

Economics of Sustainable Management

2. Macro- and Micro-economic context of environmental protection



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- **Economics:**

- how to use **scarce resources**, how to distribute them among **society members** and how to use them

- **Positive and normative economics:**

- positive economics** – describes reality

- normative economics** – describes how the reality should be

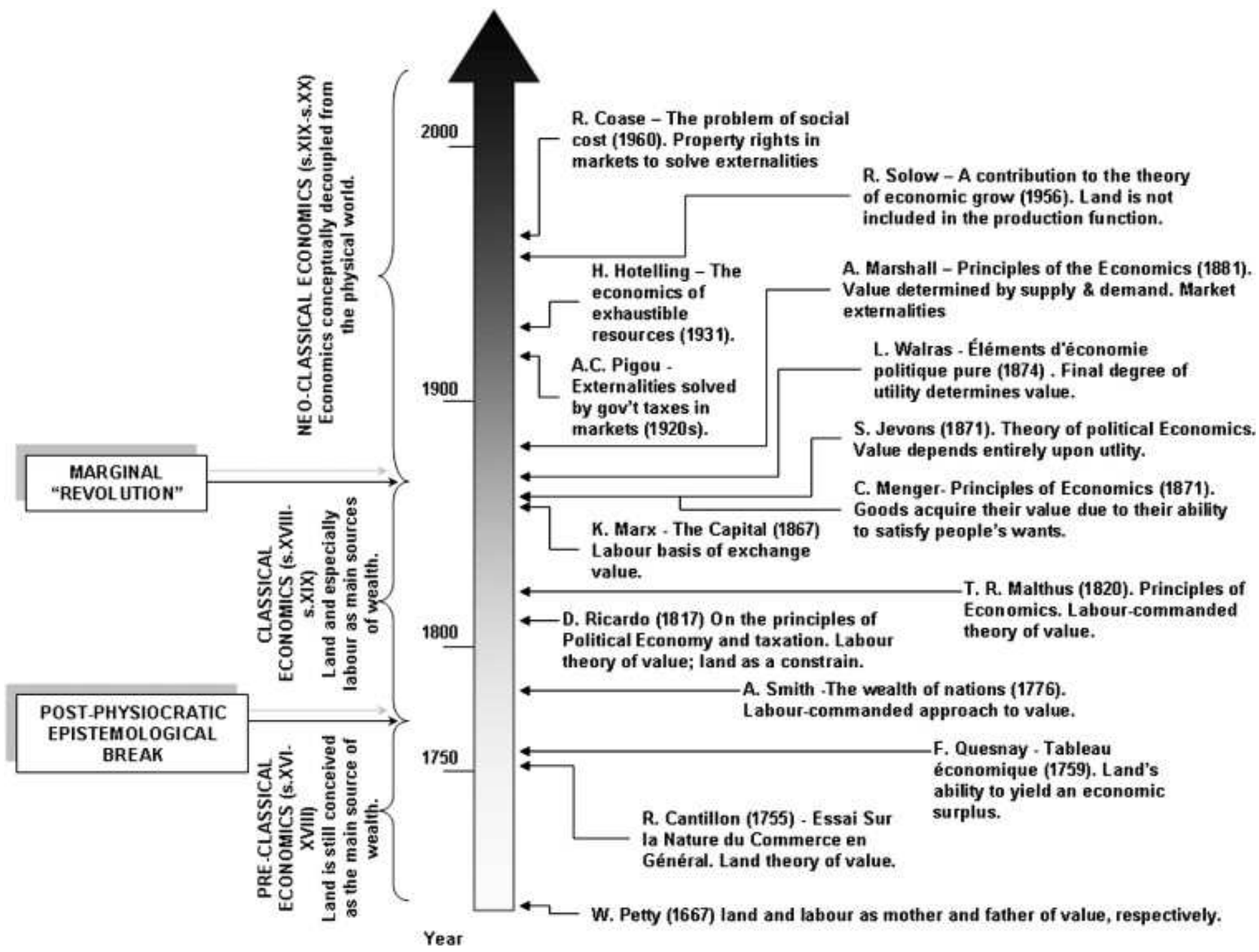
Microeconomics:

–is branch of economics that studies the behaviour of individual economic subject in making decisions on the allocation of limited resources

Macroeconomics:

–is a branch of economics dealing with the performance, structure, behaviour, and decision-making of an economy as a whole

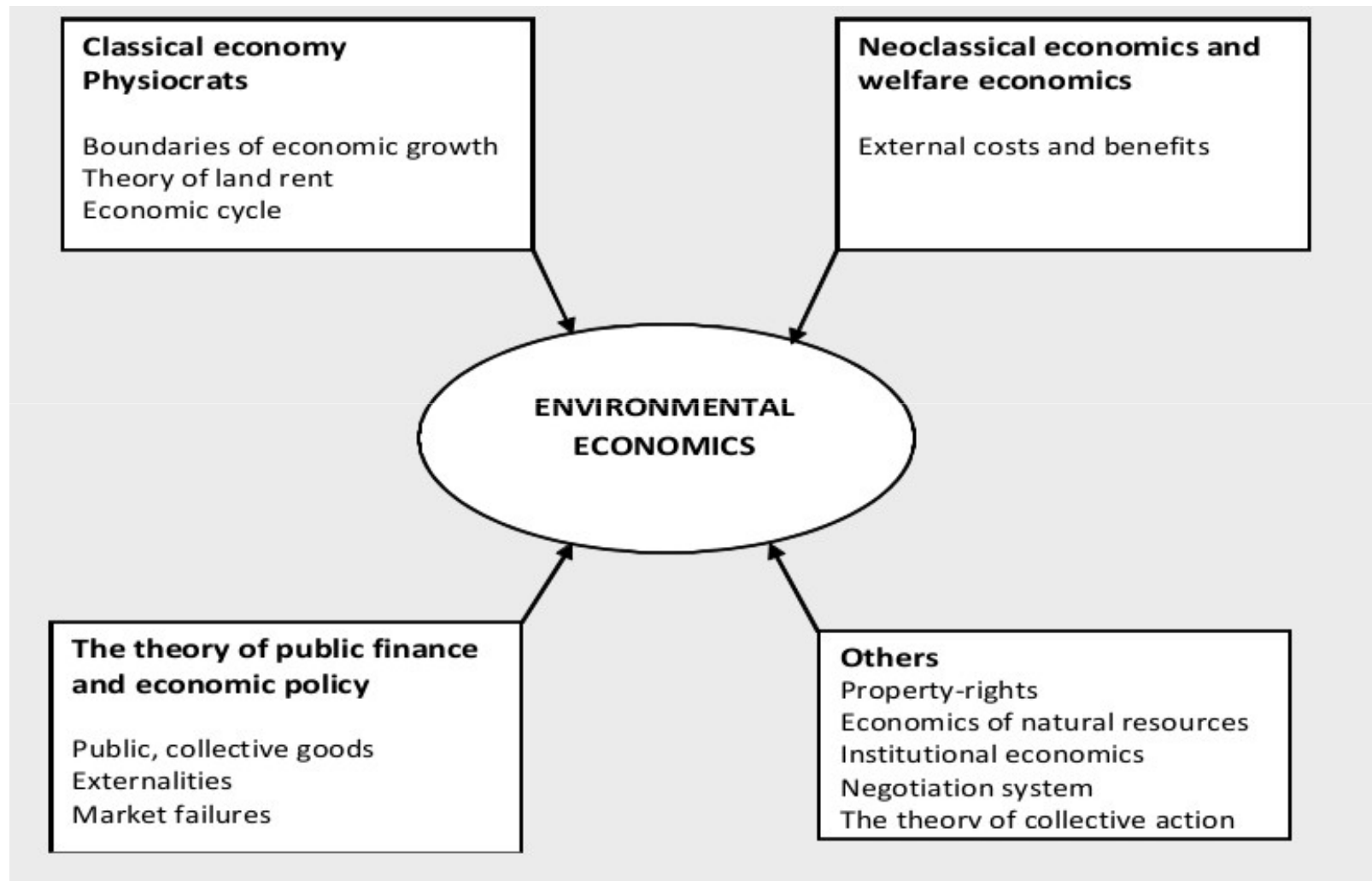
- **ancient Greece** – Aristotle, Plato, Xenophon (*Oikonomikos*)
- **Middle Ages** – Thomas Aquinas
- **mercantilism** (late 16th – mid 18th century)
- **physiocrats** (France, 18th century)
- **classical political economy** (2nd half of the 18th century) – the emergence of a discipline (Adam Smith, David Ricardo)
- **marxism**
- **neoclassical economic school** (30 years of the 20th century)
- **Keynesianism** (response to the economic crisis)
- **monetarists**
- **institutionalism**



