

SOLAR ENERGY

Journal of
Environmental
Science
10.1002/jes.2186

Natural resources
Energy
Materials

Waste assimilation

"THE ONLY OPTION OF THE HUMAN KIND IS TO BUILD A NEW SOCIETY, BASED ON FRESH ETHICS"

Nicolae Georgescu-Roegen

Recycled materials

LOW THERM

1 INTRODUCTION

With the development of China's urbanization, the construction of specialty town has received more and more attention. Compared with the previous model of demolition and construction and rough development, the special town emphasizes the integration of production, life and ecological functions, which has a great impact on the new economic development. It is of great significance to explore a new path of urban development under normal circumstances. However, a large number of special towns are developed on the basis of existing small towns or the space of existing special towns. Most of the industrial structures are relatively backward and have their own needs for transformation and upgrading, which will also have a large impact on the future development of the spatial

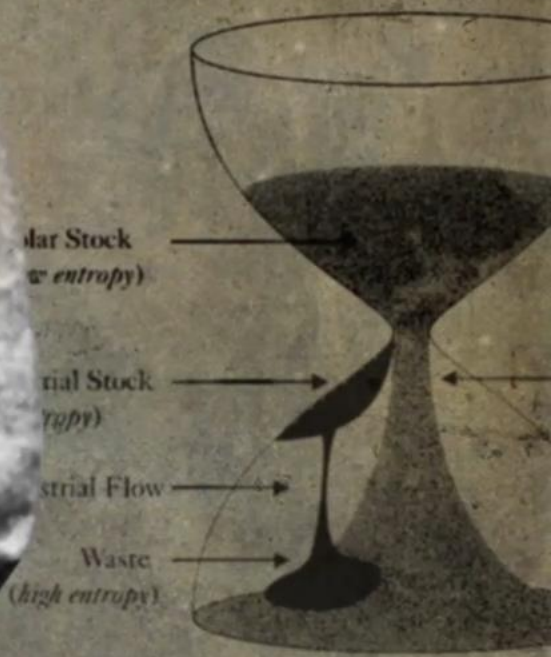
Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. Copyright for components of this work owned by others than ACM must be honored. Abstracting with credit is permitted. Copying otherwise, or republishing, for profit or for advertising or promotional purposes, is prohibited. Copyright © 2014 ACM 978-1-4558-2631-3/14/06\$15.00

of the system, adapt to their environment and to the other members of the system. The characteristics of its members will continue to change its own system and composition, and eventually evolve into a new system [1]. A characteristic town is a complex adaptive system. Its industrial development and spatial structure are its key factors. Both industry and space will continue to evolve and form interactions between different levels. On the one hand, industrial development influences the formation of the town's spatial organization, structure, and finally forms a new spatial structure. On the other hand, the spatial structure management and promotes the

of the system, adapt to their environment and to the other members of the system. The characteristics of its members will continue to change its own system and composition, and eventually evolve into a new system [1]. A characteristic town is a complex adaptive system. Its industrial development and spatial structure are its key factors. Both industry and space will continue to evolve and form interactions between different levels. On the one hand, industrial development influences the formation of the town's spatial organization, structure, and finally forms a new spatial structure. On the other hand, the spatial structure management and promotes the



Entropy hourglass (Georgescu-Roegen)



First, the hourglass is an isolate: no sand enters, no sand exits.

NICOLAE GEORGESCU-ROEGEN

System science has been applied to explore the system characteristics such as complexity, dynamics, and uncertainties. Different



Nicolae Georgescu-Roegen

Presenter: Teodor Frolu,
Entrepreneur, founder of the Romania - Creative Traditions network



DEPARTMENT OF
SUSTAINABLE DEVELOPMENT

Asociația
Ivan Patzaichin - Mila 23





„Georgescu Roegen's thinking will still interest minds, when today's skyscrapers have crumbled back to sand.”

*Paul A. Samuelson,
first American to win the Nobel Prize for Economy*



Georgescu-Roegen is the only economist who states, without hesitation, the primary purpose of economic activity is **the self-preservation of the human species**. Self-preservation requires the satisfaction of basic needs. Of course, in maintaining all the various necessities of a decent life, the purely biological ones are absolutely indispensable for survival. Since biological life feeds on low entropy, Georgescu-Roegen identified and emphasized the most important connection between **economics and low entropy resources**.

