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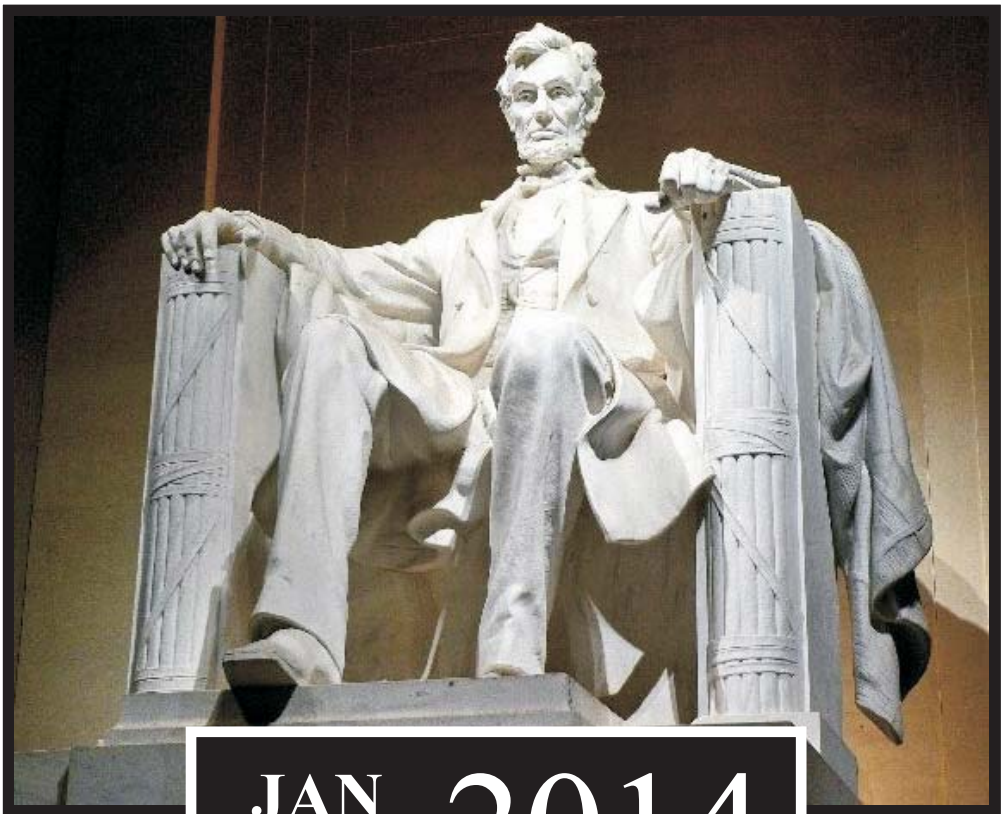
DEVELOPING COUNTRIES SHOULD PRIORITIZE ENVIRONMENTAL PROTECTION OVER RESOURCE EXTRACTION WHEN THE TWO ARE IN CONFLICT.



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LINCOLN DOUGLAS TOPIC ANALYSIS

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by Travis Cram

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For information on Paradigm Debate Products:
PARADIGM RESEARCH
P.O. Box 2095
Denton, Texas 76202
Toll-Free 800-837-9973
Fax 940-380-1129
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Environment v. Resources: Table of Contents

Environment v. Resources: Affirmative

Environment v. Resources: Negative

Environment v. Resources: Overview

Greetings!

Welcome to the first topic of the New Year. It promises to be an exciting one, linking up with several classic debate arguments and some of the most enduring value controversies that have persisted the world over for the last several decades.

The January and February topic deals with whether environmental protection should be prioritized over the extraction of resources when the two are in conflict. A special twist however is whether that prioritization should be done by *developing* countries, or those states that lack an established industrial core and all of the social and health benefits that accompany that core. While debate topics have touched on environmental protection and economic growth before, placing developing countries at the center of the topic is something more unique and is where you will find the most interesting arguments on the topic.

Economic development, resource extraction, and environmental destruction are all interconnected phenomenon and it can be difficult keeping all of the issues straight at times. However, at the heart of the topic is a debate about one single concept: the Environmental Kuznets Curve, which is an economic theory that resource development and environmental pollution follow a U-shaped curve. At a very low stage of development, environmental harm is very low as well because a society doesn't have the means to extract resources or consume. At very high stages of development, environmental harm is also very low because the society is very affluent and has social institutions that prioritize investing in environmental protections. In between, as states transition from no development to high-development, environmental harm is theorized to spike rapidly as society changes, but then to reach equilibrium. James Andreoni and Arik Levinson highlight some of the implications this theory has on what the appropriate economic policy is:

> James Andreoni and Arik Levinson, University of Wisconsin and Georgetown University, NATIONAL SCIENCE FOUNDATION REPORT, "The Simple Analytics of the Environmental Kuznets Curve", January 5, 2000, p. asp
> Evidence suggests that some pollutants follow an inverse-U-shaped pattern relative to countries' incomes. Due to its similarity to the time-series pattern of income inequality described by Kuznets (1955), the environmental pattern has been called an "environmental Kuznets curve." Because the empirical evidence relies on reduced-form regressions of environmental quality on income and other covariates, most researchers avoid interpreting those results structurally, leaving open the question of why pollution follows this inverse-U pattern. Nonetheless, a number of people have appealed to this empirical relationship to argue that economic growth by itself is a panacea for environmental degradation. Beckerman (1992), for instance, writes that "in the end the best – and probably the only – way to attain a decent environment in most countries is to become rich," while Bartlett (1994) claims that "existing environmental regulation, by reducing economic growth, may actually be reducing environmental quality." It is important, therefore, to understand the nature and causes of the environmental Kuznets curve before adopting such far reaching, and to many quite alarming, implications for policy.

Beyond the general shape of the Environmental Kuznets Curve, there are several related issues. What is the role of globalization and trade in development? Do trade linkages mean that developing countries will only produce resources for export and thus forfeit all of the benefits of internal development? Does focusing on resources over human or intellectual development cause states to ignore building social institutions like education and healthcare? Do developing states have to follow the exact same path as the developed world, or can they leapfrog past the dirtiest parts of the Kuznets curve through adaptive policy, foresight and technology? Is it best to help the world's poorest by integrating them into the global economy or leaving them alone to determine their own fates? As you'll soon see, the arguments in this file touch on all of these questions at times. The topic is incredibly complex because of all of these interlinkages.

Environment v. Resources: Overview [cont'd]

The first affirmative position argues that resource extraction does not translate into human measures of development, such as education and health-care. Thus, while resource extraction may have a major economic benefit, those benefits don't help translate into development of a country. It only produces more wealth for those in the extractive industries. The second affirmative position tries to head off a major negative argument by suggesting that operating within the value-systems and logic of a market economy will always undervalue environmental protection. Thus, even if wealth can help create social pressure for environmental protection, society will always undervalue the extent of protection needed, causing the economy to overrun our planet's ability to support us in the long run. The third and final argument articulates an alternative to market logic by arguing that we should embrace ecological values in development planning. This would in turn allow economic activity to proceed in ways that do not damage the planet or contribute to a lack of human development.

The first negative position argues that the development and use of natural resources are a prerequisite to any environmental protections. Without the economic growth that resource extraction fuels, there would be no institutional development for states. Those institutions in turn are what make environmental protections possible. The second negative position argues that placing environmental protection ahead of resource development is actually worse for the environment because it enables the most destructive forms of consumption. So long as there is overpopulation, a lack of affluence will ensure that humans consume and use resources in the worst possible way. The third and final position argues that the proper solution is not to place environmental protection ahead of efforts at resource extraction, but instead to look for creative policy solutions to offset the worst parts of economic development, allowing for the negative to transcend the conflict between the two and achieve a "win-win" scenario.

Those of you have been a part of competitive debate for a few years may recognize a few of the authors. Strong advocates of economic growth and resource development like Wilfred Beckerman, Ronald Bailey and Martin Lewis are well-worn names in debates about economic activity and the environment. While I ordinarily look for every opportunity to incorporate new developments in the literature with every value topic, sometimes that ability is constrained by the nature of the topic, the value controversy at the heart of it, or the nature of the literature base and how it has evolved over the years. The present topic's focus on environmental damage and resource extraction touches on a fairly narrow question that has not been debated by experts since the 80s and 90s. Unfortunately, research by economists, environmentalists and sociologists has moved in a different direction than the topic and is mostly focused on how international trade and globalization affect development and the environment. While I have looked for several opportunities in this file to address that dynamic, it nevertheless sits aside of the controversy posited by the topic. Simply put, most of the controversy that is in the topic is not a significant "live issue" for many researchers, although it is an issue the world still struggles with.

All things considered, it is an intriguing topic that promises a lot of different creative ways to debate. Use this file as a springboard for your own efforts and you will have some great debates over the next two months. Good luck!

Environment v. Resources: Strategic Tips

1. **As the affirmative, you should challenge the negative at every step to differentiate between growth generally and resource extraction specifically. This block helps do that.**

2. **One of the most potent negative arguments will be trying to frame the affirmative as denying basic needs for the world's poor. Flip this argument by focusing on who is harmed the most by environmental degradation: the poorest.**

3. **A central question in the literature is whether an economic market logic can ever really "price" the environment. It's a core concern for both affirmative and negative strategy.**

4. **The most common defense market advocates have is that any flaw with the market is due to a distortion. This block helps you argue that it is the market itself that is the distortion.**

5. **The affirmative will help itself by looking for ways to access a way to improve development without using resource extraction as the central means.**

6. **As I hinted at in the overview, both sides in the debate need to account for how globalization and trade between the first and third world affects the outcomes of resource extraction. That relationship determines the extent of development that flows from resource use.**

7. **This argument is crucial for the negative. If the Environmental Kuznets Curve is the central question up for debate, you need to win that the middle of the "U" on the curve is as short as possible.**

8. **If the negative can convincingly win this case contention, it will make it very difficult for the affirmative to overcome.**

9. **Similar to point 8, if the negative can win that people will always damage the environment through their use of resources, you can make the debate much narrower by focusing on ways to minimize that impact.**

10. **Affirmatives will try to argue that the Environmental Kuznets Curve would not be survivable today because ecological systems are over-taxed. This piece of evidence shifts the debate by suggesting that developing countries today can "tunnel through" the worst parts of the curve.**

11. **Negatives need to pressure the affirmative on how they can achieve a balance between avoiding human suffering and protecting the environment.**

Affirmative Position One: Resource Extraction Fails Human Development

1. GDP growth should not be the supervening value we pursue- it has limited ability to contribute to social happiness.

Joan Martinez Alier, is deputy-director at the Universitat Autonoma de Barcelona and Professor of Economics and Economic History, DEVELOPMENT AND CHANGE, "Socially Sustainable Economic De-growth," 2009, p. asp
The feminist movement made clear many decades ago that GDP does not value what is not in the market, such as 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, in research that updates the literature on the so-called Easterlin Paradox, economists (or rather, psychologists) now agree that above a certain threshold GDP growth does not lead necessarily to greater happiness. GDP should no longer have the dominant position in politics that it has held up to now, to the detriment of environmental and social considerations.

2. Resource development doesn't translate into social development. Countries that are high in natural capital do not invest in social capital.

Thorvaldur Gylfason, Faculty of Economics & Business Administration at University of Iceland, EUROPEAN ECONOMIC REVIEW, "Natural resources, education, and economic development," 2001, p. asp
Economic growth since 1965 has varied inversely with the share of natural capital in national wealth across countries. Four main channels of transmission from abundant natural resources to stunted economic development are discussed: (a) the Dutch disease, (b) rent seeking, (c) overconfidence, and (d) neglect of education. Public expenditure on education relative to national income, expected years of schooling for girls, and gross secondary-school enrolment are all shown to be inversely related to the share of natural capital in national wealth across countries. Natural capital appears to crowd out human capital, thereby slowing down the pace of economic development.

3. Resource extraction will almost always come at the expense of the developing society because prices are set globally by major economic centers.

Joan Martinez Alier, is deputy-director at the Universitat Autonoma de Barcelona and Professor of Economics and Economic History, DEVELOPMENT AND CHANGE, "Socially Sustainable Economic De-growth," 2009, p. asp
The European Union, Japan, the USA and some parts of China and India are large net importers of energy and materials. The USA, having reached the internal peak oil in the 1970s, imports more than half the oil it consumes. 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 (1998), 'market prices are the means by which world system centres extract energy (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 (2007). OPEC, after the drop in the price of oil in 1998, and helped by the efforts of Hugo Chavez from Venezuela and the economic boom in China and India, successfully managed the restriction of supply. The price of oil peaked in 2007–08.

4. A tradeoff between resource extraction and education development is devastating to their case because social development through education is a prerequisite to true economic development.

Thorvaldur Gylfason, Faculty of Economics & Business Administration at University of Iceland, EUROPEAN ECONOMIC REVIEW, "Natural resources, education, and economic development," 2001, p. asp
More and better education is a prerequisite for rapid economic development around the world. Education stimulates economic growth and improves people's lives through many channels: By increasing the efficiency of the labor force, by fostering democracy (Barro, 1997) and thus creating better conditions for good governance, by improving health, by enhancing equality (Aghion et al., 1999), and so on. But what determines a nation's commitment to education? Let us now consider three different measures of education inputs, outcomes, and participation and how they vary with the share of natural capital in national wealth.

Affirmative Position One: Resource Extraction Fails Human Development [cont'd]

5. The ecological and cultural violence done by resource extraction monetizes all aspects of life and environment, creating a losing balance for developing countries.

Joan Martinez Alier, is deputy-director at the Universitat Autonoma de Barcelona and Professor of Economics and Economic History, DEVELOPMENT AND CHANGE, "Socially Sustainable Economic De-growth," 2009, p. asp
We might take the current case of Vedanta bauxite mining in the Niyamgiri hill in Orissa, India. The decline in the price of aluminum if the economic crisis deepens might save the Niyamgiri hill. The price dropped more than 50 per cent in the last months of 2008, so that bauxite is also cheaper. We may still ask: how many tons 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 ILO 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 also 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?

6. The robust trend shows that resource extraction fails to translate into real economic development- resources are more of a curse than a blessing.

Thorvaldur Gylfason, Faculty of Economics & Business Administration at University of Iceland, EUROPEAN ECONOMIC REVIEW, "Natural resources, education, and economic development," 2001, p. asp
In most countries that are rich in oil, minerals, and other natural resources, economic growth over the long haul tends to be slower than in other countries that are less well endowed. For example, in Nigeria, with all its oil wealth, Gross National Product per capita today is no higher than at independence in 1960. Nigeria is not alone. From 1965 to 1998, per capita GNP growth in Iran and Venezuela was on average 1 percent per year, 2 percent in Libya, 3 percent in Iraq and Kuwait, and 6 percent in Qatar (1970-1995), to mention six other OPEC countries (World Bank, 2000). For OPEC as a whole, GNP per capita decreased by 1.3 percent per year on average during 1965-1998 compared with 2.2 percent average per capita growth in all lower- and middle-income countries. King Faisal of Saudi Arabia (1964-1975) would hardly have been surprised; he said (quoted from an interview with his oil minister, Shaikh Yamani): &In one generation we went from riding camels to riding Cadillacs. The way we are wasting money, I fear the next generation will be riding camels again'. These examples seem to reflect a consistent pattern. Of 65 countries that can be classified as natural-resource rich, only four managed to attain both (a) long-term investment exceeding 25 percent of Gross Domestic Product on average from 1970 to 1998, equal to that of various successful industrial countries lacking raw materials, and (b) per capita GNP growth exceeding 4 percent per year on average over the same period. These four countries are Botswana, Indonesia, Malaysia, and Thailand. The three Asian countries achieved this success by diversifying their economies and by industrializing; Botswana, rich in diamonds, without doing so. In East Asia, the countries with few raw materials (Hong Kong, Singapore, South Korea, and Taiwan) have done even better than the resource-rich ones (Indonesia, Malaysia, and Thailand).

Affirmative Position One: Resource Extraction Fails Human Development [cont'd]

7. The poorest populations who bear the cost for resource development would not be helped by the subsequent economic activity those resources would facilitate. The very process of extraction destroys their ability to live in the world.

Joan Martinez Alier, is deputy-director at the Universitat Autonoma de Barcelona and Professor of Economics and Economic History, DEVELOPMENT AND CHANGE, "Socially Sustainable Economic De-growth," 2009, p. asp
In Down to Earth (15 August 2008), Sunita Narain gave current examples from India where the economy will still grow in 2009, driven by internal consumption, cheap oil imports and public expenditure: In Sikkim, bowing to local protests, the government has cancelled 11 hydro-electric projects. In Arunachal Pradesh, dam projects are being cleared at breakneck speed and resistance is growing. In Uttarakhand last month, 2 projects on the Ganga were put on hold and there is growing concern about the rest. In Himachal Pradesh, dams are so controversial that elections were won where candidates said they would not allow these to be built. Many other projects, from thermal power stations to 'greenfield' mining, are being resisted. The South Korean giant Posco's iron ore mine, steel plant and port are under fire. The prime minister has promised the South Korean premier the project will go ahead by August. But local people are not listening. They don't want to lose their land and livelihood and do not believe in promises of compensation. In Maharashtra, mango growers are up in arms against the proposed thermal power station in Ratnagiri. In every nook and corner of the country where land is acquired, or water sourced, for industry, people are fighting even to death. There are wounds. There is violence. There is also desperation. Like it or not, there are a million mutinies today . . . . After I visited Kalinganagar, where villagers died protesting against Tata's project, I wrote this was not about competition or Naxalism. These were poor villagers who knew they did not have the skills to survive in the modern world. They had seen their neighbours displaced, promised jobs and money that never came. They knew they were poor. But they also knew modern development would make them poorer. It was the same in prosperous Goa, where I found village after village fighting against the powerful mining lobby. (Narain, 2008) These movements combine livelihood, social, economic and environmental issues, with emphasis on issues of extraction and pollution. They set their 'moral economy' in opposition to the logic of extraction of oil, minerals, wood or agro-fuels at the 'commodity frontiers', defending biodiversity and their own livelihood. 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.

8. Resource extraction creates harmful distortions in development, creating behaviors that undermine total economic welfare while fueling corruption.

Thorvaldur Gylfason, Faculty of Economics & Business Administration at University of Iceland, EUROPEAN ECONOMIC REVIEW, "Natural resources, education, and economic development," 2001, p. asp
Second, natural-resource-rich economies seem especially prone to socially damaging rent-seeking behavior on the part of producers. This can take many forms. For example, the government may be tempted to offer tariff protection to domestic producers, among other privileges. Rent seeking may also breed corruption in business and government, thereby distorting the allocation of resources and reducing both economic efficiency and social equity. Empirical evidence suggests that import protection and corruption both tend to impede economic growth (Bardhan, 1997). Third, natural resource abundance may imbue people with a false sense of security and lead governments to lose sight of the need for good and growth friendly economic management, including free trade, bureaucratic efficiency, and institutional quality (Sachs and Warner, 1999). Incentives to create wealth tend to become too blunted by the ability to extract wealth from the soil or the sea. Rich parents sometimes spoil their kids. Mother Nature is no exception.

Affirmative Position One: Resource Extraction Fails Human Development [cont'd]

9. Resource extraction provides a temporary spike in wealth that distracts countries from focusing on the human aspects of developing, ensuring that their poor and destitute are left behind.

Thorvaldur Gylfason, Faculty of Economics & Business Administration at University of Iceland, EUROPEAN ECONOMIC REVIEW, "Natural resources, education, and economic development," 2001, p. asp
Fourth, nations that are confident that their natural resources are their most important asset may inadvertently } and perhaps even deliberately! } neglect the development of their human resources, by devoting inadequate attention and expenditure to education. Their natural wealth may blind them to the need for educating their children. Therefore, it is perhaps no coincidence that school enrolment at all levels tends to be inversely related to natural resource abundance, as measured by the share of the labor force engaged in primary production, across countries (Gylfason et al., 1999). For example, the OPEC countries send 57 percent of their youngsters to secondary school compared with 64 percent for the world as a whole and they spend less than 4 percent of their GNP on education on average compared with almost 5 percent for the world as a whole (the figures refer to 1997). Blessed by an unusually rich and reliable rent stream, Botswana is an exception: Its expenditure on education relative to income continues to be among the largest in the world.

10. Even if resource wealth can be translated into social development like it did in Norway, a country will still face overall economic stagnation from export reliance on natural resources.