- **origins from the 50th and 60th years of 20th century, North America, efforts to evaluate the costs and benefits of environment**
- **environmental economics deals with the relationship between economic activities and their impact on the environment**
- **it examines: how they affect economic activity status and development environment, what are the tools and opportunities influencing these relationships, how it affects the state of environmental regulation and the main macroeconomic aggregates.**

- **Environmental economics** builds on neoclassical economics; focused in the efficient allocation of scarce resources among the competing use
- **Ecological economics** – a transdisciplinary approach to the economy, emphasizing the link between economic and ecological system; interest in the sustainable management
- **Economics of natural resources** – optimizing the use of renewable and non-renewable natural resources

Trends in environmental economics



Macroeconomics:

–economic discipline concerned with the study of major trends in the development of the national economy as a whole, including the context of economic growth and the state of the environment

–the main **macroeconomic variables in a market economy, which evaluates the performance of the national economy are: product, employment, price level, external economic position**

Objectives and tasks of economic policy:

- **optimal economic growth** (steady growth product market fluctuations and restrictions),
- **high level of employment** (or reduction in the unemployment rate)
- **stability of the price level** (or reduce the rate of inflation)
- **external economic balance** (in the form of balanced trade balance, respectively broadly following the relation between trade and the environment)

Environmental macroeconomics deals with the following problem areas:

–how state and protection of the environment affects the major economic problems (economic growth, availability of resources, distribution of goods, etc.)

–how the main economic activities (production, consumption of goods and services) affects environment

The most important macroeconomic challenges and a set of methods and techniques include:

- quantification and value expression of environmental damage,
- monitoring and assessment of expenditure on protecting and improving the environment,
- design of economic instruments in environmental policy,
- evaluation of the economic aspects of environmental policy on macroeconomic and microeconomic level,
- establish a system of environmental and economic accounting as a satellite system of national accounts.

- **Gross domestic product (GDP):** all income earned within a given country regardless of the nationality of the resident or business
- **Gross national product (GNP):** all income earned by residents or businesses of a given country regardless of where that income is earned
- **Economic growth:** an increase in the capacity of an economy to produce goods and services, compared from one period of time to another

- **Net domestic product (NDP):** gross domestic product adjusted for the depreciation of manufactured capital

- **Economic cycle:** fluctuations of production or economic activity in the economic system over a long period of time; these fluctuations occur constantly but supposedly unpredictably around a long-term trend of growth in the value of the economic system

