

Efficiency: Where market capitalism and the green movement meet

Many in the green movement have highlighted resource efficiency as a way to fight e.g. Climate Change. Market capitalism also uses efficiency as one of their paradigms, mainly to refer to competitive advantages. Why does this happen?

Terminology

The word **efficiency** is often used carelessly. For example, take the way in which the word **efficiency** is mixed-up or confused with the word **effectiveness**. There is a saying “Efficiency is doing things right, effectiveness is doing the right things” and indeed it is true that there is fundamental difference in the meaning of the two terms:

The **efficiency** of a system means the ratio between the work or energy got out of it and the work or energy put into it. E.g., the more energy we get out per unit amount we put in, the more efficient the system is. Efficiency is dimensionless without any goal attachment.

Effectiveness is linked to a goal. Effectiveness is the capability of producing a desired result. When something is deemed effective, it means it has an intended or expected outcome. Here is a simple example to demonstrate the difference between “effective” and “efficient”. In order to stop a fire, water or champagne can be used. Both are effective. Using Champagne is more cost intensive and thus not efficient. If there is no other measure available to stop the fire it might be the most efficient, if the benefit is higher than the cost. Already here we see the fixation on cost.

Looking at the definitions, we have to highlight that efficiency cannot be a goal in itself but has to be put in a context. In this respect, it seems relevant to link it with the term effectiveness. Then it will be coupled with values, morals and norms; essential when we deal with the use of the word in the context of food supply/food systems.

This leads us to another mix-up/misunderstanding when we look at the difference be-

tween efficiency and productivity: Productivity means the amount produced per unit area of land or per person employed. Efficiency will look at what energy goes into the production of food in relation to its yield. This argument is frequently cited when discussing the benefits of industrial agriculture.

Many will argue for the efficiency of industrial agriculture as opposed to organic agriculture or other forms of extensive agriculture or nomad / hunter–gatherer lifestyles by saying that the cost ratio is much more favorable, that more is produced in smaller spaces (as space costs money). But if the parameter is changed to energy we can get completely different results as has been listed in an article here (<http://veganorganic.net/2012/06/what-is-efficient-agriculture/>). From this perspective, the energy going into extensive agriculture or even food gathering proves to be much more favorable than energy-intensive industrial agriculture.

Efficiency does not equal less use of resources

Apart from the terminology, there are more issues with efficiency. We can thus question if the obsession with this term is justified.

The Rebound Effect refers to the behavioral or other systemic responses to the introduction of new technologies that increase the efficiency of resource use. These responses tend to offset the beneficial effects of the new

technology or other measures taken. The “Khaz-zoom-Brookes postulate” describes the idea that energy efficiency gains paradoxically result in increases in energy use. Gains made have partly or fully been offset by changes in the consumption mix and especially overall consumption growth. An example: Despite advances in CO₂ offset efficiency (e.g. lightbulb) the average private consumption expenditure per person rose by 33% in the EU-27 between 1990 and 2010, with the greatest growth, 77%, in the 12 countries that have joined the EU since 2004.

Efficiency and regional food systems

When dealing with the issue of regional food systems, the issue of efficiency rises immediately. And at first sight the current logistic systems have created cheap ways to feed oneself globally. You can easily eat and access cheap (and previously unknown) food from all over the world; even food that can be grown locally can be bought at a lower price although it comes from the other side of the world. But the parameters are wrong: the hidden economic, ecological and social costs (externalities) are not in the price tag.

People involved in local food systems have often chosen to make their own arrangements and create new structures. But when looking at the challenges to establish logistic solutions for more sustainable, regional food systems, the question of efficiency will pop up. This is why the term efficiency, the link to effectiveness and also the time dimension all need to be discussed: we should distinguish between long term efficiency and short term efficiency.

If the aim of a more local, sustainable food system is to maintain peasant agriculture, healthy local ecosystems and landscape, adequate logistics should accompany this, and should address the following issues: How can we feed ourselves without losing the proximity between producers and “prosumers”? How can we establish an (uncomplicated) and comprehensive short food supply chain that is not resource-, energy- and transport-intensive?

This means we should look at effectiveness first rather than efficiency. This means placing values first. After all, the alternative food system is value-driven instead of limiting the focus to mere financial profit. According to these values and aims, we can design the food system along the parameters. The effectiveness will look at how we have managed to achieve these goals, e.g. through sustainability indicators. Then we can look at the efficiency of measures based on input/output.