

Languages of Valuation

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# Languages of Valuation

J MARTINEZ-ALIER

An economic crisis affords an opportunity to put the economy of the rich countries on a different trajectory as regards material and energy flows. Now is the time in those countries for a socio-ecological transition to lower levels of energy and materials use. The crisis might also give an opportunity for a restructuring of social institutions. The objective in rich countries should be to live well without the imperative of economic growth.

In *Wealth, Virtual Wealth and Debt* (1926) Frederick Soddy, who had a Nobel Prize in Chemistry and was a professor at Oxford, made a point that was simple and applies today. It is easy for the financial system to increase debts (private or public debts) and to mistake this expansion of credit for the creation of real wealth. However, in the industrial system, growth of production and growth of consumption imply growth in the extraction and final destruction of fossil fuels. Energy is dissipated and cannot be recycled. Real wealth would be instead the current flow of energy from the sun. Economic accounting is false because it mistakes depletion of resources and the increase of entropy for wealth creation.

The obligation to pay debts at compound interest could be fulfilled by squeezing the debtors for a while. Other means of paying the debt are either inflation (debasement of the value of money), or economic growth – which is falsely measured because it is based on undervalued exhaustible resources and unvalued pollution. That was Soddy's doctrine. He was certainly a precursor of ecological economics.

In other words, the economy has three levels. At the top there is the financial level that can grow by loans made to the private sector or to the state, sometimes without any assurance of repayment as has led to the present crisis. The financial system borrows against the future on the expectation that indefinite economic growth will give the means to repay the interest and the principal. Banks give credit much beyond what they have got as deposits, and this drives economic growth at least for a while. Then there is what the economists describe as the real economy, the so-called productive economy. When it grows, it indeed facilitates payment of some or all the debt, when it does not grow enough, debts are defaulted. The mountain of debt had grown in 2008 much beyond what the increases in the gross domestic product (GDP) could pay back. The situation

was financially not sustainable. But GDP itself is not ecologically sustainable. Down below, underneath the economists' real economy, there is the third level: the ecological economists' *real-real* economy, the flows of energy and materials whose growth depends partly on economic factors (types of markets, prices) and in part from physical limits. At present, there are not only resource limits but also sink limits: climate change takes place because of the excessive burning of fossil fuels and it is a threat to biodiversity. But another immediate threat to biodiversity is the increase of the human appropriation of net primary production (HANPP).

## Economic De-growth

The economic crisis will mean a welcome change to the totally unsustainable increase of carbon dioxide emissions. In the five years before 2008, carbon dioxide emission was growing over 3% per year in a trend that meant doubling in 20 years when they should decrease at least 50% as soon as possible. The Kyoto objective of 1997 is generous with the rich countries because they give them property rights on the carbon sinks and the atmosphere in exchange for the promise of a reduction of 5% of their emissions relative to 1990. This modest Kyoto objective will now be fulfilled more easily, and the carbon trade will collapse unless lower caps are adopted, as they should. Air travel, housing starts, car sales are decreasing in the second half of 2008 in many European countries and the United States (US). Motorists in the US are buying 9% less gasoline in early October 2008 than in early October 2007.

Indeed, an economic crisis affords an opportunity to put the economy of the rich countries on a different trajectory as regards material and energy flows. Now is the time in rich countries for a socio-ecological transition to lower levels of energy and materials use. The crisis might also give an opportunity for a restructuring of social institutions. The objective in rich countries should be to live well without the imperative of economic growth. It seems that above a certain level of income happiness is not related to income growth. Moreover, economic accounting does not properly

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count environmental damages and the exhaustibility of resources. The economy is seen as a merry-go-round between consumers and producers. They encounter each other in markets for consumer goods or in markets for the services of production factors (like selling labour time for a wage). Prices are formed, quantities are exchanged. This is Chrematistics. Macroeconomic accounts (GDP) aggregate the quantities multiplied by the prices. The economy may be described in a different way, as a system of transformation of (exhaustible) energy and materials (including water) into useful products and services, and finally into waste. This is Bioeconomics or Ecological Economics (as elucidated by N Georgescu Roegen, Herman Daly, A Kneese and R U Ayres, and Kenneth Boulding).