Thorvaldur Gylfason, Faculty of Economics & Business Administration at University of Iceland, EUROPEAN ECONOMIC REVIEW, "Natural resources, education, and economic development," 2001, p. asp
It needs to be emphasized that it is not the existence of natural wealth as such that seems to be the problem, but rather the failure of public authorities to avert the dangers that accompany the gifts of nature. Good policies can turn abundant natural resource riches into an unambiguous blessing. Norway, the world's second largest oil exporter (after Saudi Arabia), is a case in point. As Norway's oil wealth is a common-property resource by law, the Norwegian government takes in about 80 percent of the oil rent through taxes and fees. The government invests the revenues from oil in foreign securities in order to divide the oil receipts fairly between the present generation and future generations as well as to shield the domestic economy from too much income too quickly. The Norwegians show no signs of neglecting education, on the contrary, as the proportion of each cohort attending colleges and universities in Norway rose from 26 percent in 1980 to 62 percent in 1997. (It is not certain, however, whether the average quality of college education in Norway has changed in tandem with } or perhaps, as some fear, in inverse proportion to } the huge increase in enrolment since 1980.) Economic policies are generally sound. Yet, Norway's total exports of goods and services are no larger in proportion to national income than they were before the oil fields were discovered in the North Sea. In other words, Norway's oil exports have crowded out its non-oil exports krone for krone, leaving total exports stagnant relative to national income for a generation. Only one other OECD country has had a stagnant export ratio since 1970 } actually, since 1870. That country is Iceland, which derives almost half its export earnings and one-ninth of its national income from fish.

Underview: Resource Extraction only Fuels more Resource Extraction

1. Resource extraction only helps to sustain further resource extraction- it creates new inputs in the global economy that produces even greater demand for growth and consumption. [1]

Joan Martinez Alier, is deputy-director at the Universitat Autonoma de Barcelona and Professor of Economics and Economic History, DEVELOPMENT AND CHANGE, "Socially Sustainable Economic De-growth," 2009, p. asp
However, the apostles of growth are not willing to use the current crisis to shift the economy to a different technological and consumption pattern. On the contrary, they find reasons to think car sales will remain strong because, while the US has nearly one car for every person of driving age, China has less than three cars for every 100 people and India fewer still. 'Once people have a roof over their heads, meat on the table and a good job, the next thing they want is a set of wheels', intones The Economist (14 November 2008), announcing that in the next forty years the world's fleet of cars is expected to increase from around 700 million today to nearly 3 billion. The economies of India and China (propelled by internal demand) might well continue to grow at rates of 4 or 5 per cent in 2009 and beyond. Provided the oil price remains low, the car industry will grow faster than the economy and will be an engine of economic growth together with the building industry. However, a world of 3 billion cars would require a vastly increased expenditure of energy. How will the real economy impact on the real-real economy? How will the cars be fuelled? Electricity? Hydrogen? What will the energy cost be?

2. Resource extraction only fuels environmental destruction and resource conflicts among developing nations.

Joan Martinez Alier, is deputy-director at the Universitat Autonoma de Barcelona and Professor of Economics and Economic History, DEVELOPMENT AND CHANGE, "Socially Sustainable Economic De-growth," 2009, p. asp
There is a historic trend towards increasing energy costs of obtaining energy (a lower EROI — energy return on investment). Brazil's recent discovery of 30,000 million barrels of oil (one year's worth of world consumption) thousands of meters under the sea, might become a bottomless sink for energy and money. Coming down from the peak of the Hubbert curve will be politically and environmentally difficult. Conflicts arise in the Niger Delta and in the Amazon regions of Peru and Ecuador against companies such as Shell, Repsol, Oxy. Appeals to some other energy sources (agro-fuels, 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 sevenfold in the twentieth century) but coal is noxious locally, and also globally because of carbon dioxide emissions.

3. Resource extraction in developing countries only ships material value off to developed centers for consumption- it leaves the developing country vulnerable to collapse.

Joan Martinez Alier, is deputy-director at the Universitat Autonoma de Barcelona and Professor of Economics and Economic History, DEVELOPMENT AND CHANGE, "Socially Sustainable Economic De-growth," 2009, p. asp
Will the economic crisis bring an end to the boom in exports of energy and materials, thus diminishing pressures at the commodity frontiers? 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 exports from Latin America of oil, gas, coal, copper, iron ore, soybeans, cellulose, biodiesel and ethanol, this was the credo of President Lula. In October 2008, and in total opposition to the views of Via Campesina and the MST in Brazil, Lula was still pushing for an opening of world markets to agricultural exports. He went to India to press for the liberalization of agricultural imports and exports in the Doha round. True, the export boom gave Lula money for social purposes and increased his popularity. Petrobras was no less dangerous to the environment and to indigenous peoples of Latin America than Repsol or Oxy. But 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 President Lula and the Latin American left be after the crash of 2008–09? It seems that the economy of Brazil will 'de-grow' by 1 per cent in 2009. Lula's insistence on the virtues of ethanol for export is misguided. Agrofuels have a low EROI (especially taking into account the vegetation that already existed before agrofuels occupied the land); they increase the HANPP to the detriment of the biomass needs of other species; and they imply large unpaid-for 'virtual' water exports.

Underview: Resource Extraction only Fuels more Resource Extraction [cont'd]

4. Resource extraction in developing countries is not used for internal development or improvement. It only facilitates ecologically devastating consumption in the global north while ensuring the global south pays the toxic price.

Joan Martinez Alier, is deputy-director at the Universitat Autonoma de Barcelona and Professor of Economics and Economic History, DEVELOPMENT AND CHANGE, "Socially Sustainable Economic De-growth," 2009, p. asp
In some countries, not only the absolute amount of materials but also material intensity (tons of materials / GDP) has been increasing, indicating more pressures on the environment. Convergence to a European average of 16 tons per person/year (only materials, water is not counted here) would multiply material flows in the world threefold, with the present population. Economies can be characterized by such material flows. It can be useful to analyse patterns of external trade: while South America exports six times as many tons as it imports, the European Union imports four times as many tons as it exports. We can understand characteristic patterns of social conflicts, for instance mining and oil extraction conflicts, or resistance against tree plantations for paper pulp, or agro-fuels, or the international conflict caused by unequal access to the carbon dioxide sinks (oceans) or the temporary 'reservoir' (atmosphere). Convergence towards 300 Gigajoules per capita/year in a European pattern would mean a fivefold increase of the present energy in the world economy. If gas and especially coal are used, this would also imply a four- or fivefold increase in the carbon dioxide produced. The HANPP is also increasing: population growth, soil sealing, meat eating, paper production and agro-fuels all increase the HANPP. The higher the HANPP, the less biomass available for other species. At first sight, Southern countries have something to lose and little to gain from de-growth 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 complain about disproportionate pollution (at local and global levels, including claims for repayment of the 'carbon debt'); they protest against waste exports from North to South (e.g. the Clemenceau and so many other ships to the wreaking beaches of Alang in Gujarat, or electronic waste); they argue against biopiracy, and also against Raubwirtschaft, i.e. ecologically unequal exchange, and the destruction of nature and human livelihoods at the 'commodity frontiers'.

5. Natural resource extraction creates a vicious cycle that only amplifies the worst effects of extraction while delaying any benefits to social and economic development.

Thorvaldur Gylfason, Faculty of Economics & Business Administration at University of Iceland, EUROPEAN ECONOMIC REVIEW, "Natural resources, education, and economic development," 2001, p. asp
Education is good for growth, as Adam Smith, John Stuart Mill, and Alfred Marshall knew. Listen, for example, to Marshall (1920, p. 176): There is no extravagance more prejudicial to growth of national wealth than that wasteful negligence which allows genius that happens to be born of lowly parentage to expend itself in lowly work. No change would conduce so much to a rapid increase of material wealth as an improvement in our schools, and especially those of the middle grades, provided it be combined with an extensive system of scholarships, which will enable the clever son of a working man to rise gradually from school to school till he has the best theoretical and practical education which the age can give. Natural resources bring risks. One is that too many people become locked in low-skill intensive natural-resource-based industries, including agriculture, and thus fail through no fault of their own to advance their own or their children's education and earning power. Another risk is that the authorities and other inhabitants of resource-rich countries become overconfident and therefore tend to underrate or overlook the need for good economic policies as well as for good education. In other words, nations that believe that natural capital is their most important asset may develop a false sense of security and become negligent about the accumulation of human capital. Indeed, resource-rich nations can live well of their natural resources over extended periods, even with poor economic policies and a weak commitment to education. Awash in easy cash, they may find that education does not pay. Nations without natural resources have a smaller margin for error, and are less likely to make this mistake.

Underview: Resource Extraction only Fuels more Resource Extraction [cont'd]

6. Economic integration creates pooling mechanisms in the market, causing overproduction of natural resource stocks.

Mathis Wackemagel and William E. Rees, Professor at Universidad Andhuac de Xalapa in Mexico and Professor of Community and Regional Planning at University of British Columbia, ECOLOGICAL ECONOMICS, "Perceptual and structural barriers to investing in natural capital: Economics from an ecological footprint perspective", 1997, p. asp
When assessing risks, economists adopt an individual perspective. Large scale risks are considered equal to the aggregation of many small scale risks (see Fritsch, 1991, pp. 156-167). Generally, economists argue that risk-pooling is beneficial to individuals and, therefore, also for society. If individuals are too risk-averse, they miss opportunities, misallocate resources, or under-consume. Economists like to use the example of Robinson Crusoe who, in the absence of trade, has to overproduce food to even out good and bad harvests to survive the worst years. However, pooling risks can have ecological drawbacks. For example, coastal communities whose survival is dependent on traditional fisheries generally evolve harvest strategies that conserve fish stocks. Only when they acquire the option of pooling risks with the outside through accessing other regions carrying capacity and moving their capital elsewhere do they adopt more aggressive fishing strategies that could lead to resource exhaustion. Having access to others' resources effectively reduces the perceived present value of local natural capital. Because extinction of the local stock no longer immediately endangers survival or the local economy, it may even make economic sense to exploit that stock unsustainably and to invest the returns in a more profitable venture elsewhere.

Underview: Environmental Degradation Hurts the Poorest

1. Those in underdeveloped countries are the most impacted by environmental degradation caused by resource extraction because they depend on environmental resources for survival. [2]

Joan Martinez Alier, is deputy-director at the Universitat Autonoma de Barcelona and Professor of Economics and Economic History, DEVELOPMENT AND CHANGE, "Socially Sustainable Economic De-growth," 2009, p. asp
One may readily agree that conventional economic accounting is misleading. The experience that Pavan Sukhdev (with Haripriya Gundimeda and Pushpam Kumar) gained in India trying to give economic values to nontimber products from forests, and to other environmental services (such as carbon uptake, water and soil retention), has been an inspiration for the TEEB process (The Economics of Ecosystems and Biodiversity) sponsored by the Director General of Environment of the European Commission and by the German Minister of Environment. 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 (for the TEEB interim report, see EC, 2008).

2. A combination of ignorance, distorted beliefs and denial of environmental problems guarantees that continued economic development will translate into environmental harm.

Mathis Wackemagel and William E. Rees, Professor at Universidad Andhuac de Xalapa in Mexico and Professor of Community and Regional Planning at University of British Columbia, ECOLOGICAL ECONOMICS, "Perceptual and structural barriers to investing in natural capital: Economics from an ecological footprint perspective", 1997, p. asp
Even without an operational definition of 'natural capital', most scholars would agree that many critical stocks are being depleted rapidly. Few incentives or policies operate to maintain our natural assets. Even though the conservation of natural capital stocks would require investments to compensate for net losses, the present economic environment discourages investment in, or even maintenance of, natural capital. For economists, investment means capital formation that will produce a stream of goods and services for future consumption. Given the unquestioned monetary value of many ecological goods and the fact that certain ecological services are essential for life, why does humankind not even maintain, let alone invest, in natural capital stocks? Table 1 presents our preliminary classification of barriers to such investment. The left-hand column lists qualities and behaviors of individuals and society. The right hand column provides the corresponding effects that mitigate against investment in nature. Four main classes are identified: (A) Ignorance, fundamental beliefs, and denial: Much husbanding of natural capital is foregone because most people, from the general public to elected and corporate decision-makers, understand neither the nature of the problem nor the crucial role of natural capital stocks. Others who do understand are in denial, or are unwilling or incapable of taking necessary action. Still others are confident that human ingenuity and technological progress will be able to substitute for ecological losses. Unfortunately, nature itself seems to give support to the resultant inaction - systemic lag effects, ecosystems resilience, and large cumulative stocks let us get away with natural capital depletion in the short run (and humans tend naturally to discount future costs).

3. We need to articulate a communal environmental ethic to counter the dominance of individualism as a way of relating to the economy and the world in order to avoid our destruction.

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While there are today no practical examples of formal comprehensive development programs incorporating these qualities, it is certainly possible to speculate on the form they might take (Daly and Cobb, 1989; Milbrath, 1989). Rees (1992c) outlines some basic elements of a strategy to restore ecological balance and social equity to global development. The emphasis is on reducing humanity's ecological footprint and industrial countries' appropriation of the global commons (see also Goodland and Daly, 1993). The following components are particularly relevant to the theme of this paper: • A reassertion of community and social values and responsibilities to restore balance with the present emphasis on individual rights. This would be accompanied by greater appreciation of cooperative activity to balance industrial society's current worship of competitive behavior. A shift from the present emphasis on global economic integration and inter-regional dependence toward greater regional autonomy and self-reliance (if all regions were in ecological steady-state the aggregate effect would be global stability). The well-developed models of bioregionalism provide a useful conceptual starting point.

Underview: Environmental Degradation Hurts the Poorest [cont'd]

4. While developing countries do need to raise their levels of consumption in order to have a better quality of life, that cannot be obtained through resource extraction- that will only benefit the developed core.

Andrew K. Jorgenson and James Rice, Department of Sociology at Washington State University and Department of Sociology at Washington State University, JOURNAL OF WORLD SYSTEMS RESEARCH, "Structural Dynamics of International Trade and Material Consumption: A Cross-National Study of the Ecological Footprints of Less-Developed Countries," July 2005, p. asp

For less-developed countries to share in the development outcomes exhibited by richer, more powerful countries they first must secure access to greater levels of material consumption within the confines of the biologically productive limits of the global environment. Asymmetrical processes of ecological exchange, however, highlight the challenges in doing so when the structure of export flows increases the material consumption opportunities of more economically developed trading partners at the expense of less-developed countries. Arguably, such uneven consumption dynamics are not only complicit in promoting increasing global environmental demand but also linked to the diminishing opportunities of less-developed countries to achieve socio-economic stability and domestic ecological protection. The next steps in this research agenda involve studying the effects of the structure of export flows on particular forms of environmental degradation, including deforestation, organic water pollution, and greenhouse gas emissions. These future analyses coupled with the findings of the present study will provide more comprehensive evidence of the uneven interrelationships between the divergent levels of resource consumption among nations and high levels of particular forms of environmental degradation within the borders of lower-consuming, less-developed countries.

5. The lack of development throughout peripheral areas is no accident but is an effect of power. So long as global economic flows are distorted to facilitate consumption, underdevelopment and environmental destruction will occur

James Rice, New Mexico State University, INTERNATIONAL JOURNAL OF COMPARATIVE SOCIOLOGY, "Ecological Unequal Exchange: Consumption, Equity, and Unsustainable Structural Relationships within the Global Economy", 2007, p. asp

Viewed from nighttime satellite photos, the luminous agglomerations of the built industrial and urban infrastructure of the countries at the core of the global economy are readily discernable against the relatively empty expanses characterizing the periphery. This illumination is only loosely coincident with the distribution of population density around the globe. It is, however, tightly linked to the validity of a core–periphery division regarding the flow and consumption of energy and materials within the global economy (Hornborg, 2001). Mainstream theories of development and underdevelopment have failed to sufficiently consider such ecological dynamics (Bunker, 1985). The incandescent presence of the industrial technomass and the empty expanses of the periphery do not exist in isolation but are interwoven, a reflection of not simply domestic processes but the socioeconomic metabolism or material throughput of the world-system. In turn, systemic global patterns of ecological access, utilization, and degradation shape the uneven development of human societies.

Underview: Environmental Degradation Hurts the Poorest [cont'd]

6. Resource extraction only further fuels unequal exchange of resources the global level, ensuring the developed core consumes more while the developing periphery suffers

James Rice, New Mexico State University, INTERNATIONAL JOURNAL OF COMPARATIVE SOCIOLOGY, "Ecological Unequal Exchange: Consumption, Equity, and Unsustainable Structural Relationships within the Global Economy", 2007, p. asp

The built infrastructure and complex social organization of the developed countries is reliant upon the extractive economies of many less developed countries (LDCs). The trade of natural resources supports the disproportionate per capita material consumption rates typically characteristic of core countries. Ecological flows, when systematically undervalued in monetary terms, displace the environmental costs of this uneven consumption to LDCs. In addition, it allows core countries to inequitably appropriate limited global environmental space or carrying and sink capacity of ecological systems well beyond their own borders. To more fully conceptualize uneven development it is necessary to examine the ecological basis of these interdependencies. To better understand global environmental change, it is instructive to evaluate their consequences. This requires, moreover, the evaluation of international political economy dynamics cast in biophysical and not simply monetary terms. Towards this end, we draw together various strands of thought to elaborate upon the theory of ecological unequal exchange, a perspective gaining attention among social scientists. Ecological unequal exchange refers to the increasingly disproportionate utilization of ecological systems and externalization of negative environmental costs by developed countries and, consequentially, declining utilization opportunities and imposition of exogenous environmental burdens within LDCs. The focus, therefore, is upon the interdependent distributional processes shaping cross-national environmental outcomes.

Affirmative Position Two: Economic Logic Can't Account for Nature

1. Economic logic cannot account for environmental effects because it mistakes resource extraction as a form of wealth creation, guaranteeing that the entire system will someday crash. [3

Joan Martinez Alier, is deputy-director at the Universitat Autonoma de Barcelona and Professor of Economics and Economic History, DEVELOPMENT AND CHANGE, "Socially Sustainable Economic De-growth," 2009, p. asp
Frederick Soddy was a Nobel laureate in Chemistry and a professor at Oxford. His Cartesian Economics was published in 1922, and Wealth, Virtual Wealth and Debt in 1926. Soddy's teachings from the 1920s became easy to understand for ecological economists who had read Georgescu- Roegen's The Entropy Law and the Economic Process (1971). Soddy's main point was simple and still applies today. It is easy for the financial system to increase debt (private or public), 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 an increase in the extraction, and eventual destruction, of fossil fuels. Energy is dissipated and cannot be recycled. Real wealth would instead be the current flow of energy from the sun. Economic accounting is false because it mistakes the 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. Economic accounting does not properly count environmental damages and the exhaustibility of resources. We might indeed say that Soddy's doctrine was a precursor of ecological economics.

2. Economic development paradigms cannot adequately value natural resource stocks- an accounting ethic that places environmental protection at the center is needed.

Mathis Wackemagel and William E. Rees, Professor at Universidad Andhuac de Xalapa in Mexico and Professor of Community and Regional Planning at University of British Columbia, ECOLOGICAL ECONOMICS, "Perceptual and structural barriers to investing in natural capital: Economics from an ecological footprint perspective", 1997, p. asp
This paper argues that perceptual distortions and prevailing economic rationality, far from encouraging investment in natural capital, actually accelerate the depletion of natural capital stocks. Moreover, conventional monetary analyses cannot detect the problem. This paper therefore makes the case for direct biophysical measurement of relevant stocks and flows, and uses for this purpose the ecological footprint concept. To develop the argument, the paper elaborates the natural capital concept and asserts the need of investing in natural capital to compensate for net losses. It shows how the ecological footprint can be used as a biophysical measure for such capital, and applies this concept as an analytical tool for examining the barriers to investing in natural capital. It picks four issues from a rough taxonomy of barriers and discusses them from an ecological footprint perspective: it shows why marginal prices cannot reflect ecological necessities; how interregional risk pooling encourages resource liquidation; how present terms of trade undermine both local and global ecological stability; and how efficiency strategies may actually accelerate resource throughput. Affirming the necessity of biophysical approaches for exploring the sustainability implications of basic ecological and thermodynamic principles, it draws lessons for current development.

3. Real economics do not live up to the theoretical fantasy of economists- resource extraction does not translate into sustainable growth, it only produces waste.

