Environment: Towards Global Responsibility

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In most nations the environment is deteriorating. There is increasing air pollution, water pollution, soil pollution. And perhaps the most serious result of the human population explosion is the loss of biodiversity. As the great French philosopher, Montaigne said, in 1580, the most universal quality is diversity and as we now know in a changing world, diversity is security.

Future priority problems which is part involve the earth sciences include: waste management, soil remediation, combustion gas management, and water management. And a new priority is the need for clean mining technologies and quality control of materials derived from the Earth. For example, we like to find gold but do we discuss the other elements like arsenic with which gold is frequently associated.

The new information on the deep biosphere, microorganisms which exist at depths of over 4 km, temperature over 100°C, opens up new possibilities for bio-mining. Quality control of fertilizers is also critical and there are vast possibilities of using minerals for slow release fertilizers in the tropics as with zeolites, molybdenum minerals for nitrogen fixation, and as beautifully shown in many volcanic regions, volcanic ash can be a perfect fertilizer. But one thing is certain, we need new education for eco-responsibility and a longer view of the economics of development.