Now is the moment to substitute GDP by social and environmental indicators at the macro-level. The discussion on *décroissance soutenable* or socially sustainable economic de-growth that Nicolas Georgescu-Roegen started 30 years ago, should now become the main topic for discussion in the rich countries.

### Economic Accounting Is Wrong

The critique of conventional economic accounting often emphasises the forgotten current values of environmental services from ecosystems. The environmental services from coral reefs, mangroves and tropical rainforests may be given a notional money value per hectare per year, and then the lost hectares are translated into virtual economic losses. This approach is good in order to impress the public with the importance of environmental losses but it is certainly insufficient in order to grasp the relations between the economy and the environment.

Our economy depends on the photosynthesis of millions of years ago for our main energy sources, it depends on ancient biochemical cycles for other mineral resources that we are squandering without replacement. In the case of oil, the extraction peak will be reached soon. We are now taking 87 million barrels a day – in terms of calories, the world average is equivalent to about 20,000 kcal per person/day (10 times the food energy intake), and in the us it is equivalent to 100,000 kcal per

person/day. In exosomatic energy terms, oil is then far more important than biomass.

The present economic crisis is not only a financial crisis, and it is not caused only by a supply of new houses in the us that exceeded the demand that could be financed sustainably. Houses were sold to people who were unable to pay the mortgages, or houses were built (as in the large acreage of new empty houses in Spain) in the hope that creditworthy buyers would appear. Real salaries in the us did not increase much in the last few years but credit to the consumers had indeed grown. Income distribution had become more unequal. Household savings were at a minimum when the crisis started. The bankers apparently thought that economic growth would continue and would increase the value of the houses that were mortgaged. They “packaged” the mortgages and sold them to other banks who sold or tried to sell them to innocent investors. Now the housing boom has ended. The private building industry has nearly stopped in some countries.

Part-nationalisation of some banks in the European Union (EU) and the us has avoided sudden widespread bank failure, at the cost of widening the public deficit. In any case, this does not address one root cause of the crisis, which was triggered by high oil prices due not only to the Oil and Petroleum Exporting Countries’ (OPEC) oligopoly but also to the approaching peak-oil position. In fact, economic theory does not say that an exhaustible resource should be sold at the marginal cost of extraction. Oil at \$120 a barrel is in fact cheap from the point of view of its fair inter-generational allocation and the externalities it produces. As the crisis deepens, the price of oil goes down to some extent but it will recover in real terms if and when the economy grows again. OPEC will try and reduce oil extraction during the crisis. The scheduled OPEC meeting of mid-November 2008 was brought forward to 24 October, when it was decided to cut oil extraction by 1.5 mbd.

There is a historic trend towards increasing the energy cost of obtaining energy. Coming down from the peak the Hubbert curve will be politically and environmentally difficult. Conflicts arise in the Niger Delta and in the Amazonia of Peru and

Ecuador against companies such as Shell, Repsol, Oxy. A turn to some other energy sources (agrofuels, nuclear energy) will compound the difficulties. Wind and photovoltaic energy are fortunately increasing. They will help to compensate for the dwindling supplies of oil over the next few decades. Coal supplies are increasing (they grew seven times in the 20th century), but coal is noxious locally and also globally because of carbon dioxide emissions.

### GDP of the Poor

One may readily agree that conventional economic accounting is certainly misleading. The experience that Pavan Sukhdev with Haripriya Gundimedia and Pushpam Kumar gained in India trying to give economic values to non-timber products from forests, and to other environmental services (such as carbon uptake, water and soil retention), has been an inspiration for the “The Economics of Ecosystems and Biodiversity” (TEEB) process. As the TEEB team states, a monetary representation of the services provided by clean water, access to wood and pastures, and medicinal plants, does not really measure the essential dependence of poor people on such resources and services.

In national income accounting one can introduce valuations of ecosystem and biodiversity losses either in satellite accounts (physical and monetary) or in adjusted GDP accounts (“Green Accounts”). The economic valuation of losses might be low compared to the economic gains of projects that destroy biodiversity. However, which groups of people suffer most by such losses?