Joan Martinez Alier, is deputy-director at the Universitat Autonoma de Barcelona and Professor of Economics and Economic History, DEVELOPMENT AND CHANGE, "Socially Sustainable Economic De-growth," 2009, p. asp
The teaching of economics in universities is still based on an image of the economy 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 agreed, quantities are exchanged. This is chrematistics. Macroeconomic accounts (GDP) aggregate the quantities multiplied by the prices. However, 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 ecological economics (Boulding, 1966; Daly, 1968; Georgescu Roegen, 1966, 1971; Kneese and Ayres, 1969).

Affirmative Position Two: Economic Logic Can't Account for Nature [cont'd]

4. Resource extraction leaves developing countries with a toxic debt that will never be paid back because economic development externalizes the ecological costs of production.

Joan Martinez Alier, is deputy-director at the Universitat Autonoma de Barcelona and Professor of Economics and Economic History, DEVELOPMENT AND CHANGE, "Socially Sustainable Economic De-growth," 2009, p. asp
The assets that take the form of claims to debts that will remain unpaid, have been given the 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 include damages to the environment. An enormous 'carbon debt' is owed to future generations, and to the poor people of the world who have produced fewer greenhouse gases. Large environmental liabilities are also owed by private firms. Chevron-Texaco is being asked to pay back US$ 16 billion in a court case in Ecuador. Since 1888, the Rio Tinto company has left behind huge liabilities in Andalusia, where it got its name, in Bougainville, in Namibia, in West Papua (together with FreeportMcMoran)—debts to poor or indigenous peoples. Shell has very large liabilities in the Niger Delta. These poisonous debts are in the history books but not in the accounting books.

5. Economic rationality that monetizes nature creates the illusion of protecting environmental resources while in truth running down exhaustible natural resource stocks.

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For the present, however, the next steps are to determine how best to measure constancy of natural capital, or in other words, how the various forms of natural capital can be aggregated. Pearce and colleagues identify three possible approaches to the measurement issue based on constant physical inventory, constant present valuation of stocks, and constant income flows. They finally settle on monetary measures on grounds that constant physical capital would "be appealing for renewable resources, but, clearly, has little relevance to exhaustible resources since any positive rate of use reduces the stock" (Pearce et al., 1990, p. 10). We challenge this view. Using money values as a measure of natural capital constancy is misleading from an ecological perspective precisely because a constant (or increasing) dollar value of a resource stock can result from the physical depletion of the stock (and its functions). Similarly, a stable income may result from rising marginal prices for resource commodities as corresponding stocks decline (this of course assumes that market prices are accurate and involatile, which they are not). Thus, monetary measures can foster the illusion of constant stocks while physical inventories actually shrink. More fundamentally, prices can say nothing at all about non-market, but ecologically essential, stocks and processes (e.g., the ozone layer and photosynthetic CO2 uptake), nor about those ecosystems functions whose value to humankind is not revealed until they are in jeopardy or disappear (see Rees, 1992a).

6. Economic accounting creates a calculus that rewards the rich within developing countries while ensuring the poorest groups suffer the most from resource extraction. Environmental protection is the only way to provide justice.

Joan Martinez Alier, is deputy-director at the Universitat Autonoma de Barcelona and Professor of Economics and Economic History, DEVELOPMENT AND CHANGE, "Socially Sustainable Economic De-growth," 2009, p. asp
In National Income Accounting one could 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 from such losses? In their project 'Green Accounting for India', Sukhdev, Gundimeda 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 (Gundimeda et al., 2006). 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. Thus, 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'.

Affirmative Position Two: Economic Logic Can't Account for Nature [cont'd]

7. Economic structures do not adequately capture the essence of a healthy environment or its impact in ensuring any development or economic production is possible.

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All economies need measurable quantities of natural capital to function. Such capital is an essential factor of production. We have developed a method that represents critical natural capital requirements of a defined economy or population in terms of the corresponding ecologically productive areas. We refer to these requirements as this population's 'ecological footprint' on the Earth (Fig. 1) or its 'appropriated carrying capacity'. 3 As a first approximation, the ecological footprint can be represented as the aggregate area of land and water in various ecological categories that is claimed by participants in that economy to produce all the resources they consume, and to absorb all their wastes they generate on a continuous basis, using prevailing technology (Fig. 2). Evidently, the area of the footprint depends on the population size, material living standards, technology and ecological productivity. It also reflects the amount of human carrying capacity 'appropriated' from the global total by the given population. It is important to recognize, that ecological footprints do not overlap; the carrying capacity appropriated by one economy is not available to another. Productive land is a good proxy for many of the resource flows and essential life support services that natural capital provides. Land area communicates the finite character of the world in readily understandable terms; the area in each ecosystem category is roughly proportional to its photosynthetic potential for low entropy biomass production; the quality of the land is an indicator of the functional integrity of related ecosystems and their potential long-term 4 production. These characteristics of real wealth are rarely reflected in the money price of land-as-commodity.

8. Economic rationality and the culture of individualism ensure that developing countries will not be able to sustain their environmental stocks as long as the resource extraction mentality governs

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Economic abstraction, deviant operating models and knowledge (the social construction of reality): People act out their lives guided by mental models, including a shared, culturally-induced perception of the nature of reality and humankind's place in the scheme of things. Our personal experiences are always interpreted through such socially constructed 'world views.' As the nature of humankind- environment linkages evolves, the question is whether our dominant economic models are compatible with the biophysical reality out there. Table 1 shows that some of our socioeconomic abstractions are barriers to investment in natural capital because they bear little relation to ecological reality (see also below). The social mimicry of individual rationality: An overriding consideration in the depletion of natural capital can be traced to a 'fallacy of composition.' A global economic regime is being created in which what has become accepted as 'rational' economic behavior by individuals is ever more being emulated at higher organizational scales at the expense of public goods and communal values. Ferdinand Thinnies recognized this trend over one hundred years ago in his influential treatise Community and Society. He traced the growing alienation and exploitation of people to the socio-historical transformation from Gemeinschaft, traditional societies which are community-based, to Gesellschaft, modern societies in which rational self-interest operates to weaken traditional human bonds (Martindale, 1960, pp. 82- 86).

Affirmative Position Two: Economic Logic Can't Account for Nature [cont'd]

9. The inevitable result of market logic will be the planet grinding to a halt as resource stocks are overconsumed. The market will fail.

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To summarize, prevailing beliefs, resultant economic behavior, and mainstream development theory all mitigate against maintenance or investment in natural capital. Current global development models implicitly assume an infinite world. The corresponding economic strategies are those of individual materially open systems at all organizational and spatial scales as reflected in the expansionist rhetoric of globalism. From this perspective, increasingly liberal world markets and expanded international trade are seen as the keys to sustained global prosperity. Investment emphasis is on growth, both of the manufactured capital necessary to exploit and transform the natural capital, and on individual consumption. Unfortunately, the real world is finite and the invisible hand of the market has nothing to say about the appropriate scale of an entropic economy operating under such a constraint. The inevitable results are global sinks filled to overflowing and depletion of the world's ecological capital.

Underview: Economic Logic Undervalues Future Generations

1. The logic of the free market will never achieve equilibrium because it systematically devalues the health of future generations, which means it will abuse resources

Joan Martinez Alier, is deputy-director at the Universitat Autonoma de Barcelona and Professor of Economics and Economic History, DEVELOPMENT AND CHANGE, "Socially Sustainable Economic De-growth," 2009, p. asp
Keynesianism was triumphant in the 1960s, the era of very cheap oil. Later, both short-run and long-run Keynesianisms were set aside and neoliberal thought was resurrected. The neoliberals, like Hayek, thought that markets knew much more than the state; but one unanswered objection to neoliberalism raised by environmentalists was that the market did not value future, inter-generational scarcities. In the crisis of 2008–09, neoliberalism is suffering from ill health. Some bankers are asking for the state to take over their banks. Keynes has come back, reincarnated in Stiglitz and Krugman. As ecological economists we must ask, is this a short-run Keynes to get out of the worst aspects of the crisis, or also a long-run Keynes to get into a path of continuous economic growth?

2. Resource extraction focuses on developing maximum value from stocks in the present moment- a sustainable ecological ethic prioritizes the preservation of sustainable natural stocks for future generations.

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Having formalized the concept of natural capital, ecological economists are debating various formulations of a 'constant capital stocks' condition for sustainability (Costanza and Daly, 1992; Daly, 1989; Pearce and Atkinson, 1993; Pearce et al., 1989, 1990; Pezzey, 1989; Rees, 1992a). In keeping with our emphasis on ecologically significant forms of natural capital, and given current indications of global ecological deterioration, we subscribe to the precautionary principle that each generation should inherit a stock of essential biophysical assets alone no less than the stock of such assets inherited by the previous generation. 2 Adequate natural capital stocks are needed to maintain sufficient ecological flows for the human economy. And, growing populations would need to translate in reducing economic inputs per capita. In fact, to secure material well-being in the future, one could even argue for the maintenance of per capita stocks (Barbier, 1994, p. 295). For more people, we would need more forests, more farm land and more wilderness areas~ This interpretation emphasizes ecological necessity, particularly the life-support functions of self-producing biophysical capital. It also reflects Daly's definition of 'strong sustainability' which recognizes that manufactured (or human-made) capital and natural capital remain non-substitutable complements in most production functions (Daly, 1989, p. 22).

3. Economic development over environmental protection creates a ruthless world of individual competition and wealth maximization that will erode the foundations for human life

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Either we continue on our current p a t h . . . : The dominant world view assumes an open economy independent of nature, that human beings are selfish atoms devoid of social relationships, and that all values are commensurate on a unidimensional monetary scale. From this perspective, the appropriate strategy to meet human needs is to maximize individual wealth and strive for Pareto efficiency at the societal level. Our contemporary role models are the competitively and materially successful, our heroes those people who contribute most to the country's GDP. Appropriate economic policies and strategies for maximizing individual wealth can be found in any standard economics textbook (e.g., Lipsey et al., 1988; Samuelson and Nordhaus, 1985). Unfortunately, as this paper with its ecological footprint approach shows, prevailing economic logic and development strategies discourage investment in natural capital. Indeed, economic globalization deepens the alienation between humankind and nature and, through the destruction of community, among human beings themselves. Current development patterns reinforce the primacy of human-made capital over natural capital because the former 'reproduces' faster than the latter. Investment has become the opposite of conservation and ultimately threatens human welfare. People everywhere are faced with a complex paradox: the dominant strategy promises to enhance human welfare, but increasingly seems responsible for eroding it.

Underview: Markets Are Always Distorted

1. Resource production does not operate with a market logic- oil production especially is distorted by different market players who have conflicting incentives. [4]

Joan Martinez Alier, is deputy-director at the Universitat Autonoma de Barcelona and Professor of Economics and Economic History, DEVELOPMENT AND CHANGE, "Socially Sustainable Economic De-growth," 2009, p. asp
Part-nationalization of some banks in the EU and the USA avoided sudden widespread bank failure, at the cost of raising the public deficit. Deficit spending in a situation of lack of aggregate demand is a Keynesian prescription with which one might agree at present—as long as it goes to solving the most pressing social problems, and to environmental investments, and not to military spending (to secure oil?) or to the car and motorway industries. In any case, the financial free-for-all was not the only cause of the crisis, which was triggered by high oil prices due not only to the OPEC oligopoly but also to the approaching peak oil. Economic theory does not say that an exhaustible resource should be sold at the marginal cost of extraction. One could argue that oil at US$ 140 a barrel is still cheap from the point of view of its fair inter-generational allocation and the externalities it produces. The stock market started to fall in January 2008 but the price of oil kept increasing until July 2008. As the crisis deepened, the price of oil went down but it will recover in real terms if and when the economy grows again. There is here an automatic 'de-stabilizer' for the economy. It is difficult to find new oil, as we go down the Hubbert curve. Moreover, a low price of oil implies a declining supply in a few years because of declining investment in the fields with higher marginal costs. On top of this, OPEC tries to reduce oil extraction during the crisis to keep the price up.

2. Developing countries will over-produce resources in the hopes of maintaining revenue which means they will not behave like the perfect prediction of rationality.

Joan Martinez Alier, is deputy-director at the Universitat Autonoma de Barcelona and Professor of Economics and Economic History, DEVELOPMENT AND CHANGE, "Socially Sustainable Economic De-growth," 2009, p. asp
While in the 1920s, commodities prices dropped for a few years before 1929. This time, commodity prices continued to increase — pushed along by misguided agro-fuel subsidies, by the OPEC cartel, and by financial investment in the futures market—for some months after the fall in the stock market had started. By late 2008, however, commodity prices were declining because of declining demand. The Baltic Dry Index measures shipping rates: it fell precipitously after July 2008 partly because of decreasing Chinese imports of iron. On 16 October 2008, the Mexican multinational CEMEX announced that it would reduce its labour force by 10 per cent around the world because of declining demand for 'aggregates' and cement, while car factories in Europe and the USA reduced output from mid-2008. The price of oil went down in late 2008 not because of increased supply but because of decreased demand. Some oil projects (with low EROI and high marginal costs), such as the Alberta oil sand production and the Orinoco heavy oil exploitation might be stopped, as might the small but economically, environmentally and socially costly Yasuni ITT project in Ecuador. For commodities other than oil, 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. Rather than go down such a path, this would be the moment for Latin America, Africa and other net energy-and-materials exporters to think of endogenous development, moving towards an ecological economy. 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 much-needed long-term path towards an economy that uses less materials and energy. Many Southern countries will also suffer from a reduction in migrants' remittances.

Underview: Markets Are Always Distorted [cont'd]

3. The development paradigm is grounded in the myth that individual rational choice will maximize social utility, despite every indication that market logics fail.

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To argue that globalism and self-interested individual behavior is a dominant factor in the depletion of natural capital is to underscore a particularly pernicious form of market failure. While economists have long acknowledged market failures against society's collective interest, development policy still reflects the conventional myth that net social benefits invariably flow from the workings of Adam Smith's 'invisible hand.' In fact, the invisible hand, which is said to lead "private interests and passions of men" (sic) in the direction which is most beneficial to the interest of society as a whole, might well be the most effective strategy for maximizing material well-being in an unlimited environment. However, in a finite, materially-closed system like the ecosphere, the competitive forces guiding the invisible hand become positively destructive. Not all individuals, corporations, and nations can simultaneously maximize their individual use of global sources and sinks without overexploiting or destroying the common pool life-support functions that are essential to their mutual survival (see Ophuls, 1992; Homer-Dixon et al., 1993).

4. Market logics are ridden with paradoxes that make it impossible to appropriately value the ecological value of a healthy environment.

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Marginal pricing is a core concept of conventional economics. Economists refer to the open market price for the next (or the last) unit of a given product or commodity as its 'marginal price.' In theory, this price is set by the (mostly unconscious) interplay of buyers' and sellers' preferences and the diminishing marginal utility (satisfaction) experienced by consumers from purchases of successive increments of a given commodity. Ideally, a knowledgeable consumer should be able to maximize the total utility extracted from a given income by adjusting his/her expenditures so that there would be no gain in satisfaction from any alternative pattern of expenditure. At this point, the marginal utility of all the goods and services in question would be identical. The beauty -- as well as the danger -- of market prices is that they seem to make resources commensurate, enabling us to trade apples for oranges. One danger is the fact that the market price for a given commodity does not reflect its ultimate worth when scarce, nor the 'total value' of the commodity (Daly, 1968/1993, p. 254). It reveals only what people are willing to pay today for the next unit of that commodity. This price is influenced by many things including total income, available alternatives (opportunity costs) and current fashion. Accordingly, market pricing can often equate the terminally frivolous to the absolutely essential. Certainly, today's low food prices provide no hint of either the biological necessity of food or the land necessary to produce it. Neither do market prices indicate anything about temporal lags, ecological thresholds, or the irreversibilities of natural processes, all of which impinge on the future supply of natural goods and services. This enigma is called the Paradox of Values and puzzled even Adam Smith (Samuelson and Nordhaus, 1985, p. 416). It describes the situation in which diamonds, which are less essential to humans than water, are generally more expensive at the margin. We are not willing to pay as much for our next liter of water as for the smallest cut diamond because the marginal utility of water (when we have plenty) is much lower than that of diamonds. Paradoxically, were we are stuck waterless in the middle of a desert, we would perceive a single gulp of water to be worth more than all the world's diamonds combined (see Fig. 3).

Underview: Markets Are Always Distorted [cont'd]

5. Economics is fundamentally broken when it comes to the environment- it is impossible to correctly value ecological inputs because they undergird every single thing we do.

Mathis Wackemagel and William E. Rees, Professor at Universidad Andhuac de Xalapa in Mexico and Professor of Community and Regional Planning at University of British Columbia, ECOLOGICAL ECONOMICS, "Perceptual and structural barriers to investing in natural capital: Economics from an ecological footprint perspective", 1997, p. asp
If we value bioproductivity only by its dollar price at the margin, we are completely misled about the magnitude of nature's contribution to human welfare. For example, agriculture may account for only 2-4% of industrialized nations' GDP, while their ('non-material') information industries can generate 50%. However, these figures reflect neither the necessity for agriculture nor its true relative worth compared to the information sector. Stephen Viederman comments: [Economics] is broke when a leading economist, William Nordhaus, can argue that declines in agriculture and forestry as a result of global warming would be of little consequence because they represent only 3% of the US economy. David Orr has suggested this is equivalent "to believing that since the heart is only about two percent of the body's weight, it can be removed without consequences for one's health" (Viederman, 1992, p. 2). In short, marginal prices for the products of natural capital convey a sense that nature's total value is finite, when, in fact, ecological necessity dictates that the total social utility of many forms of natural capital is infinite: without water, no life; without air, no life; without photosynthesis, no life, etc. In contrast, the total value of the information sector would probably not be substantially higher than the sum suggested by marginal prices, and would certainly fall far short of infinity.

Affirmative Position Three: Ecological Protections Trump Resources

1. Developing countries should make the conscious choice to value their environment and refuse to cheaply export environmental goods to global centers via resource extraction.

Joan Martinez Alier, is deputy-director at the Universitat Autonoma de Barcelona and Professor of Economics and Economic History, DEVELOPMENT AND CHANGE, "Socially Sustainable Economic De-growth," 2009, p. asp
In fact, the crisis should be an incentive to focus on internal development, and not to sell the environment so cheaply. The prices of commodities have gone down, and moreover other values (social, environmental) have been sacrificed. In this respect, some proposals from Ecuador in 2007 (supported to a degree by president Rafael Correa, who is a traditional leftwing economist more than an ecological economist), are interesting. At the November 2007 OPEC summit meeting in Vienna, when Ecuador returned to the organization, OPEC approved in principle a resolution in support of the Yasuni-ITT proposal (to leave oil in the ground in a territory with uncontacted indigenous people and of great biodiversity value), and it also voiced interest in the so-called Daly-Correa ecotax. The tax, proposed by president Correa at that OPEC meeting, is based on the concept by Herman Daly in a speech to OPEC in 2001 (see Daly, 2007). OPEC countries have dismissed the existence of the enhanced greenhouse effect. This eco-tax would show their concern for climate change. An OPEC-imposed carbon tax at the oil wellhead instead of attempted regulation of emissions from the tailpipe (by carbon taxes or cap-and-trade) would be fairer to exporting countries and perhaps more effective in reducing global carbon dioxide emissions. This ecotax would make acceptance of climate change easier for oil exporting countries (and also, if imitated, for gas and coal exporting countries). The principle is to export less at a higher price. Money generated from the tax would go towards financing an energy transition away from fossil fuels, towards helping poor people around the world, and towards helping countries like Ecuador and Nigeria to keep oil (or gas or coal) in the ground when located under fragile and culturally sensitive ecosystems (Martinez Alier and Temper, 2007).

2. An ecological ethic that prioritizes environmental protection over extraction is crucial to achieve human survival in the long run.

Mathis Wackemagel and William E. Rees, Professor at Universidad Andhuac de Xalapa in Mexico and Professor of Community and Regional Planning at University of British Columbia, ECOLOGICAL ECONOMICS, "Perceptual and structural barriers to investing in natural capital: Economics from an ecological footprint perspective", 1997, p. asp
We should acknowledge here that however radical the constant stocks criterion might appear, it still reflects prevailing anthropocentric and 'resourcist' values. Emphasis is on the pragmatic minimal bio- physical requirements for humane survival. On the other hand, the preservation of biophysical assets essential to humankind does imply the direct protection of whole ecosystems and thousands of keystone species, and thousands more will benefit indirectly from the maintenance of the same systems upon which humans are dependent. In short, the most promising hope for maintaining significant biodiversity under our prevailing value system may well be the ecologically enlightened human self-interest implicit in stronger versions of the constant natural capital stocks criterion. Of course, should humankind shift to more ecocentric values, its own survival might be assured even more effectively. Respect for and the preservation of other species and ecosystems for their intrinsic value would automatically ensure human ecological security.

