protection (World Bank, 2022; OECD, 2023; Dasgupta, 2021).

Traditional economic theory recognizes labor, capital, land, and entrepreneurship, or knowledge, as the basic factors of production (Gojkov, 2025). However, contemporary research increasingly emphasizes the importance of natural capital as a distinct source of value creation. The concept of natural capital implies that natural resources and ecosystems have economic value because they provide ecosystem services essential to the functioning of the economy and society, including oxygen production, climate regulation, water purification, and biodiversity conservation (Dasgupta, 2021; United Nations et al., 2021).

In this context, the idea presented in this paper of treating oxygen as a factor of production can be understood as an author's concept highlighting the need for the economic valuation of natural resources. Although contemporary economic theory does not treat oxygen as a conventional factor of production, numerous studies confirm that the preservation of natural capital and ecosystem services represents one of the key conditions for long-term economic development and the sustainability of society (Dasgupta, 2021; Rockström et al., 2023).

For this reason, modern management models increasingly integrate environmental indicators into decision-making processes. The development of green accounting, natural capital accounting, and sustainable financial reporting systems makes it possible to incorporate the costs of environmental degradation into the assessment of the business performance and value of organizations. In this way, conditions are created for more responsible resource management and more effective achievement of sustainable development goals (United Nations et al., 2021; IFRS Foundation, 2023; EFRAAG, 2023).

2.1. Accounting information system as a tool for addressing the planetary crisis

An accounting information system represents one of the fundamental instruments for collecting, processing, and presenting economic information necessary for business and public decision-making. Under contemporary conditions, its role is no longer limited

exclusively to recording business transactions and preparing financial statements, but also includes monitoring the impact of economic activities on the environment and society. Consequently, sustainability accounting is becoming an increasingly important component of modern organizational management systems (IFRS Foundation, 2023a, 2023b; EFRAG, 2023; United Nations et al., 2021).

Starting from the fundamental idea of this paper, it can be concluded that effective management of natural resources is not possible unless their value is appropriately recorded within the information system. What is not measured and reported in business records can hardly become the subject of economic decision-making or systematic protection. For this reason, the author proposes the development of an accounting model that would incorporate natural resources and negative environmental impacts into the process of economic valuation (United Nations et al., 2021; Dasgupta, 2021).

The state plays a significant role in this process through the formulation of fiscal policy, the allocation of public revenues, and the establishment of a regulatory framework that enables transparent financing of activities of public interest, including environmental protection. Modern systems of public finance are increasingly based on the purposeful use of certain public revenues, which increases the transparency, accountability and efficiency of the management of public funds (OECD, 2023; World Bank, 2022).

The author particularly emphasizes the importance of earmarking public revenues, that is, directing them toward predefined purposes. Such an approach could enable more effective financing of environmental protection and greater control over the use of public funds. Contemporary research confirms that transparent public financial management contributes to greater public trust and more effective achievement of sustainable development objectives (OECD, 2023; United Nations, 2023).

One of the key contributions of this paper is the proposal to regard oxygen, as a fundamental condition for life and a product of the functioning of natural ecosystems, as a distinct factor in the reproduction process. Although this concept is not part of classical economic theory, it can be related to the contemporary concept of natural capital, according to which ecosystems generate services of critical importance to society and the economy, including oxygen production, climate regulation, biodiversity conservation, and air

and water purification (Dasgupta, 2021; United Nations et al., 2021).

Accordingly, the accounting information system should be expanded so that, in addition to financial indicators, it also incorporates data on the use of natural resources, emissions of harmful substances, and other externalities affecting the environment. Such a system would enable more objective assessment of business entities, more effective management of natural capital, and decision-making that contributes to the long-term sustainability of economic development (IFRS Foundation, 2023a, 2023b; EFRAG, 2023; United Nations et al., 2021).

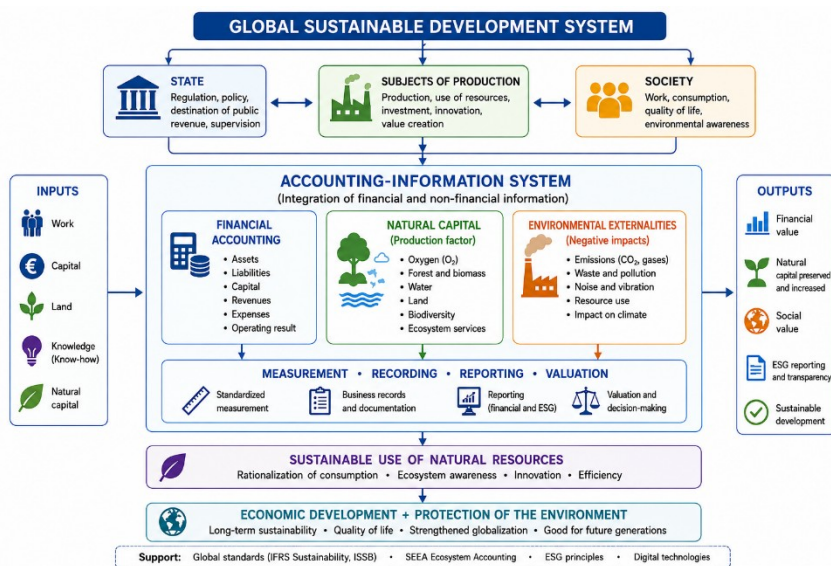


Figure 1. Model of a globally sustainable system

Within such a model, it would be possible to develop specialized accounting records and accounts designed to monitor natural capital and environmental externalities (Milojević et al., 2012). Recording the costs associated with the use of natural resources, as well as the benefits arising from their preservation, would provide a basis for more objective reporting of the value of business entities and more effective management of sustainable development. In this way, the accounting information system would