In their project “Green Accounting for India” Sukhdev, Gundimedia and Kumar found that the most significant direct beneficiaries of forest biodiversity and ecosystem services are the poor, and the predominant impact of a loss or denial of these inputs is on the well-being of the poor. The poverty of the beneficiaries makes these losses more acute as a proportion of their “livelihood incomes” than is the case for the people of India at large. Hence the notion of “the GDP of the Poor”: for instance, when water in the local river or aquifer is polluted because of mining, they cannot afford to buy water in plastic bottles. Therefore, when poor

people see that their chances of livelihood are threatened because of mining projects, dams, tree plantations, or large industrial areas, they complain not because they are professional environmentalists but because they need the services of the environment for their immediate survival. This is the "environmentalism of the poor".

### Toxic Assets and Liabilities

The assets that take the form of claims on debts that will remain unpaid, have been given the funny name of "toxic assets". In the balance sheet of banks, the value of such assets will have to be downsized or written off. On the liability side of the balance sheet, our accounting conventions do not deduct damages to the environment. An enormous "carbon debt" is owed to future generations, and to the poor people of the world who have produced little greenhouse gases. Large environmental liabilities are also due by private firms. Chevron-Texaco is being asked to pay back \$16 billion in a court case in Ecuador. The Rio Tinto company left behind very large liabilities since 1888 in Andalusia where it got its name, also in Bougainville, in Namibia, in West Papua together with Freeport McMoran... all debts to poor or indigenous peoples. Shell has very large liabilities in the Niger Delta. Do not worry. These poisonous debts are in the history books but not in the accounting books!

Decisions may indeed be improved by giving money values to environmental resources and services which are undervalued or not valued at all in conventional economic accounting. But there are other considerations. First, do not forget our uncertain knowledge about the working of ecosystems, and about the impact of technologies. Second, do not exclude non-monetary values from decision-making processes. Do not practise the fetishism of fictitious commodities.

Look at the current case of Vedanta mining bauxite in the Niyamgiri hill in Orissa. The decline in the price of aluminium as the economic crisis deepens might save the Niyamgiri hill. It has declined by more than half in the past few months. Therefore, bauxite is also cheaper. We may still ask: how many tonnes of bauxite is a tribe or a species on the edge of extinction worth?

And how can you express such values in terms that a minister of finance or a Supreme Court judge can understand? Against the economic logic of euros and dollars, the peasant and tribal languages of valuation go unheeded. These include the language of territorial rights against external exploitation, the International Labour Organisation convention 169, which guarantees prior consent for projects on indigenous land, or in India the protection of the adivasi by the Constitution and by court decisions. Appeal could be made to ecological and aesthetic values. The Niyamgiri hill is sacred to the Dongria Kondh. We could ask them: How much for your god? How much for the services provided by your god?

### Pluralism of Values

The question is not whether economic value can only be determined in existing markets, inasmuch as economists have developed methods for the monetary valuation of environmental goods and services or of negative externalities outside the market. Rather, the question is: must all evaluations in a given conflict (e.g., on extraction of copper and gold in Peru or bauxite in Orissa, on a hydel dam in the north-east of India, on the destruction of a mangrove in Bangladesh or Honduras for the benefit of shrimp exports, on the determination of the suitable level of carbon dioxide emissions by the EU), be reduced to a single dimension?

We should reject such a simplification of complexity and exclusion of values, favouring instead the acceptance of a plurality of incommensurable values. In decision-making processes, economics becomes a tool of power. This is the case when applying cost-benefit analysis to individual projects, and also at the level of the macro-economy where increases in GDP trump other dimensions. The question is, who has the power to simplify complexity and impose a particular language of valuation? The world conservation movement should indeed criticise conventional economic accounting and push for the introduction of an economic language that reflects better our relations with nature, while not forgetting the legitimacy of other languages: territorial rights, environmental and social justice, livelihood, sacredness.