Affirmative Position Three: Ecological Protections Trump Resources [cont'd]

3. We in the developed world should align with those in the south fighting for environmental justice and embrace the present moment as a key time to transition to a de-growth economy.

Joan Martinez Alier, is deputy-director at the Universitat Autonoma de Barcelona and Professor of Economics and Economic History, DEVELOPMENT AND CHANGE, "Socially Sustainable Economic De-growth," 2009, p. asp
The economic crisis of 2008–09 affords an opportunity to put the economy of the rich countries on a different trajectory as regards material and energy flows. Before 2008, world carbon dioxide emissions were growing by 3 per cent per year: we would have reached 450 ppm (parts per million) in thirty years. Carbon dioxide emissions peaked in 2007. Now is the time for a permanent socio-ecological transition to lower levels of energy and materials use, including a decrease in the HANPP (human appropriation of net primary production). The crisis might also provide an opportunity for a restructuring of social institutions. The objective in rich countries should be to live well without the imperative of economic growth. Moreover, we are on the path for a reduction in world population once it peaks at 8,000 or 8,500 million, thereby reducing pressure on resources and sinks in the second half of the twenty-first century. Georgescu-Roegen's explicit sponsorship of the concept of d´ecroissance (de-growth) in 1979 (Grinevald and Rens, 1979/1995), Herman Daly's views on the steady-state since the early 1970s (Daly, 1991), and Serge Latouche's success in France and Italy in the last ten years insisting on economic de-growth (Latouche, 2006), have all prepared the terrain. Now is the time in rich countries for socially sustainable economic de-growth reinforced by an alliance with the 'environmentalism of the poor' of the South.

4. It is not necessary to exploit natural resources to achieve social development. The focus should be on global de-growth and finding alternatives to resource extraction. [5]

Joan Martinez Alier, is deputy-director at the Universitat Autonoma de Barcelona and Professor of Economics and Economic History, DEVELOPMENT AND CHANGE, "Socially Sustainable Economic De-growth," 2009, p. asp
Those who propose a short-run Green Keynesianism or a Green New Deal as a temporary measure, are close to ecological economics. If public investment must grow, as indeed it must to contain the rise in unemployment, it is better to channel it to the welfare of citizens and to 'green' energy production, than into motorways and airports. However, Green Keynesianism should not become a doctrine of continuous economic growth. Until now, growth has come with the use of energy from coal, oil and natural gas. In Green Keynesianism it seems desirable to increase public investment in energy conservation, photovoltaic installations, urban public transport, housing rehabilitation, organic agriculture. It does not seem desirable to persevere in the faith of economic growth. In rich countries a slight economic decline is already taking place which could easily be socially sustainable. We are not in the 1930s: in Europe we have economies with annual per capita incomes of over 25,000 euros. A drop of 10 per cent (with a corresponding decrease in energy and material flows) can be managed if institutions of redistribution are in place. We would then enter into a socio-ecological transition. There is already an agreement in Europe for carbon dioxide emissions to be cut by 20 per cent compared to 1990. In fact, in early 2009, emissions and GDP are decreasing faster than is required to reach this target.

5. Now is a crucial time to embrace global degrowth in order to facilitate environmental sustainability in the long-run.

Joan Martinez Alier, is deputy-director at the Universitat Autonoma de Barcelona and Professor of Economics and Economic History, DEVELOPMENT AND CHANGE, "Socially Sustainable Economic De-growth," 2009, p. asp
As a result of the economic crisis, carbon dioxide emissions are now going down. Could this decline be sustained? Have emissions peaked? This could be a unique historical chance. In May 2008 it was announced that carbon dioxide concentration in the atmosphere was at a record level of 387 ppm according to measurements at the Mauna Loa observatory in Hawaii. This meant an increase of 30 per cent above the level of 300 ppm that Svante Arrhenius used in his article of 1896, when he pointed out that burning coal would increase the concentration of carbon dioxide in the atmosphere and would increase temperatures. Between 1970 and 2000, the concentration had increased by 1.5 ppm per year; from 2001 to 2007 growth in concentration reached 2.1 ppm. In early 2008 the world was still travelling at full speed towards 450 ppm, to be reached in about thirty years. The increase in the prices of oil, gas and other commodities up to July 2008, and the economic crisis in the second half of 2008 and 2009, stopped economic growth and changed the trend in carbon dioxide emissions. From the point of view of climate change, the economic crisis is to be welcomed.

Affirmative Position Three: Ecological Protections Trump Resources [cont'd]

6. Environmental protection must be prioritized as its own end. Trying to simply improve economic accounting will fail because we do not understand ecological processes for effective commodification to occur.

Joan Martinez Alier, is deputy-director at the Universitat Autonoma de Barcelona and Professor of Economics and Economic History, DEVELOPMENT AND CHANGE, "Socially Sustainable Economic De-growth," 2009, p. asp
Decisions may indeed be improved by giving monetary values to environmental resources and services which are undervalued or not valued at all in conventional economic accounting. But there are other considerations. One is our uncertain knowledge about the working of ecosystems, and about the future impacts of new technologies; another is the idea that nonmonetary values should not be excluded from decision-making processes. The fetishism of fictitious commodities must be avoided.

7. The negative's calculus tries to reduce every facet of life to the single value of the commodity. A plurality of incommensurable values must be recognized that acknowledges environmental protection as a standalone virtue.

Joan Martinez Alier, is deputy-director at the Universitat Autonoma de Barcelona and Professor of Economics and Economic History, DEVELOPMENT AND CHANGE, "Socially Sustainable Economic De-growth," 2009, p. asp
The question is not whether economic value can be determined only 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 whether all evaluations in a given conflict (extraction of copper and gold in Peru or bauxite in Orissa, a hydel dam in the North-East of India, the destruction of a mangrove in Bangladesh, Honduras or Brazil to the benefit of shrimp exports, the determination of the suitable level of carbon dioxide emissions by the European Union), must be reduced to a single dimension. Such an exclusion of values should be rejected in favour of a plurality of incommensurable values.

8. An environmental ethic of the poor that prioritizes ecological protection and justice for the poorest individuals in developing countries is needed to prevent the ills of resource extraction while ensuring the world's poorest don't suffer

Joan Martinez Alier, is deputy-director at the Universitat Autonoma de Barcelona and Professor of Economics and Economic History, DEVELOPMENT AND CHANGE, "Socially Sustainable Economic De-growth," 2009, p. asp
The world conservation movement should criticize conventional economic accounting and push for the introduction of an economic language that better reflects our relations with nature, while not forgetting the legitimacy of other languages: territorial rights, environmental and social justice, livelihood, sacredness. This is necessary for the alliance between the conservation movement and the environmentalism of the poor proposed by Adams and Jeanrenaud (2008). This alliance is not going to be easy to forge: judging by 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. John Muir would have been horrified. The 'environmentalism of the poor' combines livelihood, social, economic and environmental issues, with emphasis on issues of extraction and pollution. In many instances these movements draw on a sense of local identity (indigenous rights and values such as the sacredness of the land). Such movements explicitly oppose the annexation of land, forests, mineral resources and water by governments or business corporations.

Affirmative Position Three: Ecological Protections Trump Resources [cont'd]

9. Market mechanisms will always fail to effectively prioritize the environment. The logic must be reconfigured by turning towards ecological values.

Mathis Wackemagel and William E. Rees, Professor at Universidad Andhuac de Xalapa in Mexico and Professor of Community and Regional Planning at University of British Columbia, ECOLOGICAL ECONOMICS, "Perceptual and structural barriers to investing in natural capital: Economics from an ecological footprint perspective", 1997, p. asp
Clearly neoclassical market-based 'rationality' must be complemented by other principles (see Daly and Cobb, 1989; Daly, 1989). Ecological economics, for example, does recognize the economy as a subsystem of a finite and materially closed ecosphere. This perspective forces a shift from development policies that emphasize material growth to strategies that acknowledge both the role of natural capital in maintaining planetary life support and the risks associated with its (irreversible) loss. Many natural capital stocks and functions are 'common pool' assets for which everyone is responsible and to which everyone should have more or less equitable access. Here policy emphasis would be on mechanisms and incentives both to attract more investment in essential natural capital and to reduce material consumption, the real challenge being not to compromise perceived quality of life. Markets alone are unlikely to achieve these ends -- the international community will have to negotiate some form of "mutual coercion, mutually agreed upon". 8 This in turn may require a fundamental shift in prevailing economic assumptions and social values.

10. Economic development only looks to selfish material values- a healthy, functioning environment is critical to satisfy physical needs and the basic value to life.

Mathis Wackemagel and William E. Rees, Professor at Universidad Andhuac de Xalapa in Mexico and Professor of Community and Regional Planning at University of British Columbia, ECOLOGICAL ECONOMICS, "Perceptual and structural barriers to investing in natural capital: Economics from an ecological footprint perspective", 1997, p. asp
The prime challenge for economic development is to meet present human needs "without compromising the ability of future generations to meet their own needs" (WCED, 1987, p. 8). Basic human needs are not only physical in nature, such as food, shelter, and health care, but also psychological, such as dignity and self-esteem, love and social connectedness, self-realization and control over one's life. In other words, decent human life presupposes some basic securities. This paper started out by explaining why maintaining natural capital becomes the ecological bottom- line for securing decent human life. Maintenance of natural capital and its productivity requires investments. However, many forces detract today from investing in natural capital. And its depletion continues. The paper showed why monetary analyses are blind to this dilemma, and, by using various examples, argued for a biophysically based economics. For analyzing ecological constraints and their implications for human well-being, such an economics could be based on the ecological footprint perspective. Only with economic theories that are grounded in an understanding of biophysical flows, and of stocks necessary to secure these flows, will we be able to accept the economic necessity to invest in natural capital, and by that maintain its capacity. The question then becomes how we will be able to provide these basic securities for human survival. We face a difficult choice.

Underview: Global De-Growth is Preferable to Growth

1. Economic growth is a priori at odds with environmental protection. Global de-growth and an end to resource extraction is needed.

Joan Martinez Alier, is deputy-director at the Universitat Autonoma de Barcelona and Professor of Economics and Economic History, DEVELOPMENT AND CHANGE, "Socially Sustainable Economic De-growth," 2009, p. asp
Economic growth is not compatible with environmental sustainability. The effort to push up the rate of growth by increasing obligations to repay financial debts is in direct conflict with the availability of exhaustible resources and with the capacity of waste sinks. The economic crisis of 2008–09 has resulted in a welcome change to the totally unsustainable trend of increasing carbon dioxide emissions. The Kyoto Protocol of 1997 was generous to the rich countries, giving them property rights on the carbon sinks and the atmosphere in exchange for the promise of a reduction of 5 per cent of their emissions relative to 1990. This modest Kyoto objective will be fulfilled more easily because of the economic crisis. This shows that economic de-growth, leading to a steady state, is a plausible objective for the rich industrial economies. This would be supported by the environmental justice movements of the South, which are active in resource extraction conflicts.

2. The 2009 recession proves that degrowth and less development can help offset the negative impacts of resource extraction and consumption.

Joan Martinez Alier, is deputy-director at the Universitat Autonoma de Barcelona and Professor of Economics and Economic History, DEVELOPMENT AND CHANGE, "Socially Sustainable Economic De-growth," 2009, p. asp
One of the effects of the economic crisis is a shift in the unsustainable trend of increasing carbon dioxide emissions. The Kyoto Protocol of 1997 was generous with the rich countries: it gave them property rights on the carbon sinks and the atmosphere in exchange for the promise of a reduction of just 5 per cent of their emissions relative to 1990. In the context of the economic downtown, this modest objective will be fulfilled more easily. One could even imagine by October 2008 that the carbon trade would collapse unless lower caps were adopted. Air travel, house and car sales all decreased in the second half of 2008 in many European countries and the USA. Motorists in the USA were buying 9 per cent less gasoline in early October 2008 than in early October 2007, so that the figures released in February 2009 showing a 6 per cent decline in output of the US economy in the last quarter of 2008 were not a surprise.

3. The recession showed that degrowth is possible without extreme social disruption.

Joan Martinez Alier, is deputy-director at the Universitat Autonoma de Barcelona and Professor of Economics and Economic History, DEVELOPMENT AND CHANGE, "Socially Sustainable Economic De-growth," 2009, p. asp
World GDP will decrease by 1 or 2 per cent in 2009, while economic degrowth in the US, the European Union and Japan will be larger than this. Between August 2008 and March 2009, consumption of gasoline in the US decreased by as much as 10 per cent. Emissions from these countries plus Russia will decrease by not less than 5 per cent. These figures may seem modest, but they are extremely high in comparison with the objectives that were seen as politically acceptable up to now. Neither the IPCC nor Lord Stern's report had contemplated a scenario of slight economic de-growth in the world economy followed by a period of non-growth in the EU and the US. This is the scenario that could convert the carbon dioxide emissions peak of 2007 into a unique historical event. The economies of South America, which in the neoliberal period had turned back to primary commodities and become exporters of raw materials in greater amounts than ever before, now will pay an economic price. Their growth is stopping because of the economic crisis, and declining terms of trade. Increased carbon dioxide emissions from China and India are expected to be more or less in line with economic growth in India (of about 5 per cent), and a little lower than economic growth in China. India's emissions per capita are well below the world average (India has over 15 per cent of world population and about 4 per cent of emissions). China's emissions per capita are much closer to the world average. As a country it is now the largest emitter, slightly ahead of the USA. Increased emissions in India, China, Indonesia and a few other countries whose economies are growing in 2009 will not compensate for the decrease in the USA, Europe and Japan. There is a chance that 2007 was not an isolated peak, but rather a historical peak, a unique event.

Underview: Global De-Growth is Preferable to Growth [cont'd]

4. The wake of the recession is the ideal time to look for creative alternatives to the unsustainable growth economy that resource extraction fits into- environmental protection should be prioritized to facilitate de-growth.

Joan Martinez Alier, is deputy-director at the Universitat Autonoma de Barcelona and Professor of Economics and Economic History, DEVELOPMENT AND CHANGE, "Socially Sustainable Economic De-growth," 2009, p. asp
A transition to sustainability requires new thinking on demography and on the socio-ecological transition. Marina Fischer-Kowalski and Helmut Haberl of the IFF in Vienna, influenced by the work of environmental economists and industrial ecologists, recently edited a book entitled Socio- Ecological Transitions (Fischer-Kowalski and Haberl, 2007). 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 also try to distinguish possible from impossible futures. For instance, is it plausible to think of a world of 8 billion people with an energy expenditure of 300 GJ and a use of materials of 16 tons per capita/year? Or are we, in contrast, on the verge of a socio-ecological transition that will reduce energy and material use in the rich economies even if this implies economic de-growth? Such a transition would require a reform of social institutions (to deal with unemployment), and also a reform of financial institutions to stop the financial level of the economy from growing without reference to the underlying physical realities. The imaginative selling of derivatives (financial 'products'), and the existence of unregulated offshore banking, have taken a knock in public opinion. Sensible proposals are being made by moderate political forces to turn banking into a nationalized public service. Beyond this, the current financial 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. Energy consumption and the use of materials by rich people must be reduced. Frivolous calls in OECD countries 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 purely financial point of view as rates of unemployment increase. This is an opportunity for starting a socio-ecological transition.

5. The benefits of environmental protection in highly developed countries exist because the impacts of that high consumption are masked through asymmetrical trade relationships.

Andrew K. Jorgenson and James Rice, Department of Sociology at Washington State University and Department of Sociology at Washington State University, JOURNAL OF WORLD SYSTEMS RESEARCH, "Structural Dynamics of International Trade and Material Consumption: A Cross-National Study of the Ecological Footprints of Less-Developed Countries," July 2005, p. asp
A growing body of social scientific research indicates that the amount of material resources a country consumes is largely a function of its level of economic development, urbanization, and other domestic social factors. Many of these studies identify a paradoxical series of relationships: countries with higher material consumption measured as ecological footprints experience lower domestic levels of environmental degradation. Researchers and theorists argue that these relationships are illustrative of macro-structural conditions in which more developed countries externalize their consumption-based environmental costs through the inflows of material resources in the form of produced commodities and raw materials from lower-consuming, less-developed countries. These international dynamics of environmental externalization result in the reduction of resource consumption within the borders of less-developed countries. Put differently, less-developed countries often have lower ecological footprints because they largely focus on the export of produced goods and raw materials to higher consuming, more-developed countries. Suppressed environmental consumption, therefore, is partly a consequence of asymmetrical processes enacted through international trade relations, shaping inequitable access to and utilization of global natural resources.

Underview: Global De-Growth is Preferable to Growth [cont'd]

6. The flow of resources upon being extracted is unequal, guaranteeing that those in developing countries will never see any of the benefits but bear all of the costs.

James Rice, New Mexico State University, INTERNATIONAL JOURNAL OF COMPARATIVE SOCIOLOGY, "Ecological Unequal Exchange: Consumption, Equity, and Unsustainable Structural Relationships within the Global Economy", 2007, p. asp

We discuss and elaborate upon the theory of cross-national ecological unequal exchange. Drawing upon world-systems theoretical propositions, ecological unequal exchange refers to the increasingly disproportionate utilization of ecological systems and externalization of negative environmental costs by core industrialized countries and, consequentially, declining utilization opportunities and imposition of exogenous environmental burdens within the periphery. We provide a descriptive overview of theoretical and empirical efforts to date examining this issue. Ecological unequal exchange provides a framework for conceptualizing how the socioeconomic metabolism or material throughput of core countries may negatively impact more marginalized countries in the global economy. It focuses attention upon the global uneven flow of energy, natural resources, and waste products of industrial activity. Further, the recognition of the distributional processes of ecological unequal exchange is relevant to considerations of both the socioeconomic and environmental imperatives underlying the pursuit of sustainable development, as it contributes to underdevelopment within the periphery of the world-system. We conclude by highlighting the interconnections between uneven natural resource flows, global environmental change, and the challenge of broad-based sustainable development.

Underview: Ecological Ethics Essential to Sustainable Living

1. Economic rationality only places a value on environmental assets as resources to be harvested- a broader ecological ethic is necessary to prevent depletion.

Mathis Wackemagel and William E. Rees, Professor at Universidad Andhuac de Xalapa in Mexico and Professor of Community and Regional Planning at University of British Columbia, ECOLOGICAL ECONOMICS, "Perceptual and structural barriers to investing in natural capital: Economics from an ecological footprint perspective", 1997, p. asp
The purpose of this paper is to highlight some of the present barriers to investing in natural capital. It argues that perceptual distortions and prevailing economic rationality, far from encouraging investment in natural capital, actually accelerate the depletion of natural capital stocks. As conventional monetary analyses seem blind to natural capital depletion, the paper therefore makes the case for direct physical measurement of relevant stocks and flows, and uses for this purpose the ecological footprint concept. However, before embarking on this task, the meaning of the 'natural capital' concept needs to be clarified. Ecological economists acknowledge that industrialized societies depend for survival not only on labor and human-made capital, but also on natural capital. However, natural capital has not yet been developed into an operational concept, even within ecological economics. Various interpretations of natural capital have been advanced. Narrow definitions identify natural capital mainly with commercially available renewable and non-renewable resources (Barbier, 1994, p. 292). However, this paper builds on a more ecologically complete definition that would include not only all the biophysical resources and waste sinks needed to support the human economy, but also the relationship among those entities and processes that provide life support to the ecosphere (Costanza and Daly, 1992). Natural capital refers to a stock of natural assets that is capable of producing a sustainable flow. For example, a forest or a fishery is capable of producing a perpetual harvest, year after year. The forest or the fish stock is the natural capital, the sustainable harvest is natural income.