GNH - Gross National Happiness

NINE DOMAINS OF GROSS NATIONAL HAPPINESS

Psychological Well-being

Standard of Living and Happiness

Good Governance and Gross National Happiness

Health

Education

Community Vitality

Cultural Diversity and Resilience

Time Use and Happiness

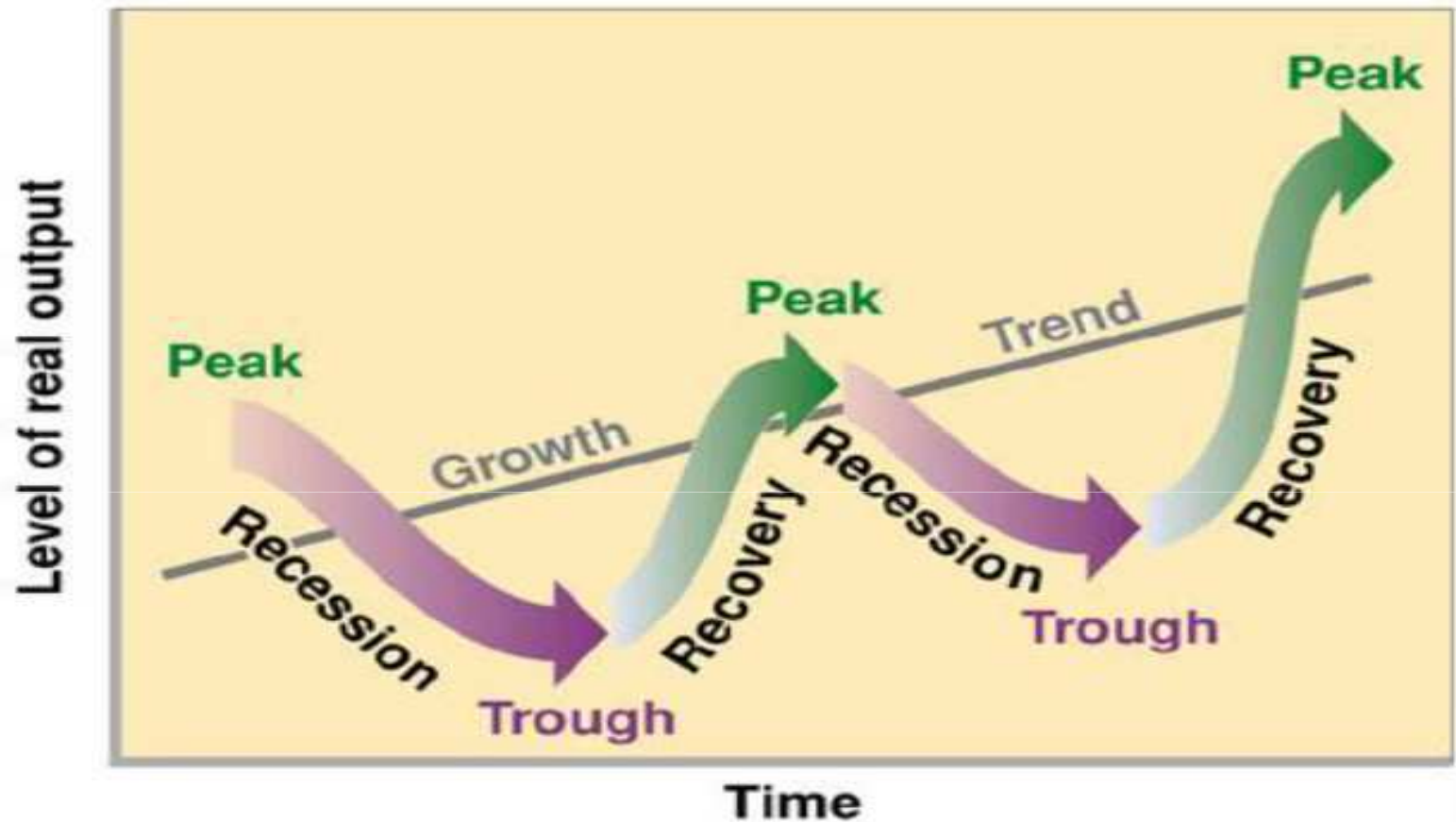


In Bhutan - <http://www.youtube.com/watch?v=CXJwNSkdTH0>

<http://www.youtube.com/watch?v=7Zqdqa4YNvl&feature=related>

Environmental macroeconomics:

–an analysis that places the human economic system in an ecological context to balance the scale of the economic system within ecological constraints



4 distinguishing and separate stages:

- boom (increase in production and prices, low interests rates in monetary system)
- slump (stock exchanges crash and multiple bankruptcies of firms occur)
- recession (drops in prices and in production output, high interests rates in monetary system)
- recovery (stocks recover from the fall)

Problems GDP:

- many activities, respectively phenomena not find its expression in the indicator of GDP (a negative), such as personal injury, damage of ecosystems, damage or depletion of natural resources, climate disruption and climate,
- some of the consequences of pollution or other environmental insults are paradoxical image in GDP growth and thus act as mistakenly raising living standards, such as spending on removing unnecessary environmental damage caused,
- GDP increases the extraction of non-renewable natural resources.

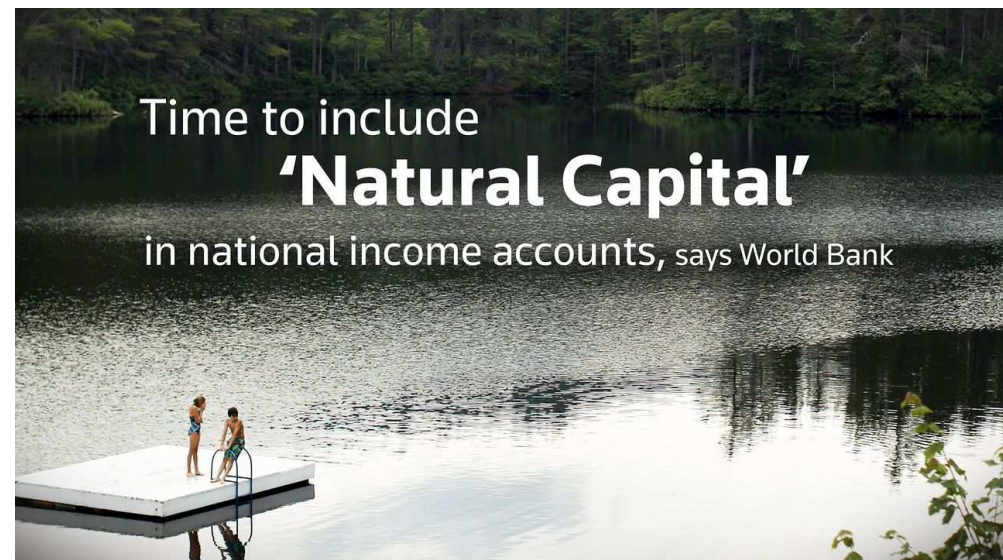
Environmentally adjusted macroeconomic aggregates can greatly expand the information base for assessing the economic performance of the company.

- Environmentally-adjusted net domestic product is the net value added generated during the period after consumption not only produced, but also non-produced natural assets, presents a more realistic view of the actual performance of the economy.
- **Environmentally-adjusted net domestic product (EDP): net domestic product less adjusted for the depreciation of natural capital.**

System of National Account (SNA) are the implementation of complete and consistent accounting techniques for measuring the economic activity of a nation.

