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Commentary

The environment as a luxury good or "too poor to be green"?

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Abstract

This paper discusses the views of different authors on the relations between economic growth and environmental scarcities. It lays out the common assumptions behind Inglehart's postmaterialist thesis in envionmental sociology, Krutilla's criterion for the valuation of environmental amenities, Hirsch's notion of the positional economy, and Pearce's numerical results on weak sustainability. The paper shows how different views on the environmental consequences of economic growth imply at the same time different theories about environmental movements. In rich countries, there is an increasing demand for environmental amenities which cannot be substituted by products of the material economy, and there are also environmental movements against the "effluents of affluence". In poor countries, there are environmental movements characterized as the "environmentalism of the poor".

Keywords: Environmental amenities; Sustainability; "Dematerialization"; Environmental movements

1. Introduction: Questionable assumptions?

This paper brings to light the assumptions regarding the relations between the economy and the environment, common to three unrelated, influential pieces of work: Inglehardt's "post-materialist" thesis, in environmental sociology; Krutilla's criterion for the valuation of environmental "amenities" in environmental economics; and Hirsch's notion of "positional goods", in political economy.

The assumptions are:

(a) One part of the economy (the "material" economy) can grow cheaply and indefinitely, without spoiling the environment, because of technical improvements and substitutions, and indeed such economic growth might even be good for the environment because it will provide the means for cleaning up the environment. The "material" economy is environmentally neutral, even beneficial to the environment.

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(b) Another part of the economy (the "quality of life" sector, the "positional economy", the "postmaterial" sector, the "amenities" sector) has, on the contrary, an inelastic supply; and the income-elasticity of its demand is large (perhaps greater than 1).

This paper also explores the common ground between such assumptions and current research on "industrial metabolism", and on "weak sustainability" (Pearce). Economic growth is decoupled from the physical throughput of energy and materials, and new investments in the rich economies are assumed to compensate for the depreciation of man-made capital plus the depreciation of "natural capital" of the global economy. Nevertheless, there are in the rich countries increasing environmental concerns. Should we appeal to an explanation in terms of a shift to "postmaterialist" values? [1]

2. The post-materialist thesis in environmental sociology

The post-materialist thesis (Inglehart, 1971, 1977) explains environmental movements, not in terms of concern for the increasing depletion of resources and environmental pollution, but, on the contrary, in terms of a change in cultural values towards "quality of life" issues (for instance, having more beautiful cities and countrysides), away from material consumption and away from economic distributional conflicts.

The shift to postmaterialist values is explained by decreasing marginal utility: i.e., since material goods are in abundant supply, they become less valuable in comparison to intellectual and aesthetic satisfactions. However, socialization involves time lags, one's values will reflect the experience of infancy; it is only after some years of prosperity that new cohorts with postmaterial values will enter the electorate and will be subject to opinion polls (Inglehart, 1990, pp. 68–69).

In questionnaires (such as the Eurobarometer) which Inglehart uses as a confirmation of the "postmaterialist" thesis (Inglehart, 1990), there is a clear shift from emphasis on the economy to emphasis on the environment, as one examines the trend over time to the answers to a proposition such as "stronger measures should be taken to protect the environment against pollution". Now, however, pollution is not a "postmaterial" phenomenon. Why then is a shift from economic to environmental priorities defined as a shift from materialism to postmaterialism? One reason is that the shift in values which Inglehart discovered is not only an increased concern with the environment, it is also an increasing emphasis on peace, feminism, human rights. It is more difficult to agree with the second reason for the use of the postmaterialist label. It is only by adopting a metaphysical view of economic growth that we are able to forget the environmental conditions and consequences of affluence. To assert that prosperity is conducive to the spread of postmaterialist values, implies forgetting the very material roots of prosperity.

The postmaterialist thesis asserts that, after the 1960s, class conflict on economic issues was no longer the main conflict; "quality of life" concerns came to the fore because basic economic needs had been met as a result of the post-war period of sustained economic growth (whether sustainable or not in an ecological sense was not a topic for Inglehart's sociological and cultural analysis). Inglehart's research interests lie within the industrialized countries. His evidence for the shift to so-called "post-materialist values", which goes together with concern for the environment, comes from opinion polls and surveys of citizens in industrialized countries. The evidence for the "environmentalism of the poor" cannot come from surveys or opinion polls in the mountains, forests, fields, suburbs and beaches of the Third World. My objection to Inglehart (who is a political sociologist, not an anthropologist) is not that he forgot about the "environmentalism of the poor", but rather that he has not considered the material roots of the environmentalism of the rich. Admittedly, what is materialist and what is postmaterialist in the western environ-

[1] A first version of this paper was read at the Symposium on Models of Sustainable Development organized by Silvie Faucheux in March 1994 in Paris.

mental movement is not always easy to discern. For instance, support for natural parks seems clearly postmaterialist in comparison, for instance, with the anti-nuclear movement, which is concerned about radioactive waste, a very material concern. Even then, the conservation of biodiversity in natural parks can provide material returns, while one could argue that the anti-nuclear movement makes a postmaterialist choice against electricity in favour of a safe environment, only because of the decreasing marginal utility of abundant electricity in a rich society.

3. From Hells Canyon to Three Mile Island

The first three authors under consideration, unaware of each other (one political sociologist, one environmental and resource economist, one political economist), share the same metaphysical common ground. There are no resource and environmental restrictions to the production of goods.

Krutilla modified cost-benefit analysis in order to give more weight to natural amenities. In a famous case, Krutilla's view was that the production of electricity would become relatively cheaper with time, while the value of an amenity such as Hells Canyon would increase with time.

Barnett and Morse (1963) had shown that prices of extracted resources were not increasing relative to prices of manufactured goods, and electricity from thermal power stations was an industry based on extraction. Also, the possibilities of substituting sources in order to make electricity were very large; the population did not pay any attention to whether electricity was made from coal, water falls or radioactive materials; they were concerned with the end-product. Therefore, any improvement in techniques could immediately be passed on to a decrease in prices, via substitution. In contrast, no technical improvement was possible in the direct utility given by an amenity such as Hells Canyon. Moreover, as incomes increased, the demand for natural amenities would increase relative to more material goods. In Krutilla's own words:

"(...) While we may expect production of goods and services to increase without interruption, the level of living may not necessarily be improved. More specifically, Barnett and Morse concluded that the quality of the physical environment—the landscape, water, and atmospheric quality—was deteriorating. These conclusions suggest that on the one hand the traditional concerns of conservation economics—the husbanding of natural resource stocks for the use of future generations—may now be outmoded by advances in technology. On the other hand, the central issue seems to be the problem of providing for the present and future the amenities associated with unspoiled natural environments, for which the market fails to make adequate provision." (Krutilla, 1967, p. 778)

There was an asymmetry in the implications of technological progress because technology would not advance to the point at which the grand geomorphologic wonders could be replicated (or extinct species resurrected) while the supply of fabricated goods and commercial services would be capable of continuous expansion from a given resource base by reason of scientific and technological improvements. Hence Krutilla's criterion: to modify the discount rates to be applied to the stream of benefits (kwh) and to the opportunity costs (losses of amenities), in order to obtain their present-values.

In the Barnett and Morse tradition (which is also Krutilla's), there are no insuperable environmental problems involved in the provision of energy and materials because of the possibilities of substitution. It can be shown that there is a secular trend towards deteriorating terms of trade towards primary, extractive goods. If prices are taken to be a good indicator of scarcity, then there is no increasing scarcity of natural resources which provide energy and materials. As to some environmental services provided by nature, a growing economy will be able to compensate their increasing scarcity (for instance, polluted water and air) by new technologies, which economic growth makes it possible to afford. Only environmental amenities such as mountain landscapes or coral reefs will increase their relative scarcity with time, and therefore their price. As Norgaard and Howarth (1991, p. 91) put it: "The conventional wisdom (is) that progress makes fu-

ture generations better off except with respect to environmental amenities." [2]

The background to this analysis is the common and questionable assumption that economic growth is good for the provision of energy and materials, and for correcting the damage caused to the environment. The richer countries are seen as environmentally more advanced, as they certainly are in terms of clean water, in terms of a decreasing amount of sulphur dioxide. The everyday environment needed for subsistence presents no problems; it is only the environment for Sundays or holidays which becomes problematical. The environment becomes a luxury good; its value increases (to use Inglehart's terminology) because of "postmaterialist" concerns.

Two objections, then, to Krutilla's criterion. Will commodity resources really become cheaper (including environmental costs) relative to amenity resources? Why were the natural conditions of livelihood and production, which are not yet commodities, and which are not really "amenities", left out of such analyses? [3]

4. Hirsch's positional goods

Contrary to Inglehart and Krutilla, a "materialist" interpretation of environmentalism would argue that increased economic production means a decreased availability of environmental resources and services, and therefore an increased appreciation for them (which market prices might fail to reflect: environmental movements arise as a response to perceived negative externalities). There is then no shift from materialism to postmaterialism. Rather, increased exosomatic consumption of energy and materials has placed an increased burden on the environment, and therefore there is an increasing concern about the environment, not only as a source of amenities, but also as source of resources and as a sink for waste—"the effluents of affluence". This is the materialist thesis which explains the new environmentalism in the "rich" countries.

Writing in the 1970s about "social limits to growth", the "postmaterialist" view was implicitly shared by Fred Hirsch, who proposed an explanation of persistent social conflicts in Western societies in terms of the difficulty of extending to everybody the enjoyment of "positional goods". In Krutilla's view, environmental amenities would increase in value relative to commodities, which were easy to produce given technical change and possibilities of substitution. In Hirsch's view (developed independently of Krutilla), there would be an increasing scarcity of "positional goods", and therefore increasing distributional conflicts regarding their enjoyment. The "material economy" was defined as "output amenable to continued increases in productivity per unit of labour input", while the "positional economy" could not grow without limit because of increasing social costs. This distinction was in parallel to Harrod's distinction between "democratic wealth" and "oligarchic wealth".

Characteristically, Hirsch's analysis of car traffic focused more on social externalities than on environmental externalities. Congestion appears as a reciprocal nuisance caused by the abundance of a mass-production, mass-consumption, archetypical Fordist good, the private car. Congestion is a nuisance, as it would be to walk or cycle in an overcrowded area, irrespective of the effects on energy and material flows. But car traffic also causes other environmental "nuisances" in terms of use of exhaustible resources and of pollution with NO_x, emissions of CO_2 etc. However, in Hirsch's view, the limits to growth were "social", not ecological; hence, statements such as: "An acre of land used for the satisfaction of hunger can, in principle, be expanded two-, ten-, or a

[2] Cf. also R. Norgaard's famous critique of Barnett and Morse's work of 1963 (Norgaard, 1990), making the point that prices are indicators, not of scarcity, but of the social perception of scarcity. Morse, if not Barnett, changed his views, as shown in his review of Narindar Singh's "Economics and the crisis of ecology" (1976) published in the *Monthly Review*.

[3] By "conditions of livelihood and production" I refer, for instance, in the field of energy generation, to the natural assimilative capacity to absorb CO_2, and SO_2 and NO_x, which belongs to no-one. Excessive impacts will not be reflected in prices. When Krutilla referred to air pollution, he assumed that technical change plus economic growth would provide the means to clean up the air: true so far for SO_2, less true for NO_x, untrue for CO_2.

thousand-fold by technological advances... By contrast, an acre of land used as a pleasure garden for the enjoyment of a single family can never rise above its initial productivity in that use" (Hirsch, 1976). While the second part of this statement is true, the first part is metaphysical since Hirsch provided no analysis of the meaning of "technological advances" in terms of the flow of energy and materials in the economy. Therefore, the relevance of Hirsch's concept of positional goods is greater that he himself supposed because there are environmental externalities apart from, or on top of, the social externalities that he considered. Increases in productivity per unit of labour (in a Fordist pattern), which allowed the mass-consumption of mass-production goods, were linked to increased flows of energy and materials in the economy, and, in the case of agriculture, were linked also to loss of biodiversity. The growth of the "material economy" also has social and environmental costs. That is, unless the economy were unlinked or uncoupled from the use of energy and materials and the production of waste, certain forms of wealth will never become universal. Also, some forms of wealth are causes of poverty, now or at least in the future. In a world context, the private car is not really democratic.

5. The structure of the economy, and "industrial metabolism"

The economic tendency described a "dematerialization" of the economy or also as a decreasing MIPS [4] would back up the "post-materialist" thesis in environmental sociology. Now, however, in terms of conventional economic value and in terms of employment, it is true that the agricultural and industrial sectors, which produce material goods, are decreasing in importance relative to the more "immaterial" service sector. However, from the point of view of consumption, and not of production, the increased incomes gained in the economy by work in the service sector, or by work of increased productivity in agriculture or industry, go now to buy goods and services in such increased amounts that the throughput of energy and materials in the economy is probably not decreasing. The efficiency in the transformation of energy and materials is improving, but the total amounts of energy and materials that go into the economic process (and come out again as different types of waste) are also growing.

If the economy were truly "dematerializing", then it would be logical to believe in the "post-materialist" explanation of environmentalism. On the contrary, if the growth of the economy implies a heavier weight on ecosystems, then environmentalism should be understood as the product of ecological distribution conflicts: i.e., conflicts on the social, spatial, temporal inequalities in the use of natural resources and services and in the burden of pollution. Witness the "environmental justice" movement in the United States.

The "dematerialization" of the economy has been the subject of an enquiry by Martin Jaenicke, who correlated for a number of economies in the world the growth of GDP with production of cement, steel, energy, and merchandise transported (in tons). His findings were that there was a trend towards dematerialization from 1970 to 1985, but this has been disputed by research from De Bruyn and Opschoor (1994) who have extended the research to 1990. They believe that the true trend is an *N* curve: i.e., the material and energy intensity of the economy first increases, then decreases, then increases again. The flows of trade make it difficult to reach conclusions by country analysis. The significant trend would be the whole world trend. This point is taken up in the following section.

6. "Weak" sustainability at world level

An economy is deemed to be sustainable (in a "weak" sense) if the ratio of savings to income

[4] MIPS means "material intensity per unit service", a term developed by the Wuppertal Institute. See F. Schmidt-Bleek, "MIPS revisited" in *Fresenius Environmental Bulletin*, 2(8), August 1993, and other articles in the same issue of this journal. Schmidt-Bleek also published a book on MIPS in 1994.

(which allows investment) is larger than the sum of the ratios of depreciation of human-made capital and "natural capital". Pearce and Atkinson (1993) have defined sustainability also in a "strong" sense, i.e. maintaining critical "natural" capital constant. Here we are concerned with "weak" sustainability.

If we would assume that the proportion of savings out of income increases with economic growth (which is not true empirically, either historically or in cross-section, but which is socially plausible in the sense that the marginal utility of present consumption perhaps decreases with income in comparison to the present value of marginal future consumption), then "weak" sustainability would become easier to achieve in the richer economies. However, the combined depreciation of human-made and "natural" capital might also be a greater proportion of income in the richer economies, if they are more capital-intensive and at the same time they use in proportion more natural resources (at rates which are faster than the rates of renewability). Thus, in principle, there is no reason to expect the richer economies to be more, or less, sustainable (in the "weak" sense) than the poorer economies.

Nevertheless, the results presented by Pearce and Atkinson are such that Japan (which imports much oil and timber) appears as the most sustainable of all economies. The sustainable economies in their sample include Japan, the USA and Germany, while the unsustainable include countries such as Burkina Faso, Ethiopia, Indonesia and Nigeria. The depreciation of "natural capital" is imputed to countries where the products of such natural capital enter the income stream, whether for domestic use or for export, in the same way as the depreciation of the human-made capital in a car factory in Barcelona or Turin is imputed to the Spanish or the Italian economy, and not to the economies of countries which import Spanish or Italian cars. "Ecological balances of payments" are difficult to establish. I do not need them here because I shall use Pearce

Table 1
An index of weak sustainability for selected countries

	S/Y	$\delta h/Y$	$\delta n/Y$	Z
Sustainable economies				
Costa Rica	26	3	8	+15
Czechoslovakia	30	10	7	+13
Germany (pre-unif., FR)	26	12	6	+8
Hungary	26	10	5	+11
Japan	33	14	2	+17
Netherlands	25	10	1	+14
Poland	30	11	10	+9
USA	18	12	4	+2
Marginally sustainable				
Mexico	24	12	12	0
Philippines	15	11	4	0
Unsustainable				
Burkina Faso	2	1	10	−9
Ethiopia	3	1	9	−7
Indonesia	20	5	17	−2
Madagascar	8	1	16	−9
Malawi	8	7	4	−3
Mali	−4	4	6	−14
Nigeria	15	3	17	−5
Papua New Guinea	15	9	7	−1

From Pearce Atkinson (1993, p. 106). The second column shows depreciation of human-made capital, the third column estimates of depreciation of natural capital Z is the index of "weak" sustainability.