2. Natural capital must have a broader view than resource stocks- an ecological perspective teaches us to value the entire environmental system necessary for our survival

Mathis Wackemagel and William E. Rees, Professor at Universidad Andhuac de Xalapa in Mexico and Professor of Community and Regional Planning at University of British Columbia, ECOLOGICAL ECONOMICS, "Perceptual and structural barriers to investing in natural capital: Economics from an ecological footprint perspective", 1997, p. asp
There is renewable natural capital, including self-producing stocks like biomass or other biological resources, or replenishable assets such as water, solar energy or atmospheric ozone. And there is non-renewable natural capital like fossil fuel, minerals and ores whose income can be considered sustainable if the capital losses are compensated (see below). Natural capital is the totality of these assets, and this paper uses a biophysical approach to aggregate its various forms. In short, natural capital is not just an inventory of resources; it includes all those components of the ecosphere, and the structural relationships among them, whose organizational integrity is essential for the continuous self-production of the system itself. J Indeed, it is this highly evolved structural and functional integration that makes of the ecosphere the uniquely livable 'environment' it is for the very organisms it comprises (Rees, 1990, 1992a). Geoclimatic, hydrological, and ecological cycles do not simply transport and distribute nutrients and energy, but are among the self-regulatory, homeostatic mechanisms that stabilize conditions on Earth for all contemporary life-forms, including humankind.

Underview: Ecological Ethics Essential to Sustainable Living [cont'd]

3. Development is only possible if environmental protection is the chief value. Otherwise extraction rates will occur at an unsustainable level and create net-worse outcomes.

Mathis Wackemagel and William E. Rees, Professor at Universidad Andhuac de Xalapa in Mexico and Professor of Community and Regional Planning at University of British Columbia, ECOLOGICAL ECONOMICS, "Perceptual and structural barriers to investing in natural capital: Economics from an ecological footprint perspective", 1997, p. asp
We therefore submit that at least for renewable natural capital, constancy can be assessed meaningfully only in physical terms. The natural capital occupied by an economy must be understood as the physical stocks required to produce the biophysical 'goods and services' that this economy extracts from global flows (natural income) to sustain itself without compromising future production. We therefore also concur with a biophysical interpretation of the monetary proposition of El Serafy (1989) which states that non-renewable resource harvest is sustainable if the stock depletion is compensated with the build-up of equivalent financial capital. Similarly, we argue that non-renewable energy resources can only be used sustainably if, in compensation, an amount of biophysical capital with an equivalent content of available energy is being accumulated. To summarize, an economy depends on natural capital to provide all the resource flows and waste sinks necessary to sustain a given material standard of living, while simultaneously maintaining the functional integrity and productivity of the stocks themselves. It follows that rising material standards or increasing population levels necessarily require corresponding increases in natural capital stocks. Monetary approaches are blind to these biophysical realities. Therefore, Ecological Economics requires other measuring rods to assess the natural capital stocks and their change.

4. An ecological form of thinking would place environmental protection and local control over resources at the center of social and economic planning. It is the only solution to the trap of growth.

Mathis Wackemagel and William E. Rees, Professor at Universidad Andhuac de Xalapa in Mexico and Professor of Community and Regional Planning at University of British Columbia, ECOLOGICAL ECONOMICS, "Perceptual and structural barriers to investing in natural capital: Economics from an ecological footprint perspective", 1997, p. asp
. . . Or we recognize the need to change direction: By contrast, the ecological world view recognizes that the human economy operates within the ecosphere, a thermodynamically closed system powered (nearly) exclusively by 175000 TW of low entropy solar energy, that human beings live in obligate dependency on nature as well as on each other, and that market prices cannot be the sole criterion for value or necessity (and are particularly unreliable as the signal of ecological scarcity). From this perspective providing the biophysical and social security necessary for human life requires development strategies that preserve the Earth's bioproductive stock and the life-support services it delivers, and which reinforce a sense of human community. Our role models should be the socially committed and our heroes those who enrich the potential of human life on as little appropriated carrying capacity as necessary. Corresponding strategies include a development framework that emphasizes the need for investment in natural capital and in new social institutions for strengthening community life and related mutual support mechanisms. In much of the world a necessary corollary would be to devolve significant control over local resources to resident populations.

5. Environmental protection does not come at the cost of social welfare.

Mathis Wackemagel and William E. Rees, Professor at Universidad Andhuac de Xalapa in Mexico and Professor of Community and Regional Planning at University of British Columbia, ECOLOGICAL ECONOMICS, "Perceptual and structural barriers to investing in natural capital: Economics from an ecological footprint perspective", 1997, p. asp
Any successful alternative development path would both protect essential natural capital and improve net social welfare. Most importantly, it would remove the conflicts between individual and social well-being. The fact remains, however, that no such alternative strategy is yet on the agenda of any major government or opposition party. Current political practice entrenches the current development path. Indeed, the very integration of the global economy mitigates against any individual country adopting the ecological alternative: the marginal global benefits resulting from one nation's restraint would quickly be dissipated by non-cooperating countries, all of which have open access to the ecosphere. Such is our present dilemma: politically acceptable policies for sustainability would be ecologically ineffective, while ecologically meaningful policies remain politically impossible (if not heretical). This situation is likely to remain as long as social schizophrenia and denial outweighs public awareness that our current mode of living is self-destructive. Only widespread agreement that the situation is serious will induce the value changes and political will required to enable humanity to exit our developmental cul-de-sac with dignity.

Underview: Ecological Ethics Essential to Sustainable Living [cont'd]

6. Economic development that occurs in a globalized trade regime is fundamentally dislocative, ensuring overshoot.

Mathis Wackemagel and William E. Rees, Professor at Universidad Andhuac de Xalapa in Mexico and Professor of Community and Regional Planning at University of British Columbia, ECOLOGICAL ECONOMICS, "Perceptual and structural barriers to investing in natural capital: Economics from an ecological footprint perspective", 1997, p. asp
The question is, at what point do their people cease being better off than before? Each economy is still contained by a (second) limiting factor, and in addition is now dependent on an essential resource supplied by another economy. To this extent the gains are only transitional: a short period of economic growth during which distributional conflicts are eased. In the modern world, of course, both A and B can find new trading partners to overcome the latest limiting factor, and so on. The result is, just as economists expect, expansive growth of the various economies as successive locally limiting factors are eliminated. Both economies expand their economic footprint (represented in Fig. 4 by increased size of the economies). However, once again important ecological consequences flow from global economic integration. First, material growth anywhere necessarily increases the throughput of energy and material resources, including those which have not historically been limiting (see Table 2). This raises the general level of both consumption and residuals output. Second, globalization exposes all local resource stocks to the largest possible market. In the case of regionally unique or generally scarce resources, this may increase demand, driving up prices and exploitation rates. Conversely, in a competitive market, it may drive down prices, encouraging both overconsumption by importers and overexploitation of stocks as exporters strive to maintain revenue flows. In either case, the result is more rapid natural capital depletion. Third, trade acts as a special case of risk-pooling. For example, access to low-priced agricultural imports makes people less averse to the long-term risks associated with the urbanization of locally limited agricultural land. In the absence of negative feedback on their economy or lifestyles, there is no direct incentive for local people to resist conversion of such land to activities that yield higher short-term economic returns.

Answers to: "Better Market Calculations Allow for Environmental Protection"

1. Economic theory can never account for environmental variables because the energy inputs in natural resources occurred so far in the past.

Joan Martinez Alier, is deputy-director at the Universitat Autonoma de Barcelona and Professor of Economics and Economic History, DEVELOPMENT AND CHANGE, "Socially Sustainable Economic De-growth," 2009, p. asp
The critique of conventional economic accounting often emphasizes the forgotten current values of environmental services provided by ecosystems. The environmental services from coral reefs, mangroves, tropical rainforests etc. 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 useful for impressing the public with the importance of environmental losses but it is hopelessly inadequate for grasping the relations between economy and environment, because our economy depends on processes of photosynthesis from millions of years ago for our main energy sources. It depends on ancient biochemical cycles for mineral resources that we are squandering without replacement. In the case of oil, the extraction peak in the Hubbert curve has perhaps been reached. In 2007 we were taking almost 87 million barrels per day (mbd) — in terms of calories, the world average was equivalent to about 20,000 kcal per person/day (ten times the food energy intake), and in the USA it was equivalent to 100,000 kcal per person/day. In exosomatic energy terms, oil is then far more important than biomass. In early 2009, extraction had decreased to 84 mbd.

2. Market logics are blind to ecological necessity, ensuring that attempts to 'price in' environmental protection will fail.

Mathis Wackemagel and William E. Rees, Professor at Universidad Andhuac de Xalapa in Mexico and Professor of Community and Regional Planning at University of British Columbia, ECOLOGICAL ECONOMICS, "Perceptual and structural barriers to investing in natural capital: Economics from an ecological footprint perspective", 1997, p. asp
To summarize: from an ecological perspective, the Paradox of Values is not so much a paradox as a real contradiction between human preference at the margin and ecological necessity at the limit. In contrast to ecological footprint analyses, market prices for ecological resources are blind to the necessity of maintaining the functional integrity of relevant ecosystems. They do not reflect the size of remaining natural capital stocks nor whether a certain minimum stock must remain intact to ensure systems integrity. Commodity prices simply do not account for ecological functions -- a thousand logs (or the equivalent in lumber or pulp) are not the ecological equivalent of a thousand trees as forest. For these reasons, marginal prices systematically undervalue natural capital and encourage its overexploitation. The increasingly competitive global marketplace (and the lower prices it brings) is therefore itself a barrier to investment in natural capital and thus undermines ecological sustainability.

3. Traditional economic accounting is a fiction written by those who want to retain power- environmental protection and justice movements must come first

Joan Martinez Alier, is deputy-director at the Universitat Autonoma de Barcelona and Professor of Economics and Economic History, DEVELOPMENT AND CHANGE, "Socially Sustainable Economic De-growth," 2009, p. asp
There could 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 (as represented by Via Campesina), the pessimists (or realists) on the risks and uncertainties of technical change (post-normal science), and the 'environmentalism of the poor' that demands the preservation of the environment for livelihood. The international environmental justice movements have as their objective an economy that sustainably fulfils the food, health, education and housing needs for everybody, providing as much joie de vivre as possible. They know that in decision-making processes, economics becomes a tool of power, both in 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 environmental justice movements know that conventional economic accounting is false, that it ignores the physical and biological aspects of the economy, the value of unpaid domestic and voluntary work, and that it does not 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.

Answers to: "Developed Countries are Irrelevant to Topic"

1. Resource extraction doesn't take place in a vacuum- the globalized context means that resources are funneled into export markets that do not give fair compensation to the developing country that produces the asset. [6]

Andrew K. Jorgenson, Kelly Austin and Christopher Dick, Professors of Sociology at the University of Utah and North Carolina State University, INTERNATIONAL JOURNAL OF COMPARATIVE SOCIOLOGY, "Ecologically Unequal Exchange and the Resource Consumption/Environmental Degradation Paradox: A Panel Study of Less-Developed Countries," 2009, p. asp

The theory of ecologically unequal exchange has much of its roots in the classical trade dependence, unequal exchange, and world-systems traditions in political-economic sociology (e.g. Emmanuel, 1972; Frank, 1967; Galtung, 1971; Hirschman, 1980). The perspective is also greatly influenced by Stephen Bunker's research in prior decades (e.g. 1984, 1985) on extractive industries and underdevelopment in the Amazon region. In this influential work, Bunker posited that like economic outcomes, the environmental and human well-being 'costs' of export dynamics for less-developed countries should be considered both theoretically and empirically. Bunker forcefully argued that theoretical articulations and corresponding empirical assessments have failed to address how and the extent to which the extraction and export of natural resources from lesser developed, peripheral countries 1) involve a vertical flow of value embodied in energy and matter to more-developed countries, and 2) could greatly influence the environmental, demographic, and structural context in which subsequent development efforts unfold, with the latter potentially complicating future value-added extractive activities and thus negatively impacting the quality of life for domestic populations (Bunker, 1984, 1985; see also Jorgenson, 2009; Rice, 2007a).

2. Resource extraction in developing countries is only a method of externalizing the environmental impacts of a rich life-style to the third world, increasing environmental degradation.

Andrew K. Jorgenson, Kelly Austin and Christopher Dick, Professors of Sociology at the University of Utah and North Carolina State University, INTERNATIONAL JOURNAL OF COMPARATIVE SOCIOLOGY, "Ecologically Unequal Exchange and the Resource Consumption/Environmental Degradation Paradox: A Panel Study of Less-Developed Countries," 2009, p. asp

Building from these prior works, the structural theory of ecologically unequal exchange asserts that more-developed countries externalize portions of their consumption-based environmental costs to lesser-developed countries, which in turn increases forms of environmental degradation in the latter while suppressing levels of resource consumption within their borders (e.g. Hornborg, 1998, 2001; Jorgenson, 2006; Rice, 2008). It is argued that the populations of more developed countries are positioned advantageously in the contemporary world economy, and thus more likely to secure and maintain favorable terms of trade allowing for greater access to the natural resources and sink capacity of bioproductive areas within lesser-developed countries. This greater access facilitates the externalization of environmental and human well-being costs of resource extraction to less-developed countries, which contributes to heightened resource depletion and environmental degradation within their borders. These structural processes also help create conditions where more-developed countries are able to over-utilize global 'environmental space', which encompasses the stocks of natural resources and waste assimilation properties of ecological systems supporting human social organization (e.g. Rice, 2007b). Further, this overutilization or misappropriation of environmental space suppresses resource use and consumption opportunities for lesser-developed countries, thereby hindering prospects to increase the overall quality of life for their domestic populations (e.g. Hornborg, 2001; Jorgenson, 2009).

Answers to: "Developed Countries are Irrelevant to Topic" [cont'd]

3. Resource extraction and development that only fuels consumption in the first world increases ecological harm and human misery throughout the developing world.

Andrew K. Jorgenson, Kelly Austin and Christopher Dick, Professors of Sociology at the University of Utah and North Carolina State University, INTERNATIONAL JOURNAL OF COMPARATIVE SOCIOLOGY, "Ecologically Unequal Exchange and the Resource Consumption/Environmental Degradation Paradox: A Panel Study of Less-Developed Countries," 2009, p. asp

This study advances our collective understanding of the consequences of particular ecologically unequal exchange relationships for less-developed countries. Foremost, to assess the validity of key arguments of the theoretical orientation and help resolve methodological limitations of prior research, we employed a relatively nuanced measure of the vertical flow of primary sector exports in panel regression analyses of deforestation and a primary sector-specific per capita footprint (CGT footprint) for less-developed countries from 1970 to 2000. The results of fixed effects and random effects models indicate the vertical flow of primary sector exports increases deforestation yet suppresses the per capita CGT footprints of less-developed countries, net of multiple controls. Thus, as articulated by the theory of ecologically unequal exchange, the resource consumption/environmental degradation paradox is at least partly a function of developed countries utilizing their advantageous positions in the world economy to externalize their consumption-based environmental costs to lesser developed countries. The ecological ramifications associated with deforestation are numerous and not debatable. However, skeptics might posit that the suppression of consumption-based environmental demand measured by the per capita CGT footprints is beneficial from a sustainability perspective. This would be a misleading and dangerous proposition since many less-developed countries consume natural resources well below a globally sustainable threshold and slight to moderate increases could lead to greatly beneficial changes, including reductions in infant and child mortality and increases in caloric intake per person. As this research and its theoretical framing suggest, these conditions are at least partly a result of unequal relationships between nations, and any policies or development programs that ignore such factors are likely to fail in greatly reducing environmental degradation and human misery in many nations within the Global South.

4. The relationship between growth and environmental protection is wrong- developed countries are able to use their position of power to consign resource extraction and pollution to the developing world, creating the illusion of green development.

Andrew K. Jorgenson and James Rice, Department of Sociology at Washington State University and Department of Sociology at Washington State University, JOURNAL OF WORLD SYSTEMS RESEARCH, "Structural Dynamics of International Trade and Material Consumption: A Cross-National Study of the Ecological Footprints of Less-Developed Countries," July 2005, p. asp

Natural resource consumption and resulting environmental degradation are among the most pressing issues confronting us today. Paradoxically, nations with larger ecological footprints generally experience lower domestic levels of particular forms of environmental degradation, including deforestation, organic water pollution intensity, and increasing greenhouse gas emissions intensity (e.g. Jorgenson 2003, 2004a, 2005). Moreover, these forms of degradation negatively impact the quality of life and general well-being of domestic human populations. For example, organic water pollution resulting from monoagricultural export oriented production in less-developed countries increases infant mortality rates, net of health expenditures, forms of human capital, and other social factors (e.g. Burns, Kentor, and Jorgenson 2003; Jorgenson 2004c; Jorgenson and Burns 2004). The ecological footprint / environmental degradation paradox is not necessarily the consequence of increased problem-solving capacity due to greater affluence and development. Rather, many social scientists posit that these relationships are illustrative of structural conditions and asymmetrical processes in which more-developed countries externalize their consumption-based environmental impacts through the tapping of natural resources and produced commodities of less-developed countries, reducing material consumption for the latter while increasing particular types of environmental destruction within their borders. The general argument concerns the structure of international trade, particularly the flows of exports from less-developed countries to more-developed countries. Yet, these interrelated assertions lack appropriate empirical evaluation.

Answers to: "Developed Countries are Irrelevant to Topic" [cont'd]

5. Resource extraction in developing countries is not driven by the drive to improve their society. It is because of global integration into world trading structures that allows for resources to be consumed elsewhere.

Andrew K. Jorgenson and James Rice, Department of Sociology at Washington State University and Department of Sociology at Washington State University, JOURNAL OF WORLD SYSTEMS RESEARCH, "Structural Dynamics of International Trade and Material Consumption: A Cross-National Study of the Ecological Footprints of Less-Developed Countries," July 2005, p. asp

The present study begins to resolve the issues discussed above. Specifically, we test the following hypothesis: less-developed countries with greater levels of exports sent to higher-consuming, more-economically developed countries exhibit lower domestic levels of per capita consumption, measured as ecological footprints. This hypothesis is sensitive to the potential uneven ecological exchange dynamics promoting disproportionate utilization of natural resources by developed countries at the expense of less-developed countries. The ecological footprint demand exhibited by less-developed countries, therefore, is not simply the consequence of domestic driving forces, including relative affluence and population pressures, but also the structural relations forged through international trade.

Answers to: "Developing Countries Balance Protection with Use"

1. Existing environmental protections in developing countries is only possible because they lack large consumption habits. Further development would alter that.

Andrew K. Jorgenson and James Rice, Department of Sociology at Washington State University and Department of Sociology at Washington State University, JOURNAL OF WORLD SYSTEMS RESEARCH, "Structural Dynamics of International Trade and Material Consumption: A Cross-National Study of the Ecological Footprints of Less-Developed Countries," July 2005, p. asp

Many social scientists argue that less-developed countries generally have lower domestic levels of material consumption and ecological footprints because they tend to export produced commodities and raw materials to higher consuming, more-developed countries. The latter contain productive economies and articulated markets while less developed countries generally consist of more extractive oriented economies and disarticulated markets (Boswell and Chase-Dunn 2000; Bunker 1985).[1] Moreover, less-developed countries with extractive economies are often highly dependent on a small number of primary exports, most notably agricultural products and other natural resources. Dependence on agricultural exports lessens the well-being of human populations in many less-developed countries . Less-developed countries with higher levels of domestic income inequality exhibit relatively lower ecological footprints. This type of outcome is often explained by two interrelated factors. First, the majority of the population has substantially lower income levels, and second, the domestic market focuses on the exportation of raw materials and commodities produced by means of dependent industrialization.

2. Environmental degradation in developing countries is not because their social institutions have not developed, but because their resources are being ruthlessly exploited.

Andrew K. Jorgenson and James Rice, Department of Sociology at Washington State University and Department of Sociology at Washington State University, JOURNAL OF WORLD SYSTEMS RESEARCH, "Structural Dynamics of International Trade and Material Consumption: A Cross-National Study of the Ecological Footprints of Less-Developed Countries," July 2005, p. asp

Proponents of comparative advantage theory and other neoliberal perspectives might argue that the findings of this study, particularly the negative effect of weighted export flows on the per capita footprints of less-developed countries, illustrate the overall environmental "benefits" of trade (i.e. "trade specialization"). However, cross-national studies provide evidence that nations with lower footprints experience higher domestic levels of particular forms of environmental degradation and serious health problems, including elevated infant mortality rates. Undoubtedly, the health and well-being of populations are largely a function of access to adequate shelter and consumption of minimal levels of food, both of which are included in the composite footprints analyzed in the present study. Thus, the per capita footprints of nations could be treated as a partial indicator of human quality of life. Moreover, a large proportion of the less-developed countries included in the current study exhibit footprints below their bio-capacity per capita. Indeed, their relatively low levels of globally sustainable consumption and high levels of domestic environmental degradation are characteristics of underdevelopment stemming from asymmetrical exchanges between developed and less-developed countries.