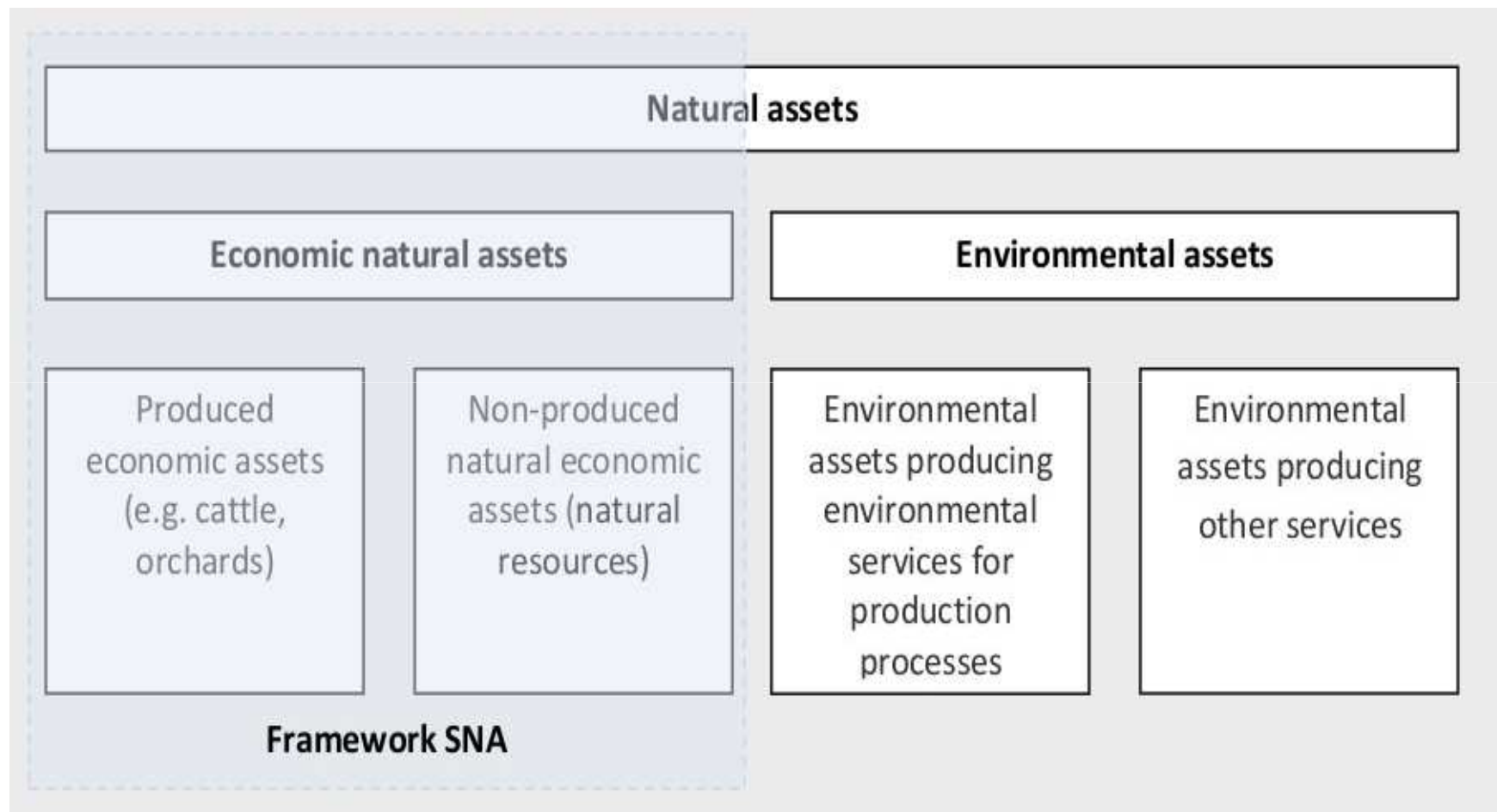
- **criticism SNA** – does not capture the depletion of natural resources necessary for sustainable economic development or degradation of the environment and the associated impacts on the health and general welfare of the population
- 1993 – revision of the SNA, the category of satellite accounts

- **satellite accounts:** accounts that estimate the supply of natural capital in physical, rather than monetary, terms; used to supplement traditional national income accounting
- **natural capital:** the available endowment of land and resources including air, water, soil, forests, fisheries, minerals, and ecological life-support systems



the concept of satellite accounts allow the creation of a new accounting system – **System of Environmental-Economic Accounting (SEEA)**

- SEEA – published by the UN in 1993, updated in 2003
- SEEA contains the internationally agreed standard concepts, definitions, classifications, accounting rules and tables for producing internationally comparable statistics on the environment and its relationship with the economy
- the aim of SEEA **is the creation of high quality information base for environmentally oriented decision-making processes at all levels**
- the basic difference between the SNA and SEEA is the extent of natural assets that are included in the accounting system



Outputs SEEA can be used for:

- **capture the interactions** between the activities of the company and the environment, without limitation or reduction presentation of SNA
- **presentation of known information** in new contexts, as well as entirely new information acquisition and identification of new links and connections
- **modeling the effect of economic and political decisions** of the state and development of the environment and a description of the actual state
- **formulation and direction of national economic policy objectives** and policy environment at the same time
- **evaluation of sustainable development of society**

Unemployment (or joblessness):

–when people are without work and actively seeking work

The unemployment rate:

–is a measure of the prevalence of unemployment and it is calculated as a percentage by dividing the number of unemployed individuals by all individuals currently in the labour force

70th years of the 20th century recession – rising unemployment, the increase of environmental problems

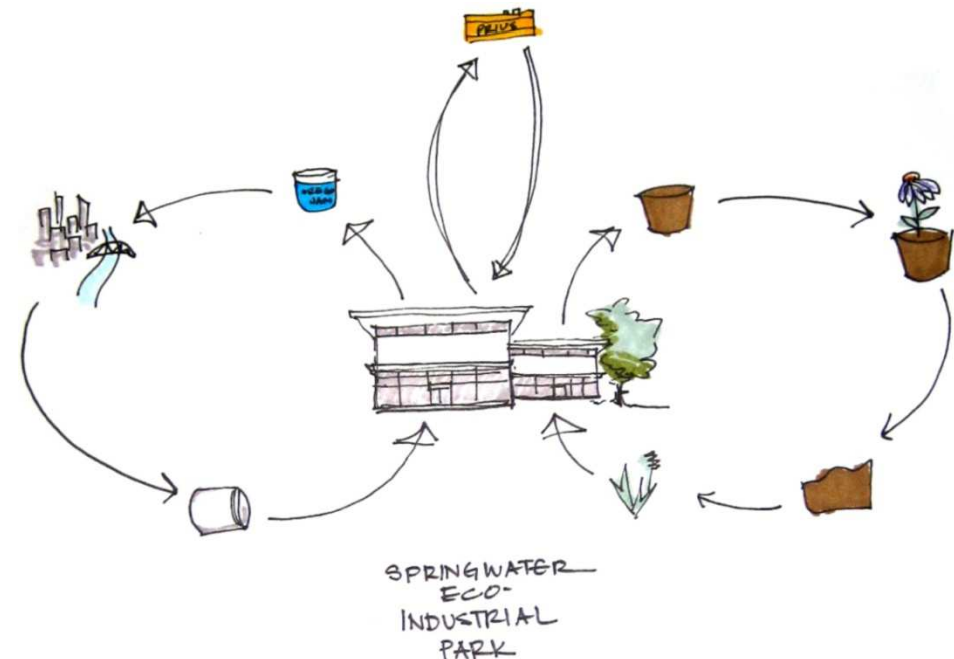
Two opinion trends:

- environmental protection acts negatively on employment levels – **reduces employment opportunities**
- environmental protection generating new activities – **creates employment opportunities**

Eco-industry (industry environmental goods and services) – includes activities related to the production of goods and services to measure, prevent, minimize or correct damage to major components of the environment, as well as activities related to waste management, noise, vibration or ecosystem

Environmental activities:

- activities associated with the management of pollution
- cleaner technologies and products
- resource management



Active employment policy helps to reconcile supply and demand in the labour market, uses tools:

- creation of socially useful job opportunities
- community service
- retraining
- investment incentives
- financial contributions to employers who create space for professional practice or graduate school to obtain a qualification adolescents registered at labour offices
- provide contribution to the establishment or operation of a sheltered workshop or workplace

Passive policy – reduces the impact of unemployment payment of unemployment benefits.

positive:

- create and maintain new jobs
- environmental programs and projects
- environmental regulation, which stimulates the demand for environmentally friendly products and induces the development of new types of environmental services

negative:

- shift the cost of environmental measures in product prices
- increasing expenditure on environmental protection may hinder the expansion of production capacity, reduce competitiveness, job cuts
- environmental regulation may result in a shift of manufacturing to less-regulated states

Job creation impacts (on the side of economic policy) factors:

- phases of the economic cycle
- relative intensity of individual sector of labour
- initial level of employment
- availability of human resources



Job creation impact (on the side of policy environment) factors:

- the size and sustainability of expenditure on environmental protection
- composition of expenditure on environmental protection
- combination of environmental policy instruments
- type of investment for environmental protection and type of technology
- scale import "leakages"
- spatial reach of the implementation of environmental measures

Currently, within the policy outlined several areas of the environment, which are considerable and as yet not fully exploited the potential for expansion and job creation:

- **ecological tax reform** – the concept of revenue-neutral tax involves the gradual economically challenging basic inputs to the economy, and thus the possibility of using the revenue to reduce flat taxes imposed on labour
- **environmentally motivated innovations** – the link between environmental policy and technological progress, product innovation has a positive impact on employment
- **energy savings programs** – e.g. complex building insulation – saving households, reduce harmful emissions, create jobs

inflation:

- is a **rise in the general level of prices of goods and services** in an economy over a period of time
- when the general price level rises, each unit of currency buys fewer goods and services
- for the assessment of price level are most commonly use **price indexes**
- above the price level in the domestic sector is monitored by the **customer price index**

- increasing costs of environmental protection, taxes and fees for environmental pollution, natural resource use have the potential to exert pressure on the price level increase

possible inflationary factors:

- environmental state expenditures
- administrative burden on businesses
- environmental taxes, charges and expenses
- cost pressures reduce the competitiveness of businesses

“Unknown Unknowns”: High Public
Debt Levels and Other Sources of
Risk in Today’s Macroeconomic
Environment

J. Bradford DeLong
U.C. Berkeley and Kauffman Foundation

May 2013

possible anti-inflationary factors:

- cost savings (mainly raw material) associated with the operation of new technology
- slump in demand caused by environmentally motivated by increasing value added tax (VAT), consumption taxes, etc.
- slump in demand caused ecological enlightenment

In efforts to understand the relationship of trade, environment and sustainable development are basically asked two basic questions:

- „How trade policy measures affecting the environment and opportunities to promote sustainable development?“ or „What are the effects of liberalization of international trade on the environment?“
- „What are the effects of environmental policy measures, taken at national or international level, the system of international trade?“

- **Environmental Impact of Trade:**

- world trade expansion has raised the issue of the relationship between trade and the environment

- „Is trade good or bad for the environment?"; the answer is not obvious

- **Many possible effect of trade, can be categorized according to:**

- via GDP, just like investment, technology, and other sources of economic growth,

- or whether they are peculiar to trade alone, and hold for a given level of GDP

- **Within each category, there are effects both:**

- beneficial for the environment

- and detrimental

- we can use economic theory to analyze some of the gains and losses associated with environmental effects of trade
- the theory of **comparative advantage**:
 - tells us that both trading partners gain from trade through specializing in the goods that they can produce most efficiently
 - comparative advantages of a country can affect not only the level of quality of the environment but also the different demands of environmental policy

Eco-dumping

–the act of exporting a good from a country with new or poorly enforced environmental protection laws. These laws generally add to the cost of producing a good, so the export likely is much less expensive in an importing country than domestically produced goods of the same type. This can result in a large profit for the exporter. In addition to the costs to the environment (and the accompanying ethical questions), this can be detrimental to domestic business in the importing country. Many jurisdictions attempt to counteract dumping by setting up tariff barriers.

Eco-protectionism

–is the economic policy of restraining trade between states through methods such as tariffs on imported good, respective quotas, and a variety of other government regulations designed to allow „fair competition“ between imports and goods and services produced domestically; countries use environmental policy to protect domestic industries against foreign competition

▪ **Microeconomics:**

- the branch of economics that analyzes the market behaviour of individual consumers and firms in an attempt to understand the decision-making process of firms and households
- it is concerned with the interaction between individual buyers and sellers and the factors that influence the choices made by buyers and sellers
- in particular, microeconomics focuses on patterns of supply and demand and the determination of price and output in individual markets

- **Environmental microeconomics:**

- the use of microeconomic techniques such as economic valuation, property rights rules, and discounting to determine an efficient allocation of natural resources and environmental services

Analytical techniques that play an important role in environmental microeconomics include:

- measuring external costs and benefits (important for **internalize externalities**)
- valuing resource and the environment as assets, whether privately owned or public (this involves considering **intertemporal resource allocation, the choice between using a resource now or conserving it for future use**)
- devising appropriate **property rights rules for environmental resources and establishing rules for use of common property resources and for provision of public goods**
- balancing economic cost and benefits through some form of **cost-benefit analysis**

The three basic economic questions that every society must answer are:

What will it produce?

How will it be produced?

For whom would it be produced for?

- The economy is a system where millions economic entities are faced, where millions of transactions taking place.
- An economic system **is a system for producing, distributing and consuming goods and services, including the combination of the various institutions, agencies, consumers, entities (or even sectors) that comprise the economic structure of a given society or community.**
- An economic system **is the production, distribution and consumptions of goods and services of the economy.**

Types of economic system

▪ The mechanism by which businesses solve basic economic questions determines the type of economic system:

– **Traditional Economy** – is the economy that follows the most common way of solving economic problems that is of tradition; three economic questions are decided mainly by customs