Table 2
GDP and saving ratios for the same countries as in Table 1

	GDP (1986) millions of dollars	Savings (%)
Sustainable economies		
Costa Rica	4260	24
Czechoslovakia	n.a.	n.a.
Germany (pre-unif. FR)	891990	24
Hungary	23660	25
Japan	1955650	32
Netherlands	175330	25
Poland	73770	30
USA	4185490	15
Marginally sustainable		
Mexico	127140	27
Philippines	30540	19
Unsustainable		
Burkina Faso	930	−7
Ethiopia	4960	3
Indonesia	75230	24
Madagascar	2670	10
Malawi	1100	7
Mali	1650	4
Nigeria	49110	10
Papua New Guinea	2530	15

From The World Bank (1988).

and Atkinson's results in order to discuss whether the *world economy, as a whole,* is implicitly judged by them to be sustainable and, if so, why this should be so. I am interested in "weak" sustainability as an ideology, not as an empirical fact. Pearce's and Atkinson's results in Table 1 refer to the early 1980s and to some selected countries. I have listed in Table 2 the GDP and saving ratios for 1986 in the same countries.

Pearce and Atkinson insist on the provisional nature of their results. Nevertheless, the results include a large portion of the world's income, and suggest that *the world economy as a whole has been sustainable* (in a weak sense). Given the share of Germany, Japan and the USA in the world economy, if they are taken to be sustainable, it is unlikely that the depreciation of human-made plus "natural" capital in the rest of the world, net of savings in the rest of the world, would be large enough to place the world economy in an unsustainable situation (in the "weak" sense). In other words, Germany's and Japan's splendid savings are probably able by themselves to compensate for the depreciation of "natural" capital in the rest of the world. Thus, the depreciation of "natural capital" in Nigeria is taken to be 17% of her income, and in Indonesia also 17% of her income (Table 1), and these are two countries whose economies are based on the extraction of natural resources. Such figures are in absolute terms rather insignificant compared to savings in Germany or Japan. Therefore, a world economy with an energy system based on oil, gas, coal and nuclear energy (in the rich countries) is judged as sustainable (only in a "weak" sense). Environmental degradation and depletion of natural resources are consistent with "weak" sustainability because wealth provides savings (and therefore investments) which compensate for such deterioration.

I am not suggesting that David Pearce believes that rich people are more environmentally conscious than poor people. In fact, Pearce has sometimes called for more research on this hypothesis of "environmental elitism". Whether Pearce believes in "environmental elitism" is not the issue here. The issue is that sustainability in the "weak" sense is seen to depend, at world level, on the savings ratio of a few large and prosperous economies. The wealthy economies, if they save enough, allow the world economy to remain "sustainable", because of the substitution of human-made capital for "natural capital". If the wealthy economies would not compensate their depletion of natural resources through a savings ratio which is high enough, then it really would not matter what the performance of countries such as Indonesia or Nigeria (or indeed China and India) would be. Actually, we see that according to Pearce and Atkinson's results, the savings ratios of Japan and Germany, perhaps also of the USA, have been high enough to put the world economy on a sustainable path (in a "weak" sense).

An attempt has been made in the literature of environmental corrections to national income accounting to separate the proceeds from the sale of non-renewable resources into two parts: consumption of capital and income. El Serafy's criterion considers as income only that part which is

invested and which will give rise to permanent revenue. Even if we assume that investment from the sale of natural resources is nil (or has doubtful results, like some KIO investments which will certainly not benefit future generations of Kuwaities), i.e., even if we assume that the proceeds from the sale of non-renewable natural resources should be excluded from the income stream, and should instead be charged *in toto* as depreciation of "natural capital", even then the chrematistic indicator of world "weak sustainability" would be positive, provided that the *price* of non-renewable natural resources is low relative to savings in a few wealthy economies (where "wealth" is not necessarily real wealth, but chrematistic wealth).

Then, if the rich economies and the world as a whole are sustainable (in the "weak" sense), because savings provide for investments which substitute for "natural capital", how should we explain the rise of environmentalism? Perhaps a kind of Inglehart-Krutilla-Hirsch environmentalism based only on the loss of "amenities" which cannot be substituted for? The results of the research on "weak" sustainability support the ideology of environmentalism as "postmaterialism", at least in the rich countries.

7. "Too poor to be green"?

Commenting on the disgusting opposition by the Spanish government to the European eco-tax, and to the announcement by this government not only in Brussels, but even in Rio in June 1992, that Spain would *increase* by 25 percent her emissions of carbon dioxide in the production of electricity over the next 10 years, an article in the *New Scientist* (25 July 1992) asked: "Spain, too poor to be green?" The implication is that the poor are not green, either because they lack awareness (they have no taste for environmental amenities because they have more immediate necessities) or they have not enough money to invest in the environment, or both reasons simultaneously. In this particular case, although Spain should reduce CO_2 emissions because per capita she is above the world average and much above the world median, nevertheless, in the European context, Spain is below the average, and therefore, as regards CO_2, she has been greener because she has been poorer.

Is there a positive correlation between wealth and environmental awareness? If so, is the explanation a "materialist" (i.e., the effluents of affluence) or a "postmaterialist" one? For instance, *The Economist* (27 Nov.–3 Dec., 1993), commenting on the presidential elections in Chile, where there was a plausible "green" candidate (Manfred Max-Neef, a member of the editorial advisory board of *Ecological Economics*, who got nearly 6 percent of the vote), attributed the moderate greening of Chilean politics to the economic boom: once poverty diminishes and livelihood is secured, then people start to worry about the "quality of life". A materialist explanation would be on the contrary that the economic boom is largely based on the export of natural resources at too rapid rates (fishmeal, wood, copper) and on the growth of an anti-environmental type of fruit farming. Moreover, to the extent that part of Chilean environmentalism is connected with the defense of Indian common property against hydroelectricity and commercial forestry, and to the extent that Chilean environmentalism worries about workers' and citizens' health, this implies a denial of the positive correlation between environmentalism and income levels. Such types of environmentalism are characteristic of the "environmentalism of the poor." [5]

Similarly, the belief that environmentalism is a social product of prosperity (whether for material or postmaterial reasons) is very much at the centre of the debate on the environmental consequences of free trade. Some economists have pushed the argument that trade is good for economic growth, and economic growth is good for the environment because, as incomes rise and a middle class emerges, growing attention to the quality of life promotes behaviour and laws which protect the environment. As regards NAFTA, a

[5] Martínez-Alier, J. and Eric Hershberg, "Environmentalism and the Poor", *Items*, SSRC, N. York, Vol. 46, no. 1, March 1992. See also Agarwal (1992) and Guha (1989).

common assumption in the United States was that the Mexicans are too poor to be green. The famous case of US environmental groups attempting to stop Mexican tuna imports was motivated by a clear postmaterialist concern about dolphin safety. Nevertheless, there are arguments which would point out that Mexican peasant maize agriculture is environmentally more benign than USA maize agriculture (and NAFTA will sacrifice peasant agriculture). Mexican oil exports to the USA have cheap prices which do not include any allowance for environmental costs, and which put a low value on future demand in Mexico itself, to the benefit of the USA. If we look at the flow of oil from Mexico to the USA and to the level of oil consumption per capita, there is no doubt about which of the two economies is more materialist and energy-intensive. Which country is greener, Mexico or the USA? It is at least debatable, while the ideology of "the environment as an amenity with high income-elasticity" or "the environment as a luxury good", prejudges the issue against Mexico.

8. Conclusion

If in the rich countries one perceives increasing environmental awareness, this might be because wealth goes together with increasing depletion of resources and pollution of the environment (a situation I attempt to capture with the phrase "the effluents of affluence"). However, mainstream environmental and resource economics (in the Barnett and Morse, and Krutilla tradition), together with other technological optimists such as Hirsch, and recent researchers on weak sustainability (such as Pearce and Atkinson) would believe it is easy to decrease pollution and to substitute for natural resources; they believe that increasing wealth is *good* for the environment in the sense that it allows correction of the negative environmental impacts of commodity production. Then we are led towards a postmaterialist explanation of the environmentalism of the rich.

In conclusion, the identification of environmentalism with a wealthy postmaterialist concern about environmental amenities leaves aside (a) the environmental movements directed against very material "effluents of affluence", such as CO_2, radioactive waste or CFCs, (b) the environmentalism of the "poor" (Chipko, Chico Mendes) directed at keeping communal access to environmental resources threatened by the State or by the generalized market system in order to maintain a sustainable livelihood. The postmaterialist thesis, and some influential ideas from environmental and resource economics (Krutilla's criterion for the valuation of environmental amenities, proposed in 1967, Pearce's indicator of "weak" sustainability), and from political economy (Hirsch, 1976), share a common blindness towards the resource contraints on and the environmental effects of the mass-production and consumption of material commodities.

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