Answers to: "Developing Countries Balance Protection with Use" [cont'd]

3. Developing countries are geared only to keep extracting and exporting resources- there is no translation into domestic development within the country.

Andrew K. Jorgenson and James Rice, Department of Sociology at Washington State University and Department of Sociology at Washington State University, JOURNAL OF WORLD SYSTEMS RESEARCH, "Structural Dynamics of International Trade and Material Consumption: A Cross-National Study of the Ecological Footprints of Less-Developed Countries," July 2005, p. asp

Overall, countries with higher levels of urbanization consume greater amounts of material resources. These areas require more resources to maintain the overall built infrastructure, and urbanized regions contain intensified articulated consumer markets relative to more agrarian areas. However, urban processes in less-developed countries vary substantially from more-developed nations. Many urbanized regions in less-developed countries are characterized by outdated manufacturing sectors that are exported from more-developed countries coupled with a shift towards export-oriented development. Furthermore, many less-developed countries have experienced increased roles as nodes in the exportation of natural resources from regional extractive economies (Bunker 1985; Smith 1996). Thus, the complicated processes of underdevelopment, emerging dependent industrialization, and economic stagnation limit the domestic levels of natural resource consumption in less-developed countries. Moreover, this is further exacerbated by their classically dependent, extractive-oriented domestic characteristics and export-oriented production of goods for articulated consumer markets in higher-consuming, more-developed countries.

Answers to: "Efficiency and Substitution Creates Sustainability"

1. Innovation and substitution short-circuits natural ecological cycles, ensuring that resource overuse will occur

Mathis Wackemagel and William E. Rees, Professor at Universidad Andhuac de Xalapa in Mexico and Professor of Community and Regional Planning at University of British Columbia, ECOLOGICAL ECONOMICS, "Perceptual and structural barriers to investing in natural capital: Economics from an ecological footprint perspective", 1997, p. asp
In the middle of the last century, the German agro-chemist Justus von Liebig postulated the 'Law (or Doctrine) of the Minimum' for plant growth. He observed that essential plant nutrients occur naturally in varying concentrations from overabundance to insufficiency in cultivated fields. However, he found that "it is by the minimum that the crops' [growth is] governed" (von Liebig, 1863, p. 207). This insight, that systems and processes are governed by that single necessary factor in least supply, led to the use of more specific fertilizers in agriculture. For example, if plant growth is stunted by the lack of phosphate, one need only fertilize with phosphate. The crop can now continue growing and accessing more of its required nutritive substances until some other factor becomes limiting; the next limiting factor for this crop might be water, so still higher productivity will need irrigation, etc. For modern industrial farmers, supplying only the limiting factors seems to make farming more efficient: farmers overcome ecological barriers to crop productivity by adding those few factors which are scarce in the natural environment. However, there are ecological drawbacks. In nature, limiting factors serve inadvertently to regulate production systems. The shortage of only one essential requirement prevents plant growth from exhausting the entire re source base. The effect of chemical fertilization, therefore, is to accelerate the depletion of successive components of the soil, a potentially renewable form of natural capital, while creating dependencies on non-renewable, manufactured capital. This amounts to the short-circuiting of natural biological fuses.

2. Efficiencies cannot offset for overconsumption of resources- new processes only increase the overall rate of resource extraction and environmental harm.

Mathis Wackemagel and William E. Rees, Professor at Universidad Andhuac de Xalapa in Mexico and Professor of Community and Regional Planning at University of British Columbia, ECOLOGICAL ECONOMICS, "Perceptual and structural barriers to investing in natural capital: Economics from an ecological footprint perspective", 1997, p. asp
Many economists and environmentalists believe that advances in technological efficiency is a potential panacea for the global crisis. This follows Buckminster Fuller's reasoning of 'doing more with less' and contains the hidden assumption that efficiency gains lead to resource savings and reduced consumption. For example, Schmidheiny lauds the 50% energy efficiency gains by the chemical industry, forgetting that chemical production has doubled in the same period (Schmidheiny, 1992, p. 38). Also many official reports on environment and development (including the 1987 Brundtland report) chant what Sachs (1988, p. 33) has called "the gospel of global efficiency." As effective as these strategies might seem on the micro scale, however, increasing the ratio between output and input does not necessarily lead to lower resource use. On the contrary, technological efficiency may actually lead to increased net consumption of resources. Various authors have already recognized variations on this theme. The Limits to Growth team (Meadows et al., 1972) pointed out that a doubling of agricultural productivity would extend limits by only 20 years and leave future generations with a more intractable problem. Similar arguments are advanced in their 1992 follow-up study (Meadows et al., 1992, pp. 179-185). Lester Brown et al. (1991, p. 83) states that "continuing growth in material consumption -- the number of cars and air conditioners, the amount of paper used, and the like -- will eventually overwhelm gains from efficiency, causing total resource use (and all the corresponding environmental damage) to rise." For example, U.S. data show that despite the improving fuel efficiency of cars, aggregate fuel consumption is rising again (Fig. 5). Finally, The Ecologist observes that although energy use per dollar Gross National Product decreased by 23% in OECD countries between 1973 and 1987, total annual energy consumption by these countries increased by 15% between 1975 and 1989 (The Ecologist, 1992, p. 168).

Answers to: "Efficiency and Substitution Creates Sustainability" [cont'd]

3. Efficiencies in consumption only increase demand for natural resources because it makes the consumption of those resources more economic

Mathis Wackemagel and William E. Rees, Professor at Universidad Andhuac de Xalapa in Mexico and Professor of Community and Regional Planning at University of British Columbia, ECOLOGICAL ECONOMICS, "Perceptual and structural barriers to investing in natural capital: Economics from an ecological footprint perspective", 1997, p. asp
This should not come as a surprise. Economist Stanley Jevons argued as early as 1865 in The Coal Question that "it is a confusion of ideas to suppose that the economical use of fuel is equivalent to diminished consumption. The very contrary is the truth" (Jevons, 1865, p. 140). He states that inefficient machinery consumes little, because the rate of consumption is too high and hence uneconomical (Jevons, 1865, p. 143). By contrast, "the reduction of the consumption of coal, per ton of iron, to less than one-third of its former amount, was followed, in Scotland, by a tenfold increase in total consumption, between the years 1830 and 1863, not to speak of the indirect effect of cheap iron in accelerating other coal-consuming branches of industry" (Jevons, 1865, p. 154). The expansion effect in the total throughput of energy brought about by technical efficiency gains is probably valid for other resources too, as pointed out by the five following effects. Improved energy or material efficiency may enable firms to raise wages, increase dividends, or lower prices, all of which may lead to higher net consumption. Similarly, technology-induced savings by individuals are usually redirected to other forms of consumption, canceling some of the initial gain. As Harmon (1975, p. 99) points out, the environmentally conscious "traveler who [switches] from urban bus to bicycle would save energy (and dollars) at the rate of 51 000 Btu per dollar. If he were not careful to spend his dollar savings on an item of personal consumption which had an energy intensity greater than 51 000 Btu per dollar then his shift to bicycle would have been in vain." Most energy analysts have focused on these income and price effects, summarized under the name of 'the rebound effect' (Jaccard, 1991, p. 2).

4. Research shows that gains in efficiency do not extend the lifespan of the stock, but only make its extraction more economically attractive.

Mathis Wackemagel and William E. Rees, Professor at Universidad Andhuac de Xalapa in Mexico and Professor of Community and Regional Planning at University of British Columbia, ECOLOGICAL ECONOMICS, "Perceptual and structural barriers to investing in natural capital: Economics from an ecological footprint perspective", 1997, p. asp
Some of the money saved through efficiency gains is invested. Samuelson and Nordhaus (1985, p. 796) maintain that about 25% of the 2.3% annual average per capita growth of the US since 1900 can be attributed to capital growth. A higher GDP may result in higher net resource throughput even if the resource throughput per unit GDP declines. In fact, various studies reject the claim that GDP and energy consumption have ever been decoupled in industrialized countries (Cleveland et al., 1984, pp. 892-894, Costanza, 1980, pp. 1221-1224, Hall et al., 1986, pp. 51-59). Energy analyst Robert Kaufmann (1992, pp. 54-55) concludes that "substitution and technical change have had relatively little effect on the amount of energy used to produce a unit of real GDP in France, Germany, Japan, and the UK during the post-war period. (..) [T]hese results imply that the link between economic activity and energy use is stronger than believed by most neoclassical economists." Technical innovations account for the other 75% of GDP growth (Samuelson and Nordhaus, 1985), again contributing to increased aggregate resource throughput. Sanders uses various neoclassical growth models with energy and technology as separate factors of production to analyze the effect of efficiency gains, and comes to the conclusion that "energy efficiency gains can increase energy consumption by two means: by making energy appear effectively cheaper than other inputs; and by increasing economic growth, which pulls up energy use" (Sanders, 1992, p. 143).

Answers to: "Efficiency and Substitution Creates Sustainability" [cont'd]

5. Efficiency gains only lower the barriers to consumption, enabling further natural resource extraction.

Mathis Wackemagel and William E. Rees, Professor at Universidad Andhuac de Xalapa in Mexico and Professor of Community and Regional Planning at University of British Columbia, ECOLOGICAL ECONOMICS, "Perceptual and structural barriers to investing in natural capital: Economics from an ecological footprint perspective", 1997, p. asp
Technical efficiency gains that can improve returns to capital attract investment to the activity involved. Moreover, as Jevons long ago pointed out, "the progress of any branch of manufacture excites a new activity in most other branches and leads indirectly, if not directly, to increased inroads upon our seams of coal" (Jevons, 1865, p. 142). In other words, profitable efficiency gains contribute to upward- trending expectations of returns to capital, accelerated growth, and increased demand for resources. 9 Overall, innovation stimulated by competition generally accelerates global economic performance and with it, entropic throughput. Ironically then, it is precisely the economic gains from improved technical efficiency that increase the rate of resource throughput. Micro-economic reality demands that these efficiency gains be used to short-term economic advantage. Far from conserving natural capital or decreasing ecological footprints, this leads to higher consumption. In a globally interlinked economy, the question then becomes: Can we afford cost-saving energy efficiency? The answer is 'yes' only if efficiency gains are taxed away or otherwise removed from further economic circulation. Preferably they should be captured for reinvestment in natural capital rehabilitation.

Answers to: "Growth Solves All of Its Problems"

1. Resource extraction in developing countries only operates to allow developed core countries to externalize the harms of overconsumption to the periphery.

Andrew K. Jorgenson, Kelly Austin and Christopher Dick, Professors of Sociology at the University of Utah and North Carolina State University, INTERNATIONAL JOURNAL OF COMPARATIVE SOCIOLOGY, "Ecologically Unequal Exchange and the Resource Consumption/Environmental Degradation Paradox: A Panel Study of Less-Developed Countries," 2009, p. asp

Ecologically unequal exchange theory posits that the vertical flow of exports is a structural mechanism allowing for more-developed countries to partially externalize their consumption-based environmental impacts to lesser-developed countries. It is argued that these structural relationships contribute to environmental degradation in the latter while directly suppressing resource consumption opportunities for domestic populations, often well below globally sustainable thresholds. To assess the validity of the propositions, the authors conduct fixed effects and random effects panel regression analyses of the effects of the vertical flow of primary sector exports on deforestation and a refined per capita footprint measure for two samples of less-developed countries, 1970–2000. Results support the stated arguments of ecologically unequal exchange theory and point to the need for more rigorous comparative analyses to increase our collective understanding of the environmental and human well-being consequences of such relationships for less developed countries.

2. Inequalities of exchange in a globalized market ensures that resource extraction only fuels first world consumption while depressing opportunities for internal consumption and development in the developing world.

Andrew K. Jorgenson, Kelly Austin and Christopher Dick, Professors of Sociology at the University of Utah and North Carolina State University, INTERNATIONAL JOURNAL OF COMPARATIVE SOCIOLOGY, "Ecologically Unequal Exchange and the Resource Consumption/Environmental Degradation Paradox: A Panel Study of Less-Developed Countries," 2009, p. asp

Theoretical and empirical work on ecological unequal exchange is gaining momentum in comparative environmental sociology and its sister disciplines. A common observation made by scholars in this growing tradition is the 'resource consumption/environmental degradation paradox', which refers to inverse associations between the amount of resources consumed by a country's domestic population and levels of environmental degradation within their borders (e.g. Hornborg, 2001; Jorgenson, 2003; Rice, 2008). It is argued by ecologically unequal exchange theory that structural relationships between more-developed and lesser-developed nations partially shape these divergent conditions. However, assessing the validity of such causal explanations in quantitative comparative analyses is quite challenging. While prior research makes noteworthy contributions to our collective understanding of these interrelationships and their impacts, we contend that much of this work in environmental sociology is relatively limited in temporal scope or lacks appropriate nuanced measurements. In the current study we make a modest attempt to help resolve these issues. We advance a particular methodological approach to measuring the 'vertical flow' of primary sector exports, which is argued by some proponents of ecologically unequal exchange theory to be a key structural mechanism allowing for more-developed nations to partially externalize their consumption-based environmental impacts to lesser developed countries, which increases forms of environmental degradation in the latter while directly suppressing resource consumption opportunities for domestic populations, often well below globally sustainable thresholds.

Answers to: "Efficiency and Substitution Creates Sustainability"

3. Structural integration ensures that resource extraction will occur on unfair grounds for developing countries.

Andrew K. Jorgenson, Kelly Austin and Christopher Dick, Professors of Sociology at the University of Utah and North Carolina State University, INTERNATIONAL JOURNAL OF COMPARATIVE SOCIOLOGY, "Ecologically Unequal Exchange and the Resource Consumption/Environmental Degradation Paradox: A Panel Study of Less-Developed Countries," 2009, p. asp

While such interactions are far from equal, in the contemporary world economy the majority of nations are interconnected to some extent through trade relationships as well as other forms of structural integration (e.g. Chase-Dunn and Jorgenson, 2003; Chase-Dunn et al., 2000; Mahutga, 2006). Thus, in order to adequately assess the potential ecologically unequal consequences of international trade, one must consider relationships between all nations, not simply between 'core' and 'peripheral' nations or the 'Global North' and the 'Global South'. In other words, the dynamics and consequences of eco logically unequal exchange in the contemporary era are likely embedded in a more intensified world-economy where 'middle-developed' countries experience relatively reduced consumption levels and enhanced environmental degradation associated with consumption in more-developed countries, while also outsourcing part of their environmental costs to lesser-developed countries, which suppresses domestic levels of consumption in the latter while further increasing forms of environmental degradation within their borders (Jorgenson, 2009). Burns et al. (2006) refer to such interrelationships and their consequences as forms of recursive exploitation in the stratified interstate system.

4. Growth and environmental protection do not exist in a win-win relationship- that assumes that environmental damage is reversible, which it is likely not.

Mohan Munasinghe, Sri Lankan physicist, academic and economist and Founder Chairman of the Munasinghe Institute of Development, ECOLOGICAL ECONOMICS, "Is environmental degradation an inevitable consequence of economic growth: tunneling through the environmental Kuznets curve?" 1999, p. asp

Some illustrative (but not necessarily comprehensive) results of selected recent studies are summarized next, to better understand the EKC phenomenon and the underlying linkages between policies, growth and environmental degradation. Stern et al. (1996)has carried out a comprehensive review of the empirical literature. Proponents of the EKC approach have generally focused on the `win–win' synergies between growth and the environment. The basic argument is that rising incomes eventually increase the demand for greater environmental quality and also free up more resources to improve the environment (see for example, World Bank, 1992 and Beckerman, 1992). However, this assumes that environmental damage in the early stages of growth will be reversible (which may not be the case), and raises the more basic question about how human well-being is measured (see below). Critics have pointed out that the EKC relationship has been shown for only selected subsets of environmental indicators, the empirical studies have many methodological and statistical shortcomings, and the static (often cross-sectional) comparisons of rich and poor countries fail to capture the dynamics of growth of a specific economy (e.g. see Arrow et al., 1995; Stern et al., 1996).

Answers to: "Efficiency and Substitution Creates Sustainability" [cont'd]

5. The environmental quality and protections of highly developed countries don't prove that growth and development enables environmental protection. It only shows that powerful states are able to externalize their environmental impacts.

Andrew K. Jorgenson and James Rice, Department of Sociology at Washington State University and Department of Sociology at Washington State University, JOURNAL OF WORLD SYSTEMS RESEARCH, "Structural Dynamics of International Trade and Material Consumption: A Cross-National Study of the Ecological Footprints of Less-Developed Countries," July 2005, p. asp

Many social scientists argue that more-affluent nations reduce their impacts on the environment within their own borders through the importation of resources and the exportation of wastes, a process commonly referred to as the "Netherlands Fallacy" (e.g. Ehrlich and Ehrlich 1990; Ehrlich and Holdren 1971; Frey 1998; Jorgenson forthcoming [b]). Developed countries possess the international political-economic power and institutional infrastructure to achieve improvements in domestic environmental conditions while continuing to impose negative externalities globally (e.g. Andersson and Lindroth, 2001; Chase-Dunn 1998; Chew 2001; Foster 1999; Jorgenson, Rice, and Crowe forthcoming). The Netherlands fallacy suggests that domestic environmental conditions are not necessarily an accurate reflection of the aggregate environmental burdens engendered by domestic standards of living and rates of material consumption. It is argued that any particular country's environmental impact, positive or negative, is not simply the consequence of domestic factors but also its structured relations with other countries. To more fully conceptualize the complexity of consumption related dynamics in a globalizing world, it is increasingly important to examine zero-sum relations among countries and the socio-economic and environmental costs that are differentially incurred as a result (Hornborg 2001, 2003; Jorgenson 2005; Rice 2005).

Answers to: "Kuznet's Curve Proves Ecological Harm Is Only Short-Term"

1. Saying that environmental protection is possible with high rates of development is misleading- industrialized states only give the appearance of sustainability because the waste and extraction occurs in the developing countries. There is no way for others to 'level up.'

Mathis Wackemagel and William E. Rees, Professor at Universidad Andhuac de Xalapa in Mexico and Professor of Community and Regional Planning at University of British Columbia, ECOLOGICAL ECONOMICS, "Perceptual and structural barriers to investing in natural capital: Economics from an ecological footprint perspective", 1997, p. asp
Finally, estimates of the ecological footprint and appropriated carrying capacity provide clear direction for action. They indicate whether current or projected consumption levels can be sustained by available ecological productivity. By definition, the difference between the size of a region (adjusted by its ecological productivity) and the footprint of this region's population must be covered by imports of ecological surpluses or the depletion of natural capital stocks. Thereby, the ecological footprint becomes a useful yardstick for sustainability. As the ecological footprint of humanity needs to be smaller than the available carrying capacity, it becomes an absolute benchmark. It also points out how the ecological footprint can be reduced: through lower population, lower consumption, more efficient technologies (as long as gains are not re-spent -- see below), higher ecological productivity, or a combination of these four parameters. For example, our conservative estimates show that the average person living in an industrialized country presently needs the equivalent of 2-5 hectares of productive land to sustain his or her material consumption, Japan being at the lower end, Canada and the US at the upper (Wackemagel and Rees, 1995; Wada, 1995). This figure is derived from the resource flows embodied in goods and services consumed. However, there are only 1.5 hectares per capita of ecologically productive land on Earth (only about 0.3 hectare per capita in central European countries) (World Resources Institute, 1994, p. 268, 284). Of these 1.5 hectares, less than 0.3 hectare is suitable for agricultural production (Corson, 1990, p. 75). These numbers speak for themselves. The difference between the land-base needed to maintain high human consumption levels and actual land availability represents a 'sustainability gap' and explains why the current human economy lives in part on natural capital depletion rather than on sustainable flows (i.e., Hicksian natural income). They also imply that the natural income (or ecological flow) requirements of industrialized economies can be met only as long as these economies are able to buy or appropriate through biogeochemical cycles the necessary resource flows and waste sinks from distant 'elsewheres.' In fact, our rough calculations suggest that the ecological footprint of all industrialized nations, representing less than 20% of the world population, is larger than the available ecologically productive land on Earth (Wackernagel and Rees, 1995). In other words, it would take one entire Earth to sustain the ecological flows that industrialized countries currently require.

