

# Economic efficiency

[Literature](#), [Russian Literature](#)



## Introduction:

The goal of this assignment is to introduce the research done in Industrial Organization and related fields. Sedjo's (1992) work and study on environment, genetic engineering, property rights and biodiversity is studied and analysed here and the work is summarized using ideas on industrial organization--economic efficiency, gain, profits and lower cost. The perspective taken will be with regard to economic efficiency which is the topic of discussion of this paper and concepts such as genetic information and biosystems could be examined closely with regard to changing economies and legal issues within environmental and even industrial settings.

## Economic Efficiency – Biodiversity

Using another angle, this paper also takes a look at research done within industrial organisations and related issues of economic efficiency, profits and lower costs, as also biotechnological changes, genetic resources and legal issues within economics and industrial settings. The focus however is on economic efficiency and resources that would be suitable within industrial organisations. This discussion would focus on an analysis of property rights, genetic resources and biotechnological changes considering the paper by Roger Sedjo (1992). In the paper Sedjo argues that genetic constitution of plants and animals would provide important information on development of natural products such as drugs and pharmaceuticals as well as the

applications of biotechnology. The potential of genetic resources as repositories of genetic information has been immense. Many anticancer drugs have been developed from plants found in tropical forests and there is a lot of potential for such drugs. The study by Sedjo deals with wild genetic resources and their uses as well as biotechnological change, with genetic resources having elements of private and public goods.

The protection and distribution of genetic resources is a major issue and closely associated with issues of property rights and public good. The current rates of tropical deforestation and habitat destruction have been considered as excessively high with the economic efficiency criteria. Sedjo writes that bioengineering issues raise the benefits and reduce cost of property rights when associated with genetic resources. The property rights issues and the economics with regard to effective maintenance of wild and natural genetic resources could also be studied. Sedjo points out to the importance of social values in halting a process of extinction of genetic resources through habitat destruction and deforestation. Useful attributes are changed through biotechnological innovation in certain cases and certain developing countries have faced criticism for not appreciating the values of forests and biological diversity and for not protecting the forests and the environment. Genetic resources are considered both private and public and even considered as a store of knowledge.

Genetic resources are however best analysed with R&D problems and variations. The economic efficiency of resources could be examined in terms

of consumption as more one person consumes, the less resources are available to other people for consumption but this would be applicable to phenotypes of private goods. In case of genotypes or public goods, one person's consumption may not affect the amount available to others. However both genotypes or phenotypes can give consumption access to some individuals and exclude others. This according to Sedjo is applicable to property rights in case of improved varieties of plants and animals.

So, how a sustainable environment and economic efficiency could be derived from wild plants and animals or genetic resources is understood in terms of three types of uses of wild plants and animals as such plants or animals could be consumed directly or can be a source of organic compounds. They can be used for the production of natural or herbal drugs. These plants and animals and their compounds could be used for the synthesis of chemicals and compounds and would add to the economic efficiency of natural resources. The genetic traits of such plants and animals could be studied further to understand the difference between the wild and domesticated plants and when these plants are nonconsumptive they can still remain as essential sources of genetic information. So Sedjo argues that irrespective of whether or not wild plants and animals are resources for direct or indirect consumption they are definitely useful for study on genetic information and shows how such genetics and biotechnological information could be used to develop natural structures and construct a sustainable and economically viable environment. Modern biotechnology can transfer genes from natural organisms so that these could be used on engineered plants and animals

artificially developed with all desired traits. The scope of genetics and utilization of genetic resources could increase with the increase in genetic pool of plants and animals and the traits identified. Improved techniques associated with genetics can aid in attaining information on the global gene pool and utilize this information for the growth of expertise in genetic engineering. The biosystem is largely aided by technological changes and availability of genetic information would be an important part of maintaining a diverse ecosystem and environmental and genetic balance. This in turn leads to efficient working of biosystems in the world and promotes an economically sustainable environment.

However there are other direct links between economic efficiencies in a system and the genetic information available through plants and animals studied and Sedjo's analysis only highlights the importance of biodiversity in genetic engineering and in promoting economic efficiency, which is the main aspect of this discussion.

Sedjo has highlighted some of the conflicts in genetic resources including distribution of rents, price of genetic resources and associated product development. Concepts of gene rich and technology poor and vice versa are important in understanding plant genetic resources and application of common heritage of genetic variations. Sedjo shows that pharmaceutical and natural pesticides could be derived from wild animal and plant resources and most parts of the earth constitute wild genetic resources. The biodiversity of an area and the geographic region and distribution may be wide or narrow

and this would affect the economy and genetic resources available in the area. Genetic resources drive the efficiency of the economy in several ways including research and development initiatives, and the costs of such resources that would be reflected in the scientific research process as also sustainable environmental initiatives. Genetic resources could even be preserved if preservation was inexpensive, according to Sedjo although due to alternative uses of forest products, the costs of production, maintenance and preservation have risen significantly in recent years.

This would bring us to the next and central question on how the economic efficiency issues and biosystems and genetic resources could be related to environmental sustainability and industrial organisational concerns.

How do the industrial concerns fit in within this context of discussion dealing with biodiversity and genetic resources? Sedjo argues that wild genetic resources are global resources for development of food, products and medicines and helps in global benefits that should be useful for inhabitants around the world. The unique claim to the benefits of such global resources would thus be unfounded and downright wrong yet many companies tend to own these product and resources and even have patented rights of such global resources for their own financial gains. Thus genetic resources are financially exploited by large companies to prepare medicinal or other products and could lead to serious debates on property rights and preservation. Are these industrial organisations preserving genetic resources or simply exploiting them through their patents and rights on such

resources? It is essential that certain developing countries and their governments protect and preserve natural habitats without using these for financial gains although like every other resource, genetic resources are nowadays being primarily used for profits and gains and also for private financial returns.

## Conclusion

Genetic engineering could be successfully used for technological changes and even within industrial setting and organisations could be used for product innovation and development. The emphasis would thus be on research and development as also the profits, losses or financial gains through innovation and product development and use of such resources. However it would be an ethical question to ask as to what would be the gains and impact on biosystems if there is an exploitation of genetic resources and how these resources could be used to bring about maximum economic efficiency and yet maintain and preserve a sustainable ecosystem.

## Works cited:

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