This is needed for the alliance between the conservation movement and the environmentalism of the poor, as proposed in the IUCN booklet, *Transition to Sustainability* (2008) by Bill Adams and Sally Jeanrenaud. This alliance is difficult because, to judge from the visibility of sponsorship at the World Conservation Congress in Barcelona in October 2008, the world conservation movement has sold its soul to companies like Shell and Rio Tinto.

With the economic crisis, there will now be an end to the boom in exports of energy and materials, thus diminishing pressures at the commodity frontiers. The EU, Japan, the US and some parts of China and India are very large net importers of energy and materials. The US, having reached the peak of the internal Hubbert curve in the 1970s, imports more than half the oil it consumes. Such imports are about 12 mbd, ie, 600 million tonnes per year or 2 tonnes per person/year.

These imports of energy and materials into rich countries must by necessity be relatively cheap for their social metabolism to work properly. As Hornborg put it in 1998, "market prices are the means by which world system centres extract exergy (i.e., available energy) from the peripheries", aided sometimes by military power. The attempt to make Iraq produce an extra 2 or 3 mbd failed after 2003, as Alan Greenspan noted sadly in his memoirs. OPEC after the drop on the price of oil in 1998, and helped by efforts of Hugo Chavez from Venezuela and the economic boom in China and India, had successfully managed the restriction of supply. The price of oil peaked in 2007-08. Things were so good for the oil exporting countries that in his speech when Ecuador rejoined OPEC in 2007, President Rafael Correa cleverly proposed an eco-tax on exports that would be recycled for social and environmental purposes, financing the necessary energy-transition. While OPEC countries have dismissed the existence of the enhanced greenhouse effect, this eco-tax would show their concern for climate change.

Grandiose plans for more and more exports from Latin America were pushed particularly by President Lula of Brazil. More roads, pipelines, harbours and *hidrovias*, more imports and exports from Latin America of oil, gas, coal, copper,

iron ore, soybeans, ethanol, this was the credo of Lula. In October 2008, and in total opposition to the views of Via Campesina and the MST in Brazil, Lula was pushing for generally opening the world markets to agricultural exports.

True, the export boom gave Lula money for social purposes and increased his popularity. Petrobras became no less dangerous to the environment and to indigenous peoples of Latin America than Repsol or Oxy. Lula's obsession with primary exports made him do nothing about deforestation of Amazonia and drove environment minister Marina Silva to resign in 2008. What will the strategy of Lula and the Latin American left be after the crash of 2008?

In late 2008 the economic crisis is bringing down the prices of commodities. Since July 2008, wheat, maize and soybeans have declined in price by 60%, as also copper, nickel, aluminium. Part of the financial boom in Iceland was based on outside investments in the expectation of a multiplication of aluminium smelting. Environmentalists complained strongly against smelters and electricity plants that ruined pristine environments, a cost not factored into the economic accounts.

While in the 1920s, commodities decreased in price a few years before 1929, this time the increase in commodity prices (helped also by misguided agrofuel subsidies and by the OPEC cartel) continued for some months after the strong decline in the stock exchange started in January 2008. However, in late 2008 commodity prices are declining because of declining demand. The Baltic Dry Index measures shipping rates and it has declined precipitously since July 2008, partly because of decreasing Chinese imports of iron. The Mexican multinational CEMEX on 16 October announced that it would reduce its labour force by 10% around the world because of declining demand of "aggregates" and cement, while car factories in Europe and the US have been reducing output since mid-2008. The price of oil is going down in late 2008 not because of increased supply but because of decreased demand.

For commodities other than oil, the exporting countries might react irrationally, maintaining or even increasing the

supply in an attempt to maintain revenues. There might be a soybean price war between Argentina and Brazil. Instead, this could be the moment for Latin America, Africa and other net energy-and-materials exporters, to think of endogenous development, moving towards an ecological and solidary economy. Many Southern countries will also suffer from smaller remittances. A refusal from the South to provide cheap commodities to the industrial economy, imposing natural-capital depletion taxes and export quotas, would also help the North (including some parts of China) in its necessary long-term path towards an economy that uses less materials and energy.