extend beyond its traditional function of financial reporting and become an important instrument for environmental protection and the rational management of limited resources (United Nations et al., 2021; IFRS Foundation, 2023; Dasgupta, 2021).

3. Changes in the ownership structure of economic factors

Modern economic systems are based on various forms of ownership, among which private and public ownership predominate. Their role lies in ensuring legal certainty, efficient allocation of resources, and the creation of conditions for sustainable economic development. Without clearly defined property rights, it is not possible to achieve the efficient functioning of markets or long-term planning of investment activities (North, 1990; Acemoglu & Johnson, 2005; World Bank, 2022).

Under conditions of globalization, the issue of ownership has acquired a new dimension, as economic relations increasingly take place within an international environment. Global financial flows, the development of the digital economy, as well as the growth of international investment require the harmonization of legal and institutional frameworks that will ensure the protection of property rights and more efficient management of economic resources (OECD, 2023; United Nations, 2023).

This paper starts from the assumption that a future sustainable development system should also incorporate natural capital as an important element of economic valuation. In this context, the possibility is considered of treating certain natural resources, particularly oxygen as a product of ecosystem functioning, as resources of exceptional importance for the survival of humanity. This approach represents an original concept proposed by the author and can be related to contemporary theories of natural capital and ecosystem services valuation, which emphasize that natural resources possess significant economic and social value, even though such value is often not reflected in market transactions (Dasgupta, 2021; United Nations et al., 2021).

The historical development of ownership relations demonstrates that changes in economic systems also require corresponding adjustments to the legal and institutional framework. Privatization processes in numerous transition economies provide an example of the transformation of socially owned property into private ownership, with the state acting as a regulator and

intermediary in the transfer of property rights. The objective of these processes was to establish a more efficient system of capital management and strengthen market mechanisms (Estrin et al., 2009; World Bank, 2022).

From the perspective of sustainable development, future models for managing natural resources should provide clearer definitions of responsibility for their use and preservation. Contemporary concepts of natural capital indicate that clearly defined property rights, appropriate institutional mechanisms, and transparent accounting records contribute to more rational resource use and the reduction of negative environmental externalities (Dasgupta, 2021; Ostrom, 1990; United Nations et al., 2021).

Accounting for the value of natural resources and incorporating environmental costs into financial reporting represent fundamental prerequisites for the development of a sustainable economy. By integrating natural capital into business decision-making systems, conditions are created for more objective valuation of business entities, more efficient resource management, and the long-term preservation of the environment. Such an approach is consistent with contemporary developments in sustainability accounting and international frameworks for the economic valuation of natural capital (IFRS Foundation, 2023a, 2023b; EFRAG, 2023; United Nations et al., 2021).

Conclusion

Modern social development and intensive globalization have generated numerous economic, technological, and social benefits, while simultaneously increasing pressure on natural resources and the environment. Climate change, pollution, and the depletion of natural capital highlight the need to establish new management models capable of balancing economic development with the preservation of living conditions for future generations.

The analysis conducted in this paper demonstrates that existing systems of natural resource management and financial decision-making are not sufficiently adapted to contemporary sustainable development challenges. Therefore, it is necessary to develop models that integrate economic efficiency, responsible resource use, and environmental protection through modern institutional and accounting mechanisms.

A particular contribution of this paper lies in examining the possibility of expanding the reproduction system by incorporating natural capital as an important element of economic development. In this context, the concept of introducing oxygen as a distinct factor of production represents an original model proposed by the author, emphasizing the importance of preserving natural resources and their economic valuation within the sustainable development process. Such an approach highlights the need to consider the value of natural assets not only from an environmental perspective but also from an economic one.

The accounting information system has a particularly important role in achieving these objectives, as its function extends beyond the traditional recording of business transactions. Its further development should enable the recording of natural capital, monitoring of costs arising from negative environmental impacts, and more objective reporting of organizational performance. By integrating financial and non-financial information, conditions are created for more effective resource management and more responsible business and public decision-making.

The establishment of a modern global system based on the sustainable use of natural resources, greater transparency in public finances, and the improvement of accounting models could contribute to more efficient resource allocation, stronger accountability among all participants in the economic system, and the long-term preservation of the environment. Such an approach represents an important step toward achieving sustainable economic development and creating better living conditions for present and future generations.

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