



# JOURNAL OF NATURAL RESOURCES AND DEVELOPMENT

Commentary

## Response on *Sustainability- cliché in conservation circles*

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The Word "sustainability" has become a fad these days – tells Deeraj Koul in his comment "Sustainability – cliché in conservation circles": Fads and fashions are like Bird Flu – Virus, spreading out over our globe like powerful waves occupying thinking and mental activity – nobody is absolutely resistant. Fads create mainstreams and mainstream opinions dominating disputations and very often creating schism and discrimination in minds and opinions: Differing opinions from mainstream are seen as abnormal or anomalous – anomalous representatives do not respect the mainstream verity – like heretics who don't acknowledge the dogma.

Deeraj Koul puts his finger into another ragged wound and asks: "Doesn't sustainability mean long-lasting or is the word directly proportional to money flow?" He refers to the phenomenon that the sustainability-virus meanwhile has occupied the thinking of people in institutions responsible for financing projects in the area of "natural resources and development" – this causes the proportionality of sustainability and money flow. If your project approach is sustainable one is "absolved"! Payments for "Ecosystem Services" or "Clean Development Mechanism" are examples for flashfloods for money flows financing thousands of NGO in the name of sustainability causing distortions and biases like every subsidy. Our predictors say that this will save our world.

On the other hand it is a scientific requirement to study how to manage scarce natural resources following a long-lasting concept over generations – having in mind the still growing world population and already degraded and destructed natural resources – this is a matter of fact! It is a matter of labelling, doing good while following fashion: Given that we consider the resources-flows on behalf of nature "ecosystem services" and that we acknowledge the flows of "ecosystem services" as the "dividend" or "benefit" that society receives from natural capital (TEEB-Synthetic Report 2009), then we can try to quantify the benefits that nature provides for society and so far quantify losses or deficits of resources flows. Most of these natural services do not have explicit prices because they are not traded in open markets.

Furthermore it is a scientific requirement to study how ecosystems could be managed with a constructive intervention, if they are in degradation because of increasing utilization due to population growth and growth of demand for resources. If we accept that ecosystems have to have a "balance of flow" we have to know the needs for maintaining that balance of flow – because we know the permanent need for energy input into that systems. For sure: the density of world population in comparison with that one in the Neolithicum is thousandfold higher and the energy-consumption is hundredfold higher today. Ecosystem services were reduced in that time – but simultaneously increased the ability of humans to dominate negative externalities through technology and management.

The two basic laws of thermodynamics and the entropy give us the "highway guide rails" for a resources management following a concept of a "long-lasting-view" (fashionable word is "sustainability") assuming that the state of dynamic equilibrium should have a minimum of entropy production. The material balance principle (equation) is:  $A = B + C + D$ ; where  $B + C + D$  represents the discharge flows to the environment. An ecosystem consumes the less energy the nearer the system is to the balance (or "equilibrium flow). If we have then sufficient energy we can realize all kind of resource use (for food production, bio energy etc.). That clarifies the importance of energy policy.

It is a matter of labelling, doing good while following fashion: When these believes enter into cerebral mechanism of civil servants responsible for assessment of project and research proposals things will happen as described by Deeraj Koul: The word "sustainability" is directly proportional to money flow (Augustinus in "Sermo": Ubi defecerit ratio, ibi est fidei aedificatio!!). Even university students very often expect to hear from professors mainstream opinions and they are less amused about sceptical and critical sentences. Historically we know this phenomenon from religious wars.

Even so it is a necessity for scientists preparing proposal for projects to incorporate analytical methods for long lasting views into the future – to develop keen prospective how to feed the world population with scarce resources in an already wounded nature which always will respond persistently ("naturam expelles furca, tamen usque recurret" – Horaz). So let us continue to quarrel about notions and ideas!