Kozo Mayumi, 2020

Ph. D., Economics, Kyoto University



The Entropy Law and the Economic Process

Nicholas Georgescu-Roegen



Harvard University Press



Nicholas Georgescu-Roegen

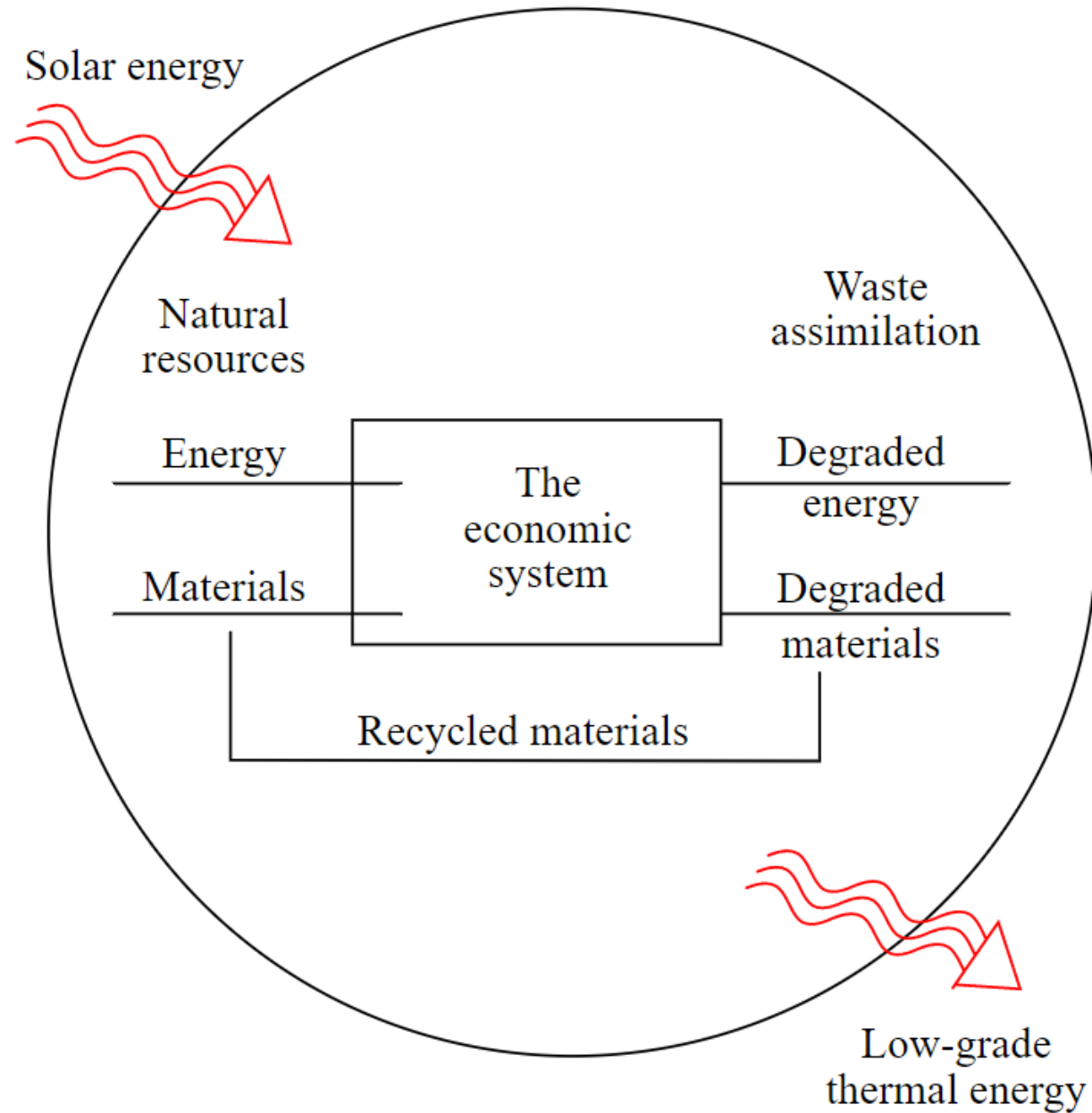


Georgescu-Roegen's bioeconomics is a new style of scientific thought: it is not a new branch of economics, but a new discipline that combines elements of evolutionary biology, institutional economics and bio-physical analysis associated with energy and mineral resources

(Mayumi, 2001; Miernyk, 1999)



The Earth's biosphere



Production and consumption activities use energy and material resources available in nature to turn them into goods and, inevitably, into waste released into the environment, which, from the perspective of the principle of entropy, represents a waste of energy and a deficit



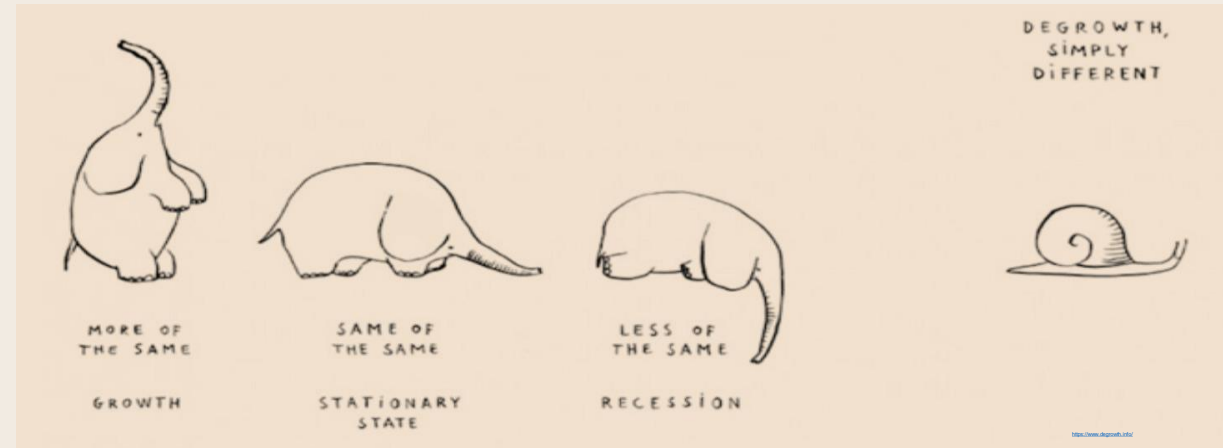
From Bioeconomics to Degrowth

Georgescu-Roegen's "New Economics" in eight essays

Edited by
Mauro Bonaiuti



Routledge Studies in Ecological Economics



„ A human being can only avoid the entropic degradation of his own structure. It cannot prevent the increase of the entropy of the whole system, composed of its structure and environment. On the contrary, as we know it today, the entropy of a system generally grows faster in the presence of life than in its absence.”

(Georgescu-Roegen, 1979)

„ “undoubtedly the current growth must cease, and, be reversed. But anyone who believes that he [sic] can draw a blueprint for the ecological salvation of the human species does not understand the nature of evolution, or even of history – which is that of a permanent struggle in continuously novel forms, not that of a predictable, controllable physico-chemical process, such as boiling an egg or launching a rocket to the moon [...]”

(Georgescu-Roegen, 1975)



„ Growth means producing more. Development, producing differently.“

Dominated by the idea of perpetual accumulation, mankind has been for centuries and longer still, in constant pursuit for the "more", without understanding the truth that, in fact, natural purpose is "to be" in a context of quality - and morally - superior. Escape the trap of this "more", with its subsidiary "faster" as a solution to living better and more complete quality is necessary and possible.



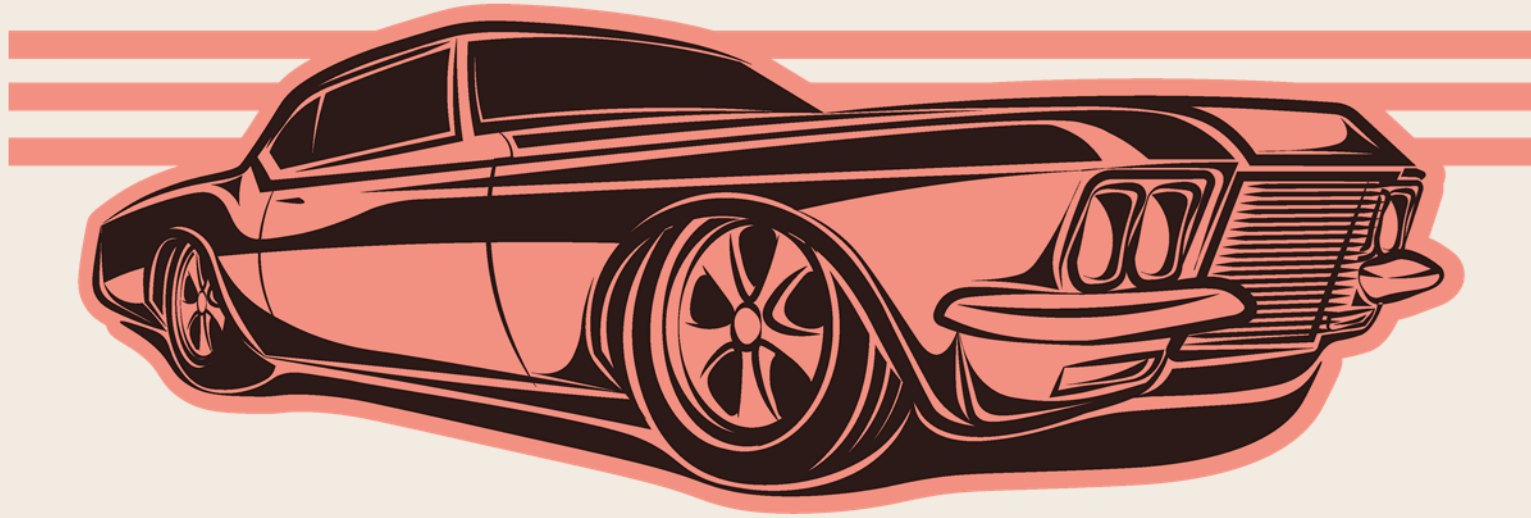
Minimal bioeconomic program:

Georgescu-Roegen was aware of the fact that his program **has an utopic aura**, and that the chances of it ever being implemented were extremely small. However, he believed that „humanity's only chance would be to build a new society based on a **new ethic**”.

1. the production of all instruments of war, not only of war itself, should be prohibited completely
2. the underdeveloped nations must be aided to arrive as quickly as possible at a good (not luxurious) life
3. mankind should stabilize its population to a level that could be adequately fed only by organic agriculture
4. all waste of energy (by overheating, overcooling, overspeeding, overlighting, etc.) should be carefully avoided, and if necessary, strictly regulated
5. we must cure ourselves of the morbid craving for extravagant gadgetry
6. we must also get rid of fashion
7. the necessity that durable goods be made still more durable by being designed so as to be repairable
8. we should cure ourselves of “the circumdrome of the shaving machine”



Muscle Car



„We must cure ourselves of the morbid craving for extravagant gadgetry, splendidly illustrated by such a contradictory item as the golf cart, and for such mammoth splendors as two-garage cars. Once we do so, manufacturers will have to stop manufacturing such “commodities.”

(Georgescu-Roegen, Minimal Bioeconomic Program, 1972)





Complete kitchen in 5 sq. ft. Combines refrigerator, sink, 3 gas burners and storage drawer. Available with electric burners, 220 or 110 v. Also without sink, 5 yr. guar.

For details, where to buy, write:

GENERAL
air conditioning corp.
NATIONWIDE SALES AND SERVICE

4530 E. Dunham St. • Los Angeles 23, Calif.
Chicago Office: Dept. 6, 323 W. Polk Street

„ we must also get rid of fashion, that disease of the human mind that makes you throw away a coat or a piece of furniture while it can still perform its specific service. To get a “new” car every year and to refashion the house every other is a bioeconomic crime.”

(Georgescu-Roegen, Minimal Bioeconomic Program, 1972)



Consumerism in the '60



„ Once man expanded his biological powers with the help of industrial artifacts, he became ipso facto dependent not only on limited resources that improve his quality of life, but also on luxury industries.”

(Georgescu-Roegen, 1993)





„we should cure ourselves of what I have been calling “the circumdrome of the shaving machine” , which is to shave oneself faster so as to have more time to work on a machine that shaves faster so as to have more time to work on a machine that shaves still faster, and so on ad infinitum...”

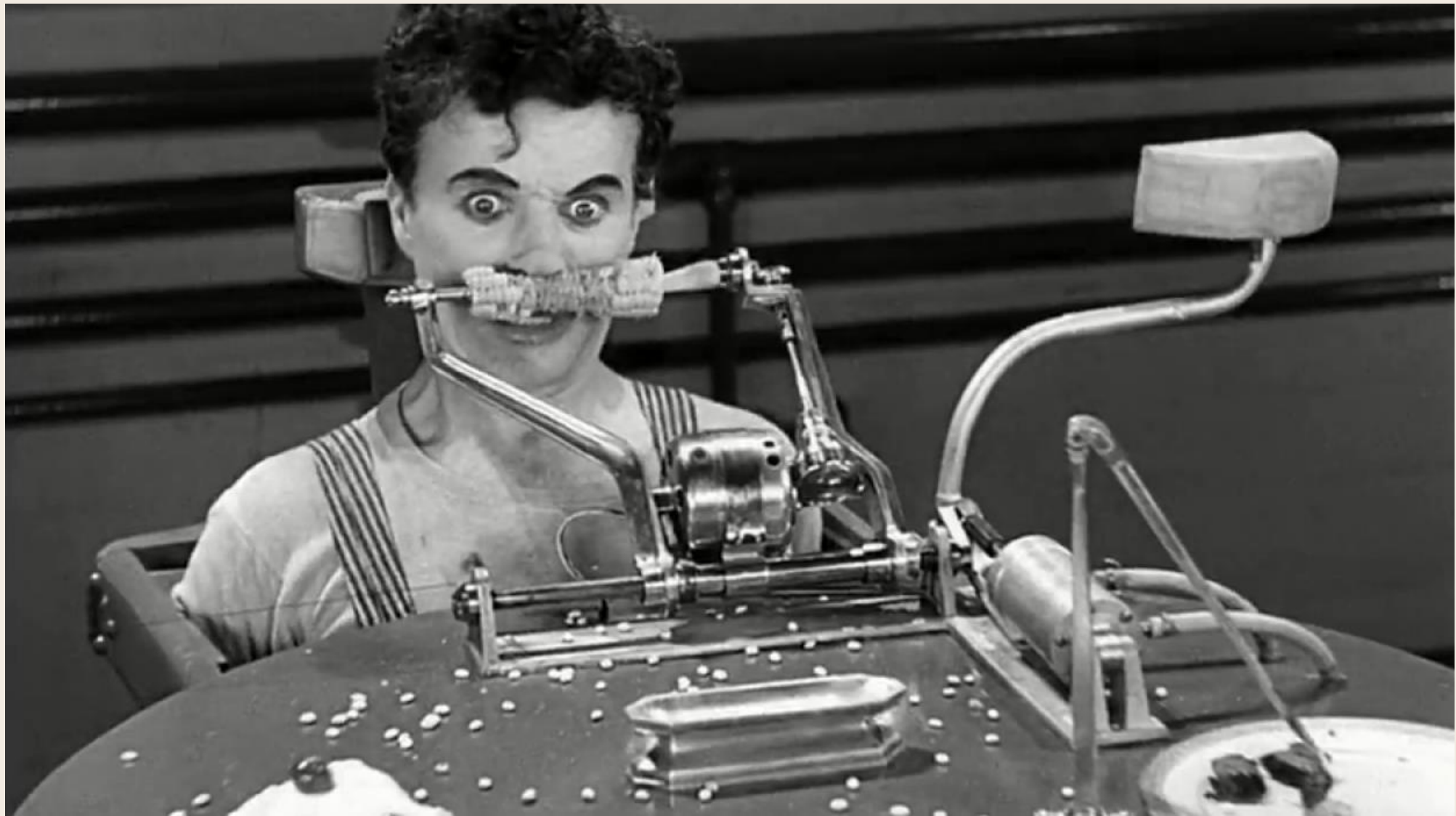
(Georgescu-Roegen, Minimal Bioeconomic Program, 1972)



The essence of **economic change consists** of **the organizational and flexible power to create new processes** rather than the power to produce commodities. He calls such power as Π -sector. An economy can “take off” when and only when it has succeeded in creating Π -sector.

(Georgescu- Roegen, 1971)





Charlie Chaplin, Modern Times, Automated feeding machine



"on the one hand, critical environmental problems are closely related to scientific, technological and information of the society, but at the same time, only the existence of general progress of the human race itself can not automatically solve environmental problems that all people and accelerated development of mankind, since the industrial revolution they have created. The decisive factor is the **will of human society as a whole to solve problems.**"

(Georgescu - Roegen, 1971)





Charlie Chaplin, Modern Times, Caught in the machine