2. Resource extraction can only benefit the developed world because it is not thermodynamically possible for the same ecological resource stocks and waste sinks to sustain additional levels of consumption.

Mathis Wackemagel and William E. Rees, Professor at Universidad Andhuac de Xalapa in Mexico and Professor of Community and Regional Planning at University of British Columbia, ECOLOGICAL ECONOMICS, "Perceptual and structural barriers to investing in natural capital: Economics from an ecological footprint perspective", 1997, p. asp
The use of these sources and sinks by industrial economies obviously pre-empts their use by developing economies. The data indicate that it is simply not possible, ecologically or thermodynamically, for everybody in the world to consume at current industrial levels without risking irreversible resource depletion and ecospheric collapse (Rees and Wackemagel, 1994). In the absence of new ecologically benign technologies that dramatically shrink their ecological footprints, the populations of industrialized countries will have to reduce their material standards of living that others might live at all (Rees, 1990) (note that these concepts apply to both commercially traded commodities and non-market flows of common-pool ecological goods and services. For example, under prevailing conditions, the affluent countries have already appropriated more than twice the ecosphere's entire capacity for anthropogenic CO 2 uptake).

Answers to: "Kuznet's Curve Proves Ecological Harm Is Only Short-Term" [cont'd]

3. Global pooling and the ability to ship resources off to distant consumption centers ensures that development will be distorted and resource stocks will be overproduced.

Mathis Wackemagel and William E. Rees, Professor at Universidad Andhuac de Xalapa in Mexico and Professor of Community and Regional Planning at University of British Columbia, ECOLOGICAL ECONOMICS, "Perceptual and structural barriers to investing in natural capital: Economics from an ecological footprint perspective", 1997, p. asp
Similarly, global risk-pooling may encourage entire nations to raise the short-term aggregate productivity of their renewable resources (income flows) at the expense of capital stocks. In other words, with international risk-pooling, the value of future ecological productivity at home is more rapidly discounted. The long-term effect, of course, is to reduce total productive potential, weaken ecospheric integrity, and undermine prospects for global sustainability. In summary, risk-pooling shortcuts the important feedback function associated with risk aversion. Ecological risks that cannot be externalized or shared with others make people cautious and are therefore an incentive to conserve local resources. By contrast, by giving comparative advantage to short-term profit over long-term sustainability, risk pooling becomes a barrier to the maintenance of, or investment in, natural capital.

4. Economic equilibrium doesn't obtain in a globalized system because international trade structures ensures that developing nations don't just barter through comparative advantage but export absolute value overseas

Mathis Wackemagel and William E. Rees, Professor at Universidad Andhuac de Xalapa in Mexico and Professor of Community and Regional Planning at University of British Columbia, ECOLOGICAL ECONOMICS, "Perceptual and structural barriers to investing in natural capital: Economics from an ecological footprint perspective", 1997, p. asp
While most of the trade and environment debate restricts its focus to the compatibility of international pollution standards (e.g., Kirton et al., 1992; Bengtsson et al., 1994), this section of the paper explores the role of trade in depleting natural capital. Other social and ecological problems of trade liberalization have been discussed elsewhere (e.g., Sinclair, 1992; Coote, 1992; Daly and Goodland, 1992). David Ricardo's theory of comparative advantage provides a model of trade in which mutual benefit accrues to individuals and firms who specialize in those things they produce most efficiently (Daly and Cobb, 1989, p. 209-218; Samuelson and Nordhaus, 1985, pp. 831-856). This model, which is often assumed to apply to nations, presumes that: (a) The trading partners are engaged only in barter trade and that their national currencies are not freely exchangeable. (b) Economic production is proportional to labor input alone. Thus while an economy might be limited by labour shortages, there is no consideration of limits imposed by finite resources and sinks. In the modern world of convertible currencies, this model deflates with the violation of its first assumption. Investment flows are now governed by comparing potential absolute profitability between countries, not by the 'comparative advantage' of particular industries within countries (Daly and Cobb, 1989, p. 214). Some countries (and their workers) lose out as capital leaves in search of absolute advantage. Moreover, it is apparent that natural capital is once again more likely to impose limits on the scale of the economy than are labour shortages. This makes the ecological 'Law of the Minimum' and the concept of appropriated carrying capacity essential to any interpretation of the sustainability implications of international trade.

5. Economic development always occurs in the context of globalized trade. This ensures that efforts at production create endless cycles of exchange that will destroy the global environment

Mathis Wackemagel and William E. Rees, Professor at Universidad Andhuac de Xalapa in Mexico and Professor of Community and Regional Planning at University of British Columbia, ECOLOGICAL ECONOMICS, "Perceptual and structural barriers to investing in natural capital: Economics from an ecological footprint perspective", 1997, p. asp
The net effect is becoming self-evident in the modern world. 'Surplus' natural capital stocks everywhere are drawn down and global sinks are filled to over-flowing. Our global safety net is being shredded as the 'Tragedy of the Commons' is played out on a global scale. All countries now face the same potentially limiting factors simultaneously (e.g., ozone depletion, exhausted fisheries, potential climate change) in a geopolitically uncertain world. To summarize, for both individuals and entire economies, trade maximizes economic output and thereby accelerates natural capital depletion. Indeed, in some circumstances the liquidation of local stocks may seem advantageous, if not absolutely necessary, to maintaining growth and competitiveness. Thus, trade only appears to extend carrying capacity. In fact, by encouraging all regions to exceed local limits, by reducing the perceived risk attached to local natural capital depletion, and by simultaneously exposing local surpluses to global demand, uncontrolled trade eventually reduces global carrying capacity, increasing the risk to everyone (Rees and Wackernagel, 1994).

Answers to: "Kuznet's Curve Proves Ecological Harm Is Only Short-Term" [cont'd]

6. Trying to develop solely through resource extraction will cause inevitable and great harm against the environment.

Mohan Munasinghe, Sri Lankan physicist, academic and economist and Founder Chairman of the Munasinghe Institute of Development, ECOLOGICAL ECONOMICS, "Is environmental degradation an inevitable consequence of economic growth: tunneling through the environmental Kuznets curve?" 1999, p. asp
A major motivation for more systematically examining growth–environment links is the search for environmentally sustainable development paths. First, if the EKC hypothesis is empirically verified, the early stages of economic development could be even more onerous for low income groups than Kuznets had originally predicted on the basis of income inequality alone, to the extent that the poor are more adversely affected also by environmental degradation. This would require appropriate policy responses, especially on the social side. Second, the extent to which decision makers ought to devote their limited time and resources towards designing and implementing policies for sound environmental management could well depend on the extent to which the driving forces underlying the EKC are susceptible to such policies. In other words, if environmental damage is a structurally determined and inevitable result of growth, then attempts to avoid such damage in the early stages of development might be futile.

7. Research shows a strong relationship between natural resource extraction in developing countries and further ecological degradation

Andrew K. Jorgenson, Kelly Austin and Christopher Dick, Professors of Sociology at the University of Utah and North Carolina State University, INTERNATIONAL JOURNAL OF COMPARATIVE SOCIOLOGY, "Ecologically Unequal Exchange and the Resource Consumption/Environmental Degradation Paradox: A Panel Study of Less-Developed Countries," 2009, p. asp
We employ the vertical flow measures of primary sector exports in fixed effects and random effects panel regression analyses of deforestation and cropland, grazing land, and timber (CGT) ecological footprints for less-developed countries from 1970 to 2000. Results suggest that the vertical flow of primary sector exports to relatively more-developed nations contributes to deforestation and the suppression of consumption-based environmental demand in less-developed nations, and these associations hold for the entire period under investigation. We posit that the findings lend support to key assertions of ecological unequal exchange theory, and highlight the need for more rigorous testing of this as well as other structural orientations concerning society/nature relationships in comparative perspective.

8. Research demonstrates a strong link between unequal trade flows and negative environmental impacts from resource extraction in the developing world.

Andrew K. Jorgenson and James Rice, Department of Sociology at Washington State University and Department of Sociology at Washington State University, JOURNAL OF WORLD SYSTEMS RESEARCH, "Structural Dynamics of International Trade and Material Consumption: A Cross-National Study of the Ecological Footprints of Less-Developed Countries," July 2005, p. asp
To test this hypothesis, we create an index of weighted export flows that quantifies the relative extent to which exports of countries are sent to receiving nations with higher levels of economic development. Creation of this index allows for a more explicit examination of potential asymmetrical processes of international trade between countries. Using ordinary least squares regression, we incorporate this new index into a series of quantitative cross-national analyses of the structural causes of per capita ecological footprints of less-developed countries, 2000. We include controls identified by previous studies to be robust predictors of footprints, including level of economic development, urbanization, domestic income inequality, and human capital. We also consider the effects of other export-related factors and the extent to which domestic economies are service-based. Results of this study provide robust support for the tested hypothesis, and underscore the importance of addressing the structural dynamics of international trade when analyzing material consumption and other environmental outcomes, particularly the relative flow of exports and relevant attributes of receiving countries.

Answers to: "Kuznet's Curve Proves Ecological Harm Is Only Short-Term" [cont'd]

9. Resource extraction always occurs in the context of international power balances—development will always reward and facilitate consumption by those who are in power.

Andrew K. Jorgenson and James Rice, Department of Sociology at Washington State University and Department of Sociology at Washington State University, JOURNAL OF WORLD SYSTEMS RESEARCH, "Structural Dynamics of International Trade and Material Consumption: A Cross-National Study of the Ecological Footprints of Less-Developed Countries," July 2005, p. asp

Jorgenson (2003, 2004a, 2005) analyzes the structural causes of per capita ecological footprints, and finds that a country's level of per capita consumption is largely a function of its relative position in the international stratification system, level of urbanization, domestic income inequality, and human capital. Through the unpacking of relative international power into its relevant geopolitical economic components, Jorgenson (2005) empirically illustrates that economic power in the form of capital intensity, military technological power, and overall export dependence are the structural driving forces of per capita resource consumption. Social scientists pay considerable theoretical and empirical attention to the environmental impacts of economic development. Relative economic power generally takes the form of capital intensity (i.e. GDP per capita), which often refers to the ability of a country to be more competitive in the global marketplace (Kentor 2000). Countries with higher capital intensity generally contain articulated consumer markets that consume greater levels of material resources. To maintain profits, producers must constantly expand production, which requires additional ecological material inputs (O'Connor 1998). Schnaiberg (1980) and Schnaiberg and Gould (1994) characterize these processes as the heart of the treadmill of production. Producers are usually headquartered in developed countries, and outsource production and resource extraction to export dependent countries. The expansion of production and consumption usually takes the form of global commodity chains in which resources are added or modified at every chain. Produced commodities are usually transported to and consumed by developed countries with high capital intensity, and the majority of profits derived from these goods further increase the economic development of market economies that house the headquarters of producers.

Answers to: "Natural Resources Key to Internal Development"

1. Resource extraction creates the manifestation of Dutch disease, making a country exclusively reliant on exports of their resources while harming other export and development sectors

Thorvaldur Gylfason, Faculty of Economics & Business Administration at University of Iceland, EUROPEAN ECONOMIC REVIEW, "Natural resources, education, and economic development," 2001, p. asp
Four main channels of transmission from abundant natural resources to sluggish economic growth have been identified in recent literature. First, natural resource abundance often results in an overvaluation of the national currency. This is a symptom of the Dutch disease: A natural resource boom and the associated surge in raw-material exports drive up the real exchange rate (or real wages), thus hurting other exports (Corden, 1984). Moreover, recurrent booms and busts tend to increase exchange rate volatility (Gylfason et al., 1999; Herbertsson et al., 1999). Sometimes this is enough to reduce total exports. Sometimes it just skews the composition of exports away from high-tech and other manufacturing and service exports that are particularly conducive to economic growth. In either case, economic growth is likely to slow down because exports and, generally, openness to all kinds of trade with the rest of the world are good for growth (Frankel and Romer, 1999).

2. Comprehensive data show that countries do not translate resource wealth into internal domestic development in the form of education spending.

Thorvaldur Gylfason, Faculty of Economics & Business Administration at University of Iceland, EUROPEAN ECONOMIC REVIEW, "Natural resources, education, and economic development," 2001, p. asp
First, Fig. 2 shows a scatterplot of public expenditure on education from 1980 to 1997 and natural resource abundance measured as in Fig. 1. Public expenditure on education varies a great deal from country to country. In the 1990s, some countries have spent as little as 1 percent of their GNP on education (Haiti, Indonesia, Myanmar, Nigeria, and Sudan). Others have spent between 8 and 10 percent of their GNP on education, including St. Lucia (whose $100 bill is adorned by a picture of Sir Arthur Lewis, an ardent advocate of education and economic growth), Namibia, Botswana, and Jordan (which, by the way, has no oil). Public expenditure is admittedly an imperfect measure of a nation's commitment to education, not least because some nations spend more on private education than others. Moreover, public expenditure on education may be supply-led and of mediocre quality, and may thus fail to foster efficiency, equality, and growth, in contrast to private expenditure on education, which is generally demand-led and thus, perhaps, likely to be of a higher quality. Even so, this yardstick should reflect at least to some extent the government's commitment to education. The regression line through the 90 observations suggests that an increase of 18 percentage points in the natural capital share from one country to the next is associated with a decrease in public expenditure on education by one percent of GNP. The relationship is statistically significant (r=0.32).

3. The best data show that resource extraction actually harms internal social development by trading off with a focus on education.

Thorvaldur Gylfason, Faculty of Economics & Business Administration at University of Iceland, EUROPEAN ECONOMIC REVIEW, "Natural resources, education, and economic development," 2001, p. asp
To summarize, we have seen that, across countries, (a) economic growth varies inversely with natural resource abundance, (b) three different measures of education intended to reflect education inputs, outcomes, and participation are all inversely related to natural resource abundance, and (c) economic growth varies directly with education. Therefore, natural resource abundance seems likely to deter economic growth not only through the Dutch disease, rent seeking, and overconfidence that tends to reduce the quality of economic policy and structure as suggested by Sachs and Warner (1999) and various authors in Auty (forthcoming), among others, but also by weakening public and private incentives to accumulate human capital. If so, the adverse effects of natural resource abundance on economic growth since the 1960s that have been reported in the literature may in part reflect, and possibly displace, the effect of education on growth.

Answers to: "Natural Resources Key to Internal Development" [cont'd]

4. Resource extraction does not spillover into broader economic or social development because the labor force it requires is only useful for more resource extraction, fostering social dependency on extraction at the cost of other values

Thorvaldur Gylfason, Faculty of Economics & Business Administration at University of Iceland, EUROPEAN ECONOMIC REVIEW, "Natural resources, education, and economic development," 2001, p. asp
How can these results be explained? Natural-resource-based industries as a rule are less high-skill labor intensive and perhaps also less high-quality capital intensive than other industries, and thus confer relatively few external benefits on other industries (Gylfason et al., 1999; Wood, 1999). Moreover, workers released from primary industries, such as agriculture, fisheries, forestry, or mining, generally have relatively limited general, labor-market relevant education to other new employers in other industries. There are exceptions, though, such as in modern agriculture and high-tech oil-drilling operations. But insofar as high-skill labor and high-quality capital are less common in primary production than elsewhere, this may help explain why natural resource abundance and the associated preponderance of primary production and primary exports tend to impede learning by doing, technological advance, and economic growth. This linkage reinforces the case for investment in education and training as an engine of growth: More and better education tends to shift comparative advantage away from primary production towards manufacturing and services, and thus to accelerate learning by doing and growth.

5. The globalized structure of the economy ensures that additional resource extraction will only go to fuel consumption in the core, not help develop the peripheries

Mathis Wackemagel and William E. Rees, Professor at Universidad Andhuac de Xalapa in Mexico and Professor of Community and Regional Planning at University of British Columbia, ECOLOGICAL ECONOMICS, "Perceptual and structural barriers to investing in natural capital: Economics from an ecological footprint perspective", 1997, p. asp
Physical and structural manifestations of modern society: Undoubtedly, structural features of the modern economy have also accelerated natural capital depletion. The physical separation between consumption and production, further reliance on electronic media rather than direct experience, the fast-paced integration of the global economy, energy intensive settlements infrastructure and the loss of local political autonomy reduce corrective feedback for the maintenance of natural capital and amplify the dilemma between economic expansion and ecological integrity. The reality today is that much deterioration of the global 'commons' can be attributed to the unforeseen consequences of deliberate policies that extend self-interested individualistic behavior and rights to government and intergovernment agencies, transnational corporations, and various other multinational organizations operating in the global arena. Many such policies reflect and facilitate the transition to a global marketplace. 5 Examples include international agreements for the division and exploitation of the sea-bed and similar 'undeveloped' common-pool (open access) resources, the extension of property rights including the privatization of public lands (along with their common-pool ecological functions), regional and global trade agreements that favor corporate interests at the expense of local and even national autonomy, and the creation of an increasingly uniform monetary and pricing system.

Answers to: "Natural Resources Key to Internal Development" [cont'd]

6. Globalized trade has created a dislocation between the economy and ecology. Developing countries can no longer translate resource production into internal development.

Mathis Wackemagel and William E. Rees, Professor at Universidad Andhuac de Xalapa in Mexico and Professor of Community and Regional Planning at University of British Columbia, ECOLOGICAL ECONOMICS, "Perceptual and structural barriers to investing in natural capital: Economics from an ecological footprint perspective", 1997, p. asp
The Law of the Minimum can also be applied to economic growth: economies seem to expand until they reach some limiting factor. Thus, an economy might be stunted by inadequate human capital (e.g., labour and education); cultural capital (e.g., social institutions and political stability); human-made capital (e.g., plant, machinery, physical infrastructure); or natural capital (e.g., resources and biodiversity) (see Berkes and Folke, 1992; Ekins et al., 1992, pp. 43-61). Conventional economics however, considers only labour and human-made capital to be potentially limiting: " . . . t h e tacit justification has been that reproducible capital is a near-perfect substitution for land and other exhaustible resources" (Nordhaus and Tobin, 1972). Today, however, natural capital is emerging as a major bottleneck and more liberal trade is perceived as the best way to overcome related local limits (Catton, 1980, p. 158). Unfortunately, unregulated trade acts like excessive fertilizer: it can short-circuit ecological fuses which historically kept economic throughput in balance with local bioproductivity. Most economists explicitly support unrestricted trade precisely because it enables local economies to overcome any material barriers to growth. This contributes to our prevailing cultural mythology which assumes a world in which "carrying capacity is infinitely expandable' '.

Answers to: "Sustainable Development Is Possible"

1. There is no such thing as sustainable development- it will always sacrifice environmental quality.

Joan Martinez Alier, is deputy-director at the Universitat Autonoma de Barcelona and Professor of Economics and Economic History, DEVELOPMENT AND CHANGE, "Socially Sustainable Economic De-growth," 2009, p. asp
Key words from environmental politics of the past twenty years have a hollow ring in the context of the present economic downturn. The Intergovernmental Panel on Climate Change (IPCC) never contemplated (self-imposed censorship, perhaps?) a decline in the rich countries' GDP of 5 per cent, and then a long period of non-growth as might perhaps be the case. This was not in the economists' and industrial ecologists' script. For twenty years, the orthodox slogan has been 'Sustainable Development' (dating from the Brundtland Report of 1987) meaning economic growth that is environmentally sustainable. We know, however, that economic growth is not environmentally sustainable. The discussion on d´ecroissance or de-growth that Nicholas Georgescu-Roegen started thirty years ago is now a topic for discussion in the rich countries: la d´ecroissance est arriv´ee. Now it is the moment to substitute GDP by social and environmental indicators at the macro-level and to trace progress towards a socio-ecological transition by the behaviour of such indicators.

2. Proponents of economic development mistake different levels of the economy for a unified whole- their belief that growth can be sustained is false because it overlooks the finite limits to resources

Joan Martinez Alier, is deputy-director at the Universitat Autonoma de Barcelona and Professor of Economics and Economic History, DEVELOPMENT AND CHANGE, "Socially Sustainable Economic De-growth," 2009, p. asp
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 in the present crisis. The financial system borrows against the future, on the expectation that indefinite economic growth will give the means to repay the debts and the interest. The financial system creates 'virtual' wealth. Banks give credit well beyond what they hold as deposits, and this drives or pulls economic growth, at least for a while. Then there is what the economists describe as the 'real economy', the so-called productive economy. Hakan Samuelsson, chairman of the German truck-making firm MAN, made this distinction very clearly when he said: 'Creating value through financial leverage will be harder in future, so we can get back to our real job which is creating industrial value through technology, innovation, and efficient manufacturing' (quoted in The Economist, 11April 2009).When the economists' real economy grows, it indeed allows some or all the debt to be repaid; when it does not grow enough, debts are defaulted. In 2008, the mountain of debt had grown far beyond what increases in GDP could pay back. The situation was financially not sustainable; GDP itself was not ecologically sustainable. Further down, in the basement and foundations of the economic building, underneath the economists' real economy, there is the third level: the ecological economists' real-real economy: the flows of energy and materials. Their growth depends partly on economic factors (types of markets, prices) and partly on physical limits. At present, there are not only resource limits but also conspicuous sink limits. Climate change is caused mainly by the excessive burning of fossil fuels. Returning to 'debt-fuelled growth' after 2009 would be financially dangerous. It is indeed impossible for the time being, as banks are loaded with 'toxic assets' and therefore reluctant to lend. The phrase itself is in fact misleading: growth is not 'fuelled' by debt and by money; it is prosaically fuelled by coal, oil and gas. The fossil fuels are not produced by the economy; they were produced geologically many thousands of years ago.

Negative Position One: Resource Development Necessary for Protections

1. Growth is essential for environmental protection because profit incentive helps maximize investment in ecological resources.

Martin W. Lewis, Assistant professor in the Department of Geography and Regional Science, George Washington University, GREEN DELUSIONS: AN ENVIRONMENTALIST CRITIQUE OF RADICAL ENVIRONMENTALISM, 1992, p. 183
Regardless of extremist fantasies, we can expect that once capitalist energies begin to be harnessed to environmental protection, a virtuous spiral will begin to develop. Several American companies, for example, have already pledged to reduce their discharges well below current legal limits. Such firms foresee stricter regulations in the future, and they are not unmindful of the desirability of maintaining good public relations (which, contrary to the green radicals, should be hailed as a powerful force for reform, not disparaged as mere window dressing). Moreover, in learning how to reduce their own effluent streams, such companies will devise new control mechanisms and strategies that they may be able to sell profitably to environmentally retarded firms in a more ecologically aware future world. Leading-edge corporations may eventually have a vested interest in the enactment of stricter pollution control legislation. As The Economist prophesies: "The greenest companies will therefore try to ensure that government policies set environmental standards at levels that they can match but their competitors cannot. The greenest governments will see such companies as potential allies, and will try to promote policies that foster investment in environmentally friendly technologies ("Survey of Industry and the Environment," September 8, 1990, p. 20).

2. Environmental degradation is only temporary. Countries will eventually self-correct as they develop and adopt greater protections for the environment.

Mohan Munasinghe, Sri Lankan physicist, academic and economist and Founder Chairman of the Munasinghe Institute of Development, ECOLOGICAL ECONOMICS, "Is environmental degradation an inevitable consequence of economic growth: tunneling through the environmental Kuznets curve?" 1999, p. asp
Over 30 years ago, Kuznets, 1955 and Kuznets, 1963 proposed the hypothesis that the distribution of income might become more unequal at first, but improve thereafter, as per capita incomes rose during the economic development process. Subsequent empirical studies have lent some support to this idea, which is most commonly represented by the aptly named `Kuznets curve' showing the bell-shaped relationship between income inequality and per capita income. Recently, concern for the environment has revived interest in the generic concept underlying the Kuznets hypothesis—that as countries develop, certain measures of the quality of life might initially deteriorate before becoming better. More specifically, several authors have presented evidence that the level of environmental degradation and per capita income (conventionally measured) might obey the same inverted-U-shaped relationship (ADBCE) shown in Fig. 3—dubbed the `environmental Kuznets curve' or EKC. Recently, a well-known article by a distinguished group of authors (Arrow et al., 1995) also examined this phenomenon in relation to ecosystem resilience and carrying capacity.

3. There is no way to achieve development without some environmental damage, but the best way forward to long term sustainability is to increase efficiency, reduce waste, and correct for errors in resource evaluation.

Mohan Munasinghe, Sri Lankan physicist, academic and economist and Founder Chairman of the Munasinghe Institute of Development, ECOLOGICAL ECONOMICS, "Is environmental degradation an inevitable consequence of economic growth: tunneling through the environmental Kuznets curve?" 1999, p. asp
Economy-wide policies will have additional (and often unpredictable) longer-term effects on the environment through employment and income distribution changes. Often, adjustment-induced changes generate new economic opportunities and sources of livelihood, thereby alleviating poverty and reducing pressures on the environment due to over-exploitation of fragile resources by the unemployed. However, while growth is an essential element of sustainable development, it will necessarily intensify pressures on environmental resources. Increasing efficiency, reducing waste, and properly valuing resources, will help reshape the structure of growth and reduce undesirable environmental impacts.

Negative Position One: Resource Development Necessary for Protections [cont'd]

4. The solution to environmental degradation is not to cease production of resources, but rather to actively seek win-win balances that help development and the environment at the same time.

Mohan Munasinghe, Sri Lankan physicist, academic and economist and Founder Chairman of the Munasinghe Institute of Development, ECOLOGICAL ECONOMICS, "Is environmental degradation an inevitable consequence of economic growth: tunneling through the environmental Kuznets curve?" 1999, p. asp
Some broad recommendations for decision making include: 1. Actively seeking `win–win' policies that simultaneously yield both economic and environmental gains—especially in the context of economy-wide liberalization and market-based reforms. 2. Preempting excessive environmental harm through various measures including ex-ante environmental assessment of projects and policies, prompt introduction of remedies that eliminate imperfections (like policy distortions, market failures and institutional constraints), and strengthening the capacity for environmental regulation and enforcement of standards. 3. Analyzing the effects of growth inducing economy-wide policies, and considering the fine-tuning of such policies (e.g. altering timing and sequencing)—especially in cases where severe environmental damage could be anticipated. These generic observations could vary quite significantly among nations. Nevertheless, a country-specific analysis along the lines indicated above would be very helpful to decision makers in better identifying the economic imperfections that might exacerbate growth-related environmental harm. In particular, determining the more important mechanisms which affect the movements of the MB and MC curves would facilitate the formulation of sounder development policies and actions to tunnel through the EKC (perhaps at a slower rate of economic growth—depending also on how growth is measured). In other words, the argument that countries would simply `grow themselves out of environmental degradation' is a dangerous rationalization—because the adoption of more sustainable policies could well permit the attainment of higher levels of development at a lower environmental cost.

5. Further growth is the cure for the developing world's problems. It resolves social conflict and promotes democracy.

Gregg Easterbrook, journalist and former fellow at Brookings, NEW YORK TIMES, "The Capitalist Manifesto," 11.27.2005, p. lexis.
Though "The Moral Consequences of Economic Growth" may not quite succeed in showing an iron law of growth and liberalization, Friedman is surely correct when he contends that economic expansion must remain the world's goal, at least for the next few generations. Growth, he notes, has already placed mankind on a course toward the elimination of destitution. Despite the popular misconception of worsening developing-world misery, the fraction of people in poverty is in steady decline. Thirty years ago 20 percent of the planet lived on $1 or less a day; today, even adjusting for inflation, only 5 percent does, despite a much larger global population. Probably one reason democracy is taking hold is that living standards are rising, putting men and women in a position to demand liberty. And with democracy spreading and rising wages giving ever more people a stake in the global economic system, it could be expected that war would decline. It has. Even taking Iraq into account, a study by the Center for International Development and Conflict Management, at the University of Maryland, found that the extent and intensity of combat in the world is only about half what it was 15 years ago.

6. Supposedly principled stances on environmental protection and when we can or cannot override them to provide for human needs are arbitrary and incoherent.

Wilfred Beckerman, Professor at Balliol College, ENVIRONMENTAL VALUES, "How Would you Like your Sustainability', Sir? Weak or Strong? A Reply to my Critics", 1995, p. asp
For the first main weakness of the Daly critique is that he totally fails to indicate the criteria that are relevant in deciding when one is faced with 'absurdly strong sustainability' and when one is not - i.e. by what rule does one decide when there may be some trade-off, after all, between some environmental satisfaction and some other form of human satisfaction. For example, he concedes that one might allow some non-renewable resource to be used if the alternative is that some people will starve. The same applies to Jacobs who, at one point, concedes that faced with a choice between preserving some more species of beetles and providing clean drinking water for impoverished people he would usually prefer the latter. But what is the principle involved if not an appeal to some higher value, such as the relative contribution that the options make to human satisfactions? Democratic societies should be very wary of those who claim, without full explanation, that the activities that they happen to prefer should be elevated to the status of some over-riding moral value to which individuals should willingly sacrifice themselves.

Negative Position One: Resource Development Necessary for Protections [cont'd]

7. Growth in the long-run stimulates positive environmental investment, allowing natural stocks to be more effectively protected.

James Andreoni and Arik Levinson, University of Wisconsin and Georgetown University, NATIONAL SCIENCE FOUNDATION REPORT, "The Simple Analytics of the Environmental Kuznets Curve", January 5, 2000, p. asp
John and Pecchenino (1994) present an overlapping generations model in which environmental quality is a stock resource that degrades over time unless maintained by investment in the environment. An economy that begins at the corner solution of zero environmental investment will see its environmental quality decline with time and with economic growth until the point at which positive environmental investment is desired, when environmental quality will begin improving with economic growth. Like Stokey (1988) and Jaeger (1988) therefore, John and Pecchenino's pollution-income relationship exhibits an inverse-V shape, peaking when the dynamic equilibrium switches from a corner solution of zero environmental investment to an interior optimum with positive investment.

8. Environmental protection will always positively track with economic growth.

James Andreoni and Arik Levinson, University of Wisconsin and Georgetown University, NATIONAL SCIENCE FOUNDATION REPORT, "The Simple Analytics of the Environmental Kuznets Curve", January 5, 2000, p. asp
The model presented above, by its very simplicity, has several notable implications. First, it suggests that the observed income-environment relationship is perfectly reasonable. While some economists have created intricate political-economy models of collective decision making, externalities and economic growth with inverse-U pollution patterns, our work suggests that those complications may be unnecessary to explain the observed patterns. Instead, the environmental Kuznets curve may result from simple and natural features of the abatement technology. Second, the inverse-U-shaped pollution-income curve does not depend on externalities – it appears in both the single and many-person models. This is reassuring since several recent empirical studies find that household-level pollution also follows an inverse-U, consistent with our results (Chaudhuri and Pfaff, 1997a; Kahn, 1998). Third, many of the existing explanations for the observed inverse-U can be thought of as particular examples of increasing returns to scale in abatement, the principle driving the model presented here. For example, Stokey (1998) assumes that poor economies use only the dirtiest production technology, and only after passing an income threshold do they turn to cleaner methods. Such a process could be driven by fixed costs in abatement technologies, or increasing returns to scale in abatement. Alternatively, Jones and Manuelli (1995) model a world in which only advanced economies are sophisticated enough to establish political processes that correctly internalize externalities. One could think of those political processes being part of the societal abatement technology, and there being fixed costs, or increasing returns, to setting up environmental regulatory mechanisms. Increasing returns to scale in abatement thus broadly encompasses many of the existing models that derive inverse-U-shaped pollution-income paths.

Negative Position One: Resource Development Necessary for Protections [cont'd]

9. The goal shouldn't be to live within the limits of ecology, but to decouple human life from the environment entirely by using growth and development.

Martin W. Lewis, Assistant professor in the Department of Geography and Regional Science, George Washington University, GREEN DELUSIONS: AN ENVIRONMENTALIST CRITIQUE OF RADICAL ENVIRONMENTALISM, 1992, p. 16

The Promethean perspective adopted here advocates a form of environmental protection that green extremists would consider utterly heretical. Where they seek to reconnect humanity with nature, I counter that human society should strive to separate itself as much as possible from the natural world, a notion that has aptly been labeled "decoupling" by the geographer Simmons (1989:3841. To advocate decoupling is to reject both the instrumentalist claim-that nature should be used merely for human ends-and the green counterargument-that humanity is, or should be, just another species in nature. Decoupling processes have already averted ecological devastation many times. European forests, for example, avoided destruction when early modern smelters substituted coal for charcoal (see Perlin 1989). This process should continue as composites replace steel and as coal begins to yield to solar power-with nature breathing easier everywhere as a result. But one must wonder whether self-proclaimed deep ecologists affirming their communion with nature through shamanistic rituals will supply the world with solar technologies. I suspect rather that such delivery will come, if at all, from high-tech corporations-from firms operating in a social, economic, and technical milieu almost wholly removed from the intricate webs of the natural world. If we are lucky, the commercialization of photovoltaic solar energy will come in good part from struggling American start-ups like Chronar. It now seems far more likely, however, that this technology will be dominated by such vast industrial concerns as Hitachi, Sanyo, and Fujitsu (The Economist, 19-25 May 1990). The engineers, investors, and managers of a company like Chronar should be hailed and supported as Environmental heroes, not denounced as technocratic and capitalist eco-villains. We will be better able to appreciate the vital roles that such companies play if we accept that ecological salvation will come through distancing ourselves from, rather than reimmersing ourselves in, the natural world.

Underview: Efficiency Gains Solve Problems

1. While economic development does put more strain on natural resource bases, incremental gains in efficiency and waste reduction will achieve sustainability in the long-run.

Mohan Munasinghe, Sri Lankan physicist, academic and economist and Founder Chairman of the Munasinghe Institute of Development, ECOLOGICAL ECONOMICS, "Is environmental degradation an inevitable consequence of economic growth: tunneling through the environmental Kuznets curve?" 1999, p. asp
Finally, economy-wide policies will have additional longer-term effects on sustainability, whose net impacts are unpredictable. Some of these effects need to be traced through a general equilibrium framework that captures both direct and indirect links. For example, several studies confirm that adjustment-induced changes often succeed in generating new economic opportunities and sources of livelihood, thereby alleviating poverty and helping to break the vicious cycle of environmental degradation and poverty. However, while such growth is an essential element of sustainable development, it will necessarily increase the overall pressures on environmental resources. At the same time, properly valuing resources, increasing efficiency and reducing waste, will help to restructure economic growth and limit undesirable environmental impacts. Furthermore, environmental policies themselves could have impacts on income distribution and employment.

2. Sufficient growth allows for synthetic materials and technologies that entirely bypass the need to use natural resources.

Martin W. Lewis, Assistant professor in the Department of Geography and Regional Science, George Washington University, GREEN DELUSIONS: AN ENVIRONMENTALIST CRITIQUE OF RADICAL ENVIRONMENTALISM, 1992, p. 17
To move from heresy to blasphemy, I would also suggest that as toxic waste decomposition technologies and recycling techniques are perfected, the use of synthetic materials will entail far less environmental destruction than will the continued production of natural products like paper, wood, and cotton. The future may yet be in plastics. Let us hope that companies like Du Pont can create artificial fibers sophisticated enough that we no longer need to deplete the earth's aquifers, clear its tropical forests, drain its wetlands, and pour massive quantities of biocides on all of these environments in order to grow the cotton that affluent American consumers consider so wonderfully "natural." The greatest hope for virtually complete decoupling may lie in the so-called nanotechnology revolution (Drexler 1986; Drexler and Peterson 1991). If its proponents are correct, the nano techniques of molecular assembly will allow us to build superior goods using only a small fraction of the energy and materials now required. Indeed, Drexler goes so far as to argue that by mining surplus atmospheric carbon dioxide we will be able to provide most of the raw materials needed for the next economy. Moreover, not only would a nanotech economy spare the natural world of any noxious pollutants, but it would also allow a truly massive return of land to natural communities. Although the layperson may regard nanotechnology as utter fantasy, it is based on firm scientific reasoning, and it has been taken seriously by at least one prominent environmental philosopher (Milbrath 1989).

3. There are no practical resource constraints- substitutability will allow for a sustainable economy.

Wilfred Beckerman, Professor at Balliol College, ENVIRONMENTAL VALUES, "How Would you Like your Sustainability', Sir? Weak or Strong? A Reply to my Critics", 1995, p. asp
These are empirical issues, and I have set out at length, many years ago, the reasons for believing that the notion of resource constraints on output is quite unfounded. And I have updated the evidence in another book published this year. The main point is that insofar as any natural resource does become scarce in a relevant sense its relative price will rise and this will set up a chain of market responses which will tend to discourage its use and encourage the development of substitutes. Sudden disappearance of a natural resource does not happen overnight outside the realms of science fiction. Society adapts all the time to changes in demand and supply. Even if, in spite of an astronomic rise in its price, some resource did finally run out, by that time society will have learned to live with almost no consumption of it. In the end Daly falls back on the Georgescu- Roegen fears of the implications of 'entropy' and of the second law of thermo-dynamics and associated pseudo-scientific attempts to blind the innocent with science, when all it means is that when you have burnt some coal you don't have it any more. But long before the world runs out of coal supplies (if ever) coal will have become so expensive that it would be used for jewelry, rather than for fuel.

Underview: Efficiency Gains Solve Problems [cont'd]

4. Technological innovation that results from growth will enable the dematerialization of the economy.

Ronald Bailey, science correspondent for Reason magazine, REASON, "David Foreman vs. the Cornucopians," 8.29.2001, p. lexis.
Stanford economist Paul Romer distinguishes "things," like sand, from "ideas," like the techniques of glassmaking. The Earth is finite, as Foreman says, but humanity hasn't become better off just by using more and more resources. That's the strategy of the deer. People create resources by finding uses for what once seemed useless. In Romer's words, "Economic growth springs from better recipes, not just from more cooking." We make ourselves better off not by increasing the amount of stuff on planet Earth -- that is, of course, effectively fixed -- but by rearranging the stuff we have available so that it provides us with more of what we want. As we become cleverer about rearranging material, the more goods and services we can get from relatively less stuff.

5. Growth generates the necessary tools to remedy problems of environmental degradation.

Michael Zey, Professor of Management at Montclair State University, THE FUTURIST, "The Macroindustrial Era: A New Age of Abundance and Prosperity," 3.13.1997, p. asp.
This brings me to one of my major points about the necessity of growth. A recurring criticism of growth - be it industrial, economic, or technological - centers around its negative consequences. A good example of this is the tendency of economic and industrial growth to generate pollution. However, I contend that growth invariably provides solutions to any problems it introduces. The following examples will illustrate my point. Although economic growth can initially lead to such problems as pollution and waste, studies show that, after a country achieves a certain level of prosperity, the pendulum begins to swing back toward cleaner air and water. In fact, once a nation's per capita income rises to about $ 4,000 (in 1993 dollars), it produces less of some pollutants per capita. The reason for this is quite simple: Such a nation can now afford technologies such as catalytic converters and sewage systems that treat and eliminate a variety of wastes. According to Norio Yamamoto, research director of the Mitsubishi Research Institute, "We consider any kind of environmental damage to result from mismanagement of the economy." He claims that the pollution problems of poorer regions such as eastern Europe can be traced largely to their economic woes. Hence he concludes that, in order to ensure environmental safety, "we need a sound economy on a global basis." Thus, the answer to pollution, the supposed outgrowth of progress, ought to be more economic growth. Such economic growth can be accelerated by any number of actions: the transfer of technology, the sharing of scientific know-how, and economic investment. The World Bank estimates that every dollar invested in developing countries will grow to $ 100 in 50 years. As their wealth increases, these countries can take all the necessary steps to invest in pollution-free cars, catalytic converters, and other pollution-free technologies, such as the cleanest of all current large-scale energy sources, nuclear power. They can also afford to invest in bioremediation - the utilization of viruses to literally eat such impurities as oil spills and toxic waste. Russia is actively growing and exporting microorganisms that eat radioactive and metallic wastes from such sources as uranium, plutonium, magnesium, and silver.

6. Efficiency gains and technological change ensures that growth will circumvent environmental limits and the impacts of pollution and degradation.

Ronald Bailey, science correspondent at Reason magazine, REASON, "Under the Spell of Malthus," August/September 2005, p. asp
"I have not met anyone," Diamond writes, "who seriously argues that the world could support 12 times its current impact, although an increase of that factor would result from all Third World inhabitants adopting first world living standards." But increasing human numbers and wealth do not translate automatically into more impact on the natural world. The British demographer Angus Maddison calculates that world GDP increased in real dