



INTERNATIONAL WORKSHOP ADVANCES IN CLEANER PRODUCTION

"KEY ELEMENTS FOR A SUSTAINABLE WORLD: ENERGY, WATER AND CLIMATE CHANGE"

Strategies for changing the future

Enrique Ortega Rodriguez
Campinas University, UNICAMP, Brazil

The Earth took millions of years to isolate the CO_2 and CH_4 in the form of carbonates in the land and seas, with gases dissolved in various forms of ice (permafrost, glaciers, icecaps), as methane hydrates in the ocean floor and also to convert the surplus of biomass ecosystems in oil, gas and coal. The new aerobic environment allowed the production of biomass and genetic diversity. But in two centuries mankind put all back in the air and caused global warming that puts at risk the existence of the human species. In front of this huge risk, the solution requires more than the view of the profit as single parameter. Accordingly, planning should consider the renewability, the natural productivity, the maintenance of environmental services, and the sustainability of lifestyles. The integration of sciences (Ecology, Thermodynamics, Biogeochemistry, Psychology and History) and traditional knowledge can lead to ecological economics and the concept of Eco-Unity and Eco-Region, fundamental keys to benchmark the new generations. In the transition to truly sustainable development (based on renewable resources) it will be necessary to produce the things needed human survival (food, raw materials, fibers, fuels and environmental services), but using fewer oil and recovering the air and the biodiversity. This can be possible only if we use lower scale production, if we adopt the Ecological ruralization and if we get a new education showing the interactions between causes and effects of socio-environmental phenomena. The projects for production and consumption should be reviewed to determine: (a) its renewability, (b) the release of greenhouse gases, (c) the forest needed to recover the atmospheric damage, (d) the intensity and the quality of work and (e) compliance with laws that guarantee the preservation of ecosystem functions of the native vegetation.