### Bottom-up Neo-Malthusianism

Demographic concerns and environmental awareness might influence birth rates (as in the European neo-Malthusianism of 1900 and in China since 1980). Are we getting into the path for a reduction in world population to three or four billion people thereby reducing pressure on resources and sinks? There were many debates around 1900 on "how many people could the Earth feed" focusing only on the needs of the human species. The neo-Malthusians of the late 19th century and early 20th century were political radicals and feminists. There was a great difference between the original Malthusianism of T R Malthus and the neo-Malthusianism of 1900. Work on neo-Malthusianism has clearly documented the radical, feminist movement in favour of limiting births in Europe and the US in 1900. In south India, Periyar took this line. In Brazil it was taken by Maria Lacerda de Moura. This history allows me to present the following definitions:

*Malthusianism* – Population undergoes exponential growth unless checked by war and pestilence, or by chastity and late marriages. Food grows less than proportionately to the labour input, because of decreasing returns. Hence, subsistence crises.

*Neo-Malthusianism of 1900* – Human populations could regulate their own growth through contraception. Women's freedom was required for this, and desirable for its own sake. Poverty was explained by social inequality. "Conscious procreation" needed to prevent low wages, and pressure on natural resources. This was a

successful bottom-up movement in Europe and America against States (which wanted more soldiers) and Churches.

*Neo-Malthusianism after 1970* – A doctrine and practice sponsored by international organisations and some governments. Population growth is seen as a main cause of poverty and environmental degradation. Therefore States must introduce contraceptive methods, even without women's prior consent.

*Anti-Malthusianism* – The view that assumes that human population growth is no major threat to the natural environment, and that it is even conducive to economic growth as Esther Boserup and other economists have argued

A transition to sustainability requires new thinking on demography and also on the socio-ecological transitions. Are we getting into the path for a reduction in world population to three or four billion people reducing pressure on resources and sinks? Marina Fischer-Kowalski and Helmut Haberl, influenced by the work of environmental historian Rolf Peter Sieferle and by ecological anthropologists, ecological economists, and industrial ecologists, recently edited a book entitled *Socio-ecological Transitions*.<sup>1</sup> From hunter-gatherer societies to agricultural societies to industrial societies, the authors of this book uncover quantifiable patterns of use of energy and materials, population densities, land use and working time. They try also to distinguish possible from impossible futures. For instance, is it plausible to think of a world of nine billion people with an energy expenditure of 300 gigajoules (GJ) and a material use of 16 tonnes per capita/year? Are we on the contrary on the verge of a socio-ecological transition with new technologies that will reduce energy and material use in the rich economies even if this implies economic de-growth?

The transition needs a reform of financial institutions. The imaginative selling of derivatives (financial "products"), and the existence of unregulated offshore banking have taken a knock in public opinion. Sensible proposals are made by moderate political forces to turn banking into a public service. Beyond this, the crisis provides an opportunity for thinking about the *real-real* economy. Taxes at origin on the extraction of resources to

finance an environmentally sustainable society should be introduced. There is need to reduce energy consumption and the use of materials by rich people. With the economic crisis, *la décroissance est arrivée* in Europe, the US, Japan at least for 2008 and 2009. Frivolous calls for population growth in order to increase employment that will help pay for old age pensions, are not at all convincing from an ecological point of view, or even from a financial point of view as rates of unemployment increase. This is an opportunity for starting a socio-ecological transition.

### Sustainable De-growth

In the rich countries, we should move towards "Sustainable De-growth". This means "Socially Sustainable Economic De-growth", *la décroissance économique socialement soutenable*. Social Ecology, Human Ecology, and Ecological Economics provide figures on physical indicators. There is no dematerialisation. In some countries, not only the absolute amount of materials but also material intensity (tonnes of materials/GDP) has been increasing indicating more pressures on the environment. Convergence to a European average of 16 tonnes per person/year (only materials, water not counted here) would multiply material flows in the world by three, with the present population. Economies can be characterised by such material flows. We may analyse patterns of external trade. While South America exports six times as many tonnes as it imports, the EU imports four times as many tonnes as it exports. We can understand characteristic patterns of social conflicts, for instance, mining conflicts or oil extraction conflicts, or international conflicts because of unequal access to carbon dioxide sinks (oceans) or temporary "reservoirs" (atmosphere).

