

Re-emerging of peasant forestry

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ABSTRACT

Along with the development of climate change, international community has to change the source of its metabolism, from hydrocarbon to carbohydrate. Ligno cellulose, one of the most important forms of carbohydrate grows, indeed, in the forest. Total land on the earth is definitely limited. Land means the catchment device of solar radiation and precipitation, i.e. Ricardian land by the definition of Nicholas Georgescu-Roegen. Nonetheless substitution from steel or plastics to timber will take place. Competition between crop raising for food and plantation of industrial raw materials will be intensified.

The outcomes of such situation make it necessary to increase mass productivity of forest per unit area.

Comparison between large-scale forestry and small scale one, small-scale forestry is often referred as more productive way of forest use. For historical small-scale forestry, forestry by peasant, the aim of their activity is subsistence of their family by the nature.

Actually, in temperate countries, small-scale forestry has relatively larger share than in boreal zone. To utilize forest area for regional environmental concern by substituting 'fissile' articles with timber, we have to maximize the productivity of forest by activating small-scale forestry again.

This article deals with brief theoretical background on peasant forestry, advantages of small-scale forestry, mainly about productivity of land and position of small-scale forestry in regional monetary/material circulation.

CLIMATE CHANGE AND SOURCE OF METABOLISM

Sulphur bacteria require sulphur and iron bacteria also digest iron. Almost all living things depend on carbohydrate and its compounds. But these 200 years human beings rely heavily on hydrocarbon besides carbohydrate.

In 18th century, under industrialization, we had begun to use coal. Then petroleum followed it. This fossil fuel had caused so many kinds of pollutions. At last, extensive used of fossil fuels heat up our globe by green house effect. From 1990s, apprehension of climate change arises and gradually increases at authenticity.

If it is urgent to reduce the risk of serious climate change. We have to rapidly reduce the dependency to hydrocarbons. Consequently the next issue appears with difficulties. Is there enough carbohydrate to maintain our social metabolism? Recent tendency of global climate tells us that we have to change our source of metabolism from mixture of organic and mineral to pure organic matter again.

To sustain our level of livelihood, we have to secure our source of low entropy material substitutable to fossil fuel.

Historically resource scarcity was the main reason of physical conflict. Food was the most typical resource, but for further developed our modern society, many kind of materials other than food are indispensable.

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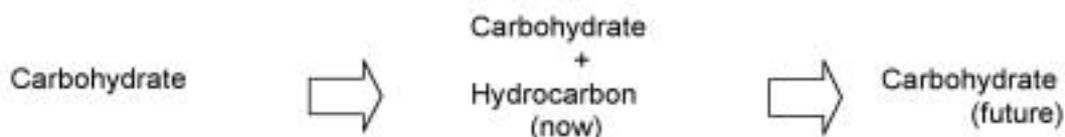


Figure 1. Base of our metabolism

MATERIAL IS MORE IMPORTANT THAN ENERGY

Solar energy mainly converted into two forms of low entropy, energy and material.

Energy means wind and hydro and solar thermal, but material is solely Organic compounds. Organic compounds are usable as 3F, Food, Fodder and Fuel. Organic material can be used as energy and also as material. Conversion from Energy to Material is definitely not efficient, so organic material is more precious to regional society.

SMALL VS. LARGE. WHICH IS MORE PRODUCTIVE?

In agricultural sector, there had been long debate on the scale, which is more productive, large scale farming or small scale one.

A viewpoint from productivity of land, small scale farming is usually said to be more productive because labour intensive technology is used.

In primary industry sector, economy of scale does not work. In case of forest related industry, biological part of activity, economy of scale is also irrelevant. Tree growth rate-determining step of ligno-cellose production is silviculture stage

Small scale forestry uses more labour intensive technology; in other word it means capital scarce technology. Less machines and current input i.e. fuels, fertilizers are used in small scale management.

SMALL SCALE FORESTRY HAS FOSSIL FUEL SAVING TECHNOLOGY

As for small scale forestry, introduction of large scale machines is far from feasible by definition itself. It was a disadvantage to large scale forestry for productivity of labour until nowadays. But fissile fuel becomes scarce and expensive, nevertheless industries are evaluated their net energy balance.

“FOREST HUSBANDRY” IN REGIONAL PERSPECTIVE

Peasant concept is originally meaning subsistence of individual families each. In these days, the subject of subsistence could be modified or extended significantly to regional entities. The aim to promote small scale forestry is achievement of regional environmental and socio-economic goals. The most important one is reduction of carbon emission but so many accompanying functions and benefit would follow.

Table 1. Characteristics of small/large scale forestry

Small scale forestry	Large scale forestry
by peasant by family	by company
labor intensive	capital intensive
fertility oriented	profit oriented
future value oriented	present value oriented

CONCLUSIONS

Organic matter will be scarce and more important. The forest will have to become the largest supplier of organic materials other than food. It would be bio-plastics, bio liquid fuels or so many kinds of indispensable items for the regional society. Cubic meter or ton per hectare is the heart of a matter for small scale forestry.

REFERENCES

Nicholas Georgescu-Roegen, *Process Analysis and the Neoclassical theory of Production, Energy and Economic Myths*, Pergamon Press 1976 42p

The theory of peasant economy, A.V. Chayanov, Manchester University Press (reprinted in 1986) 73p