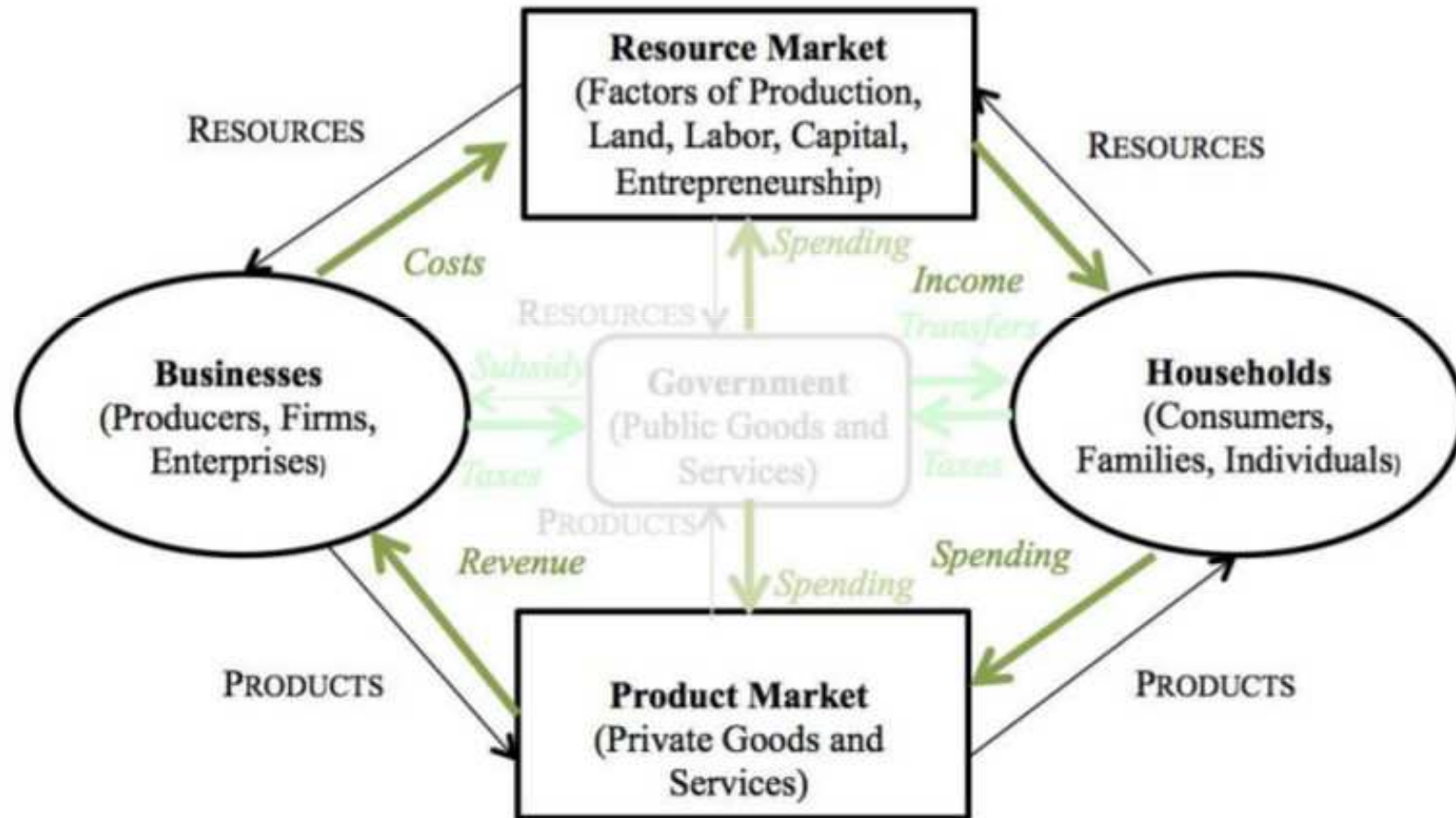
– **Market Economy / Capitalism** – is based on the principles of competition, private enterprise, capitalism and the laissez-faire; there is least intervention of government in the economy; economic questions are based upon individuals in the marketplace

– **Command economy** – is that one where the decisions regarding “what” “how much” “how” and “for whom” are taken by all-powerful planning authority employed by the Government here economic activities and decisions of the states are expected to be guided not by commercial profitability but by totality of the objects of the society. Market mechanism has almost no role, i.e. full intervention of government exists in command economy. It is decided by government.

– **Mixed Economy** – this is an economic system where there is the co-existence of market economy and command economy. In a mixed economy both private and public sectors are assigned significant roles. It is decided by combination of market decision making and making government order.

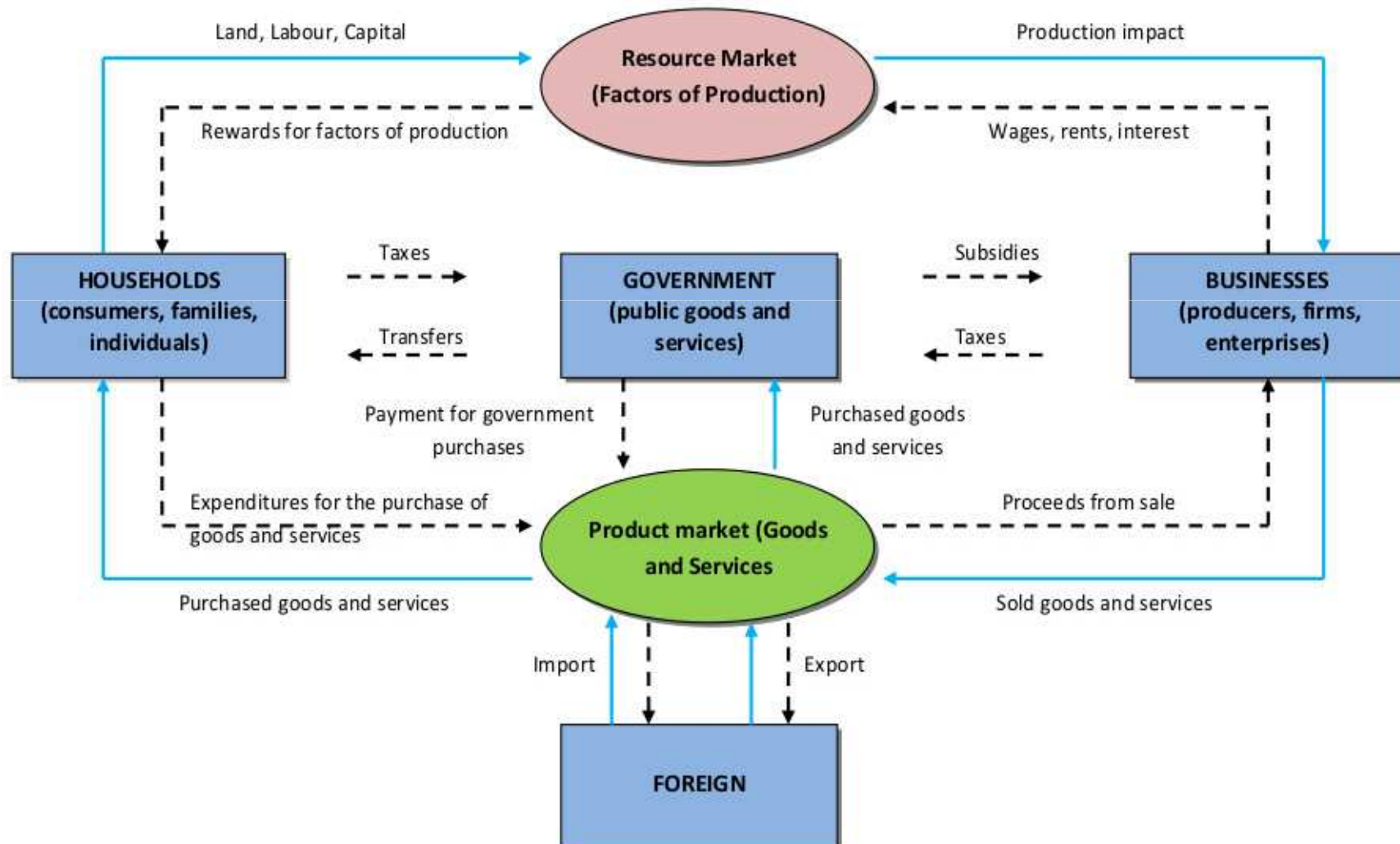
- complex description of the economy is practically impossible
- for basic understanding, we can draw the simplistic model
- **circular-flow model – is one of the main basic economic model, which describes the flow of money and products throughout the economy in a very simplified way**
- the model represents all of actors in an economy as either households, firms and government, and it divides market into two categories:
 - markets for goods and services (product market)
 - markets for factors of production (resource market)

Circular-Flow Model



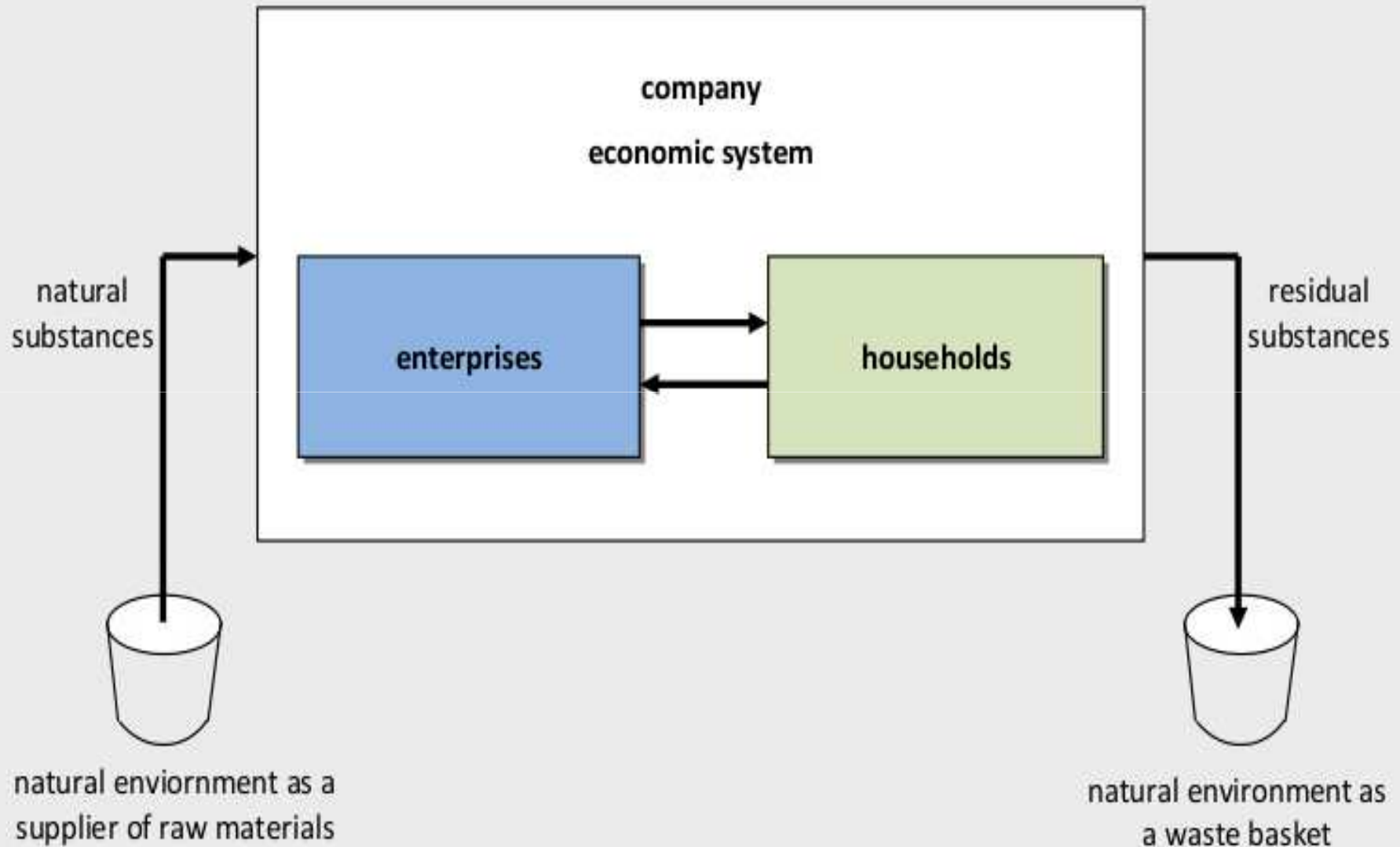
Circular-Flow Model – in open economy

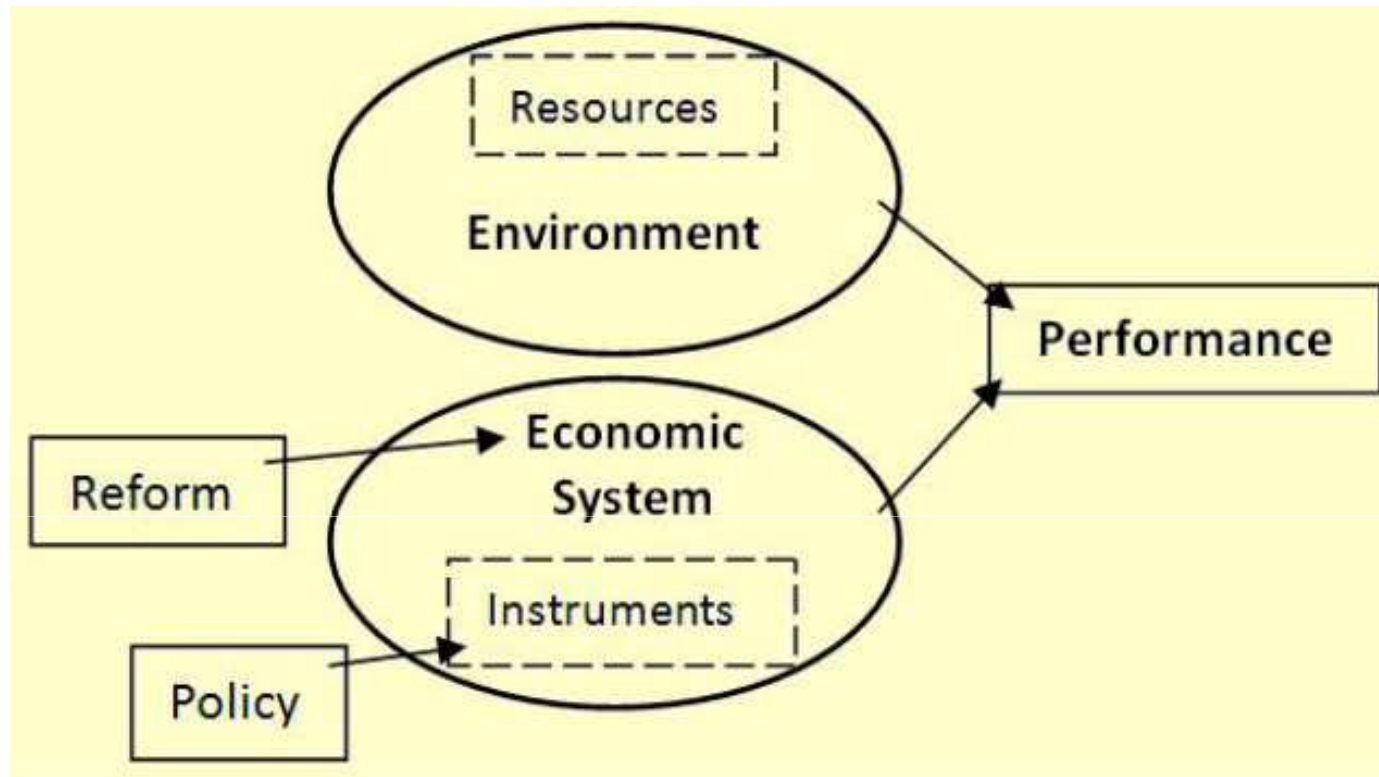
- The flow of factors of production, goods and services
- - - - -> The flow of money



- the relationship between company (in strict economic perspective represented by the economic system) and the environment can be illustrated by the **model of the broader circular-flow**

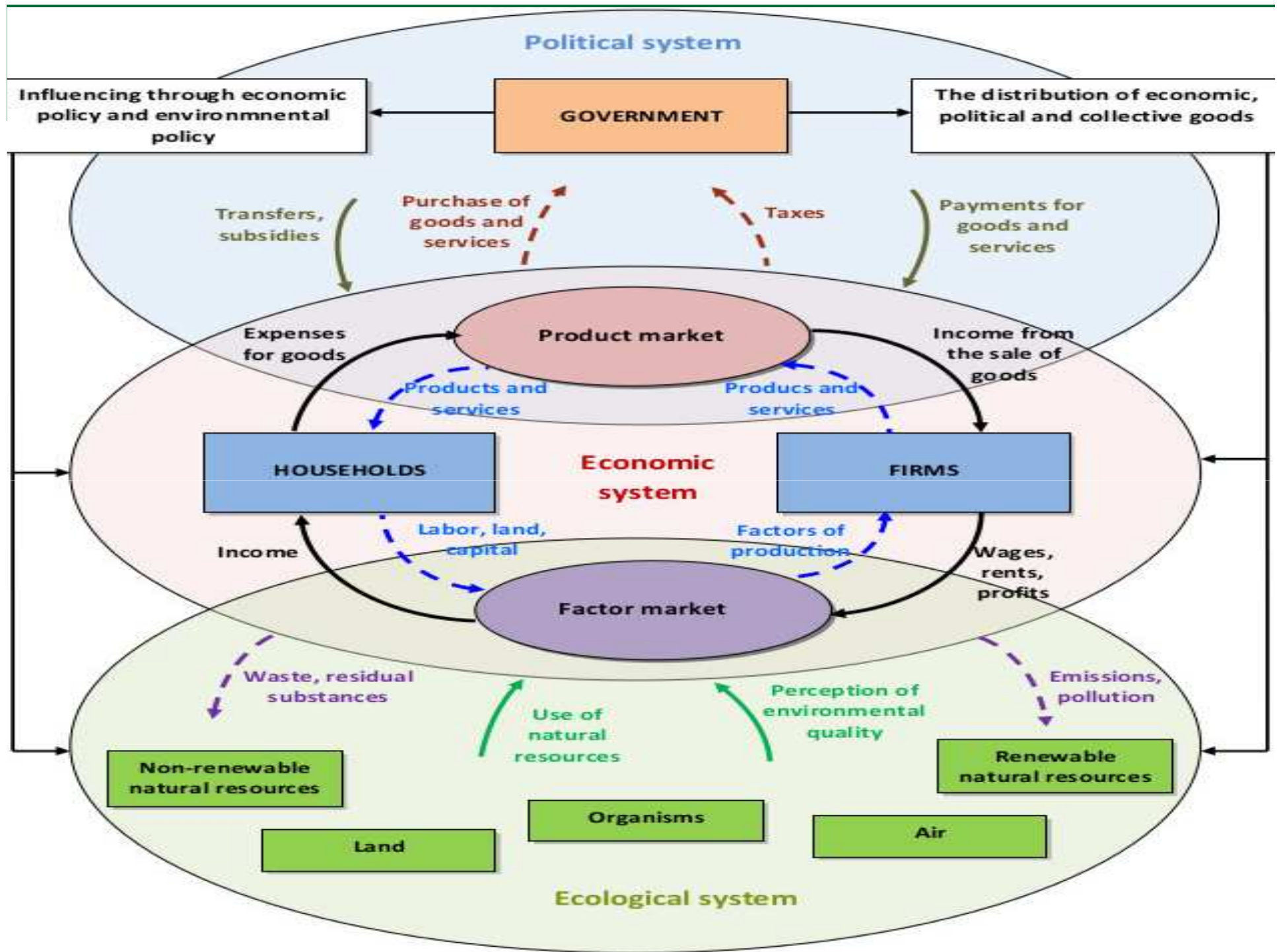
Model of the Broader Circular-Flow





- **Economic System** – set of institutions that constrain, facilitate and coordinate economic behaviors
- **Institution** – organization, practice, convention or custom that is persistent and material society
- **Environment** – factors that cannot be manipulated by policy makers
- **Policies** – factors that can be

manipulated in the medium term to influence economic performance





Topics

history of environmental studies

environmental economics versus ecological economics

macroeconomic context of environmental protection

microeconomic context of environmental protection

economic system, economic-ecological cycle

Thank you.