We know that energy use per capita is increasing. Convergence towards 300 GJ per capita/year in a European pattern would mean to multiply by five the present energy in the world economy. If gas and especially coal are used, this would also multiply by four or five the carbon dioxide produced. The HANPP is also increasing – human appropriation of net primary production of biomass. Population growth, soil sealing, meat eating, paper

production, and agro-fuels increase the HANPP. The higher the HANPP, the less biomass available for other species. For 20 years, the orthodox slogan was "Sustainable Development". This meant (Brundtland Report, 1987) economic growth that is environmentally sustainable. We know, however, that economic growth is not environmentally sustainable.

The feminist movement made clear decades ago that GDP does not value what is not in the market, like unpaid domestic work and voluntary work. A society rich in "relational goods and services" would have a lower GDP than an (impossible) society where personal relations would be exclusively mediated by the market. The "Sustainable De-growth" movement insists on the non-chrematistic value of local, reciprocal services. Moreover, economists (or rather, psychologists) now agree that above a certain threshold, GDP growth does not lead necessarily to greater happiness. This research updates the literature on the so-called "Easterlin Paradox". Therefore, GDP should no longer have the dominant position in politics that it now has to the detriment of environmental and social considerations.

At first sight, Southern countries have something to lose and little to gain from degrowth in the North because of fewer opportunities for commodity and manufactured exports, and less availability of credits and donations. But, the movements for Environmental Justice and the "environmentalism of the poor" of the South are the main allies of the "Sustainable De-growth" movement of the North.

These movements' complaint against disproportionate pollution (at local and global levels, including claims for repayment of the "carbon debt"), they complain against waste exports from North to South (e.g. the *Clemenceau* and so many other ships to the wrecking beaches of Alang in Gujarat, or electronic waste), they complain against biopiracy, and also against *Raubwirtschaft* (i.e. ecologically unequal exchange) and the destruction of nature and human livelihoods at the "commodity frontiers". They also complain against the socio-environmental liabilities of transnational companies. These movements combine livelihood, social, economic and environmental issues, with a strong emphasis on

issues of extraction and pollution. In many instances they draw on a sense of local identity (indigenous rights and values such as the sacredness of the land) but they also connect easily with the politics of the left.

However, the traditional left in Southern countries still tends to see environmentalism as a "luxury of the rich". Nevertheless, such movements are of the left insofar as they tend to position themselves in opposition to corporate power, and often in opposition to the coercive forces of the state – indeed these organisations have often been formed explicitly to oppose annexation of land, forests, mineral resources and water by governments or business corporations. They set their "moral economy" in opposition to the logic of economic expansion at the "commodity frontiers" of oil, mineral and wood extraction, defending biodiversity and their own livelihood.

There must be a confluence among conservationists concerned with the loss of biodiversity, the many people concerned with climate change who push for solar energy, the socialists and trade unionists who want more economic justice in the world, urban squatters who preach "autonomy", agro-ecologists, neo-rurals, and the large peasant movements, the pessimists (or realists) on the risks and uncertainties of technical change (post-normal science), and the movements of the Environmentalism of the Poor that demand the preservation of the environment for livelihood.

The international movements for environmental justice have a clear objective: to have an economy that sustainably fulfils the food, health, education and housing needs for everybody and provides as much *joie de vivre* as possible. Conventional economic accounting is false, it forgets the physical and biological aspects of the economy, it forgets the value of unpaid domestic and voluntary work, and it does not really measure the welfare and happiness of the population. What is needed is an Aristotelian *buen vivir* (as the World Social Forum proclaims) guided by *oikonomia* rather than *chrematistics*.

#### NOTE

- 1 M. Fischer-Kowalski and H. Haberl, eds., *Socio-ecological Transitions and Global Change: Trajectories of Social Metabolism and Land Use* (preface by J. Martinez-Alier), (Edward Elgar: Cheltenham, 2007).