



CERN Colloquium

SPEAKER: Sergio Ulgiati (Parthenope University of Napoli)

TITLE: **Putting technology and societal dynamics within a biophysical perspective: Is more of the same a sustainable perspective?**

DATE: Thu 09/04/2015 16:30

PLACE: Council Chamber

ABSTRACT

The wealth of a nation, as recognized in the past by Adam Smith and others, is its resource base, not its Gross National Product. "A tank of gasoline drives a car the same distance regardless of what people are willing to pay for it" (Odum, 1994). Until recently, neoclassical economics has been unsuitable for understanding the role of the biophysical support provided at no cost by the environment to the development of economic processes. In the distant past when populations were small and the extent of human use of the environment was negligible compared to the size of the environment, wealth consisted of a nation's forests, soils, fisheries and the water and sunlight falling on its landscape. As the fossil fuels increased in amount and came to dominate the energetic base of economies, they allowed the exploitation of mineral resources, which synergistically increased the use of already scarce fossil fuels and in the long run diminished the importance of renewable resources. Our activities and developments, be they a high speed train, a nuclear power plant, a solar photovoltaic field, a waste treatment facility, a tourist resort, up to cloud internet networks require huge direct and indirect resource investments and affect in many ways the environment, as pointed out by upstream and downstream life cycle assessment impact categories. This in turn originates conflicts among stakeholders (local populations, policy makers, managers, scientists) each representing one among many legitimate interests.

The dominant economic paradigm suggesting that the only course for human civilization is to grow its economy, to grow its population, to grow its consumption, finds a limit in the availability of resource use from both supply and final disposal sides, and calls for a biophysical approach to parallel, complement and limit the business-as-usual perspective and provide different development perspectives. Were we to find an alternative energy that provides unlimited, cheap energy, the environmental, social, and economic consequences might be even worse than the consequences of today's limited fossil fuels: more people, more pollution, further degradation of human and natural capital (land, water, air, biodiversity), increased exploitation of developing nations, etc. This lecture reviews a number of cases of resource use in transport, tourism, energy supply, urban metabolism, agricultural production by means of energy, land use and life cycle assessment approaches, in order to identify bottlenecks, assess resource use sustainability and suggest improvement potential.

Organised by: Wolfgang LERCHE PH/TH & Francesco SPANO
PH/UAT.....**Tea and coffee will be served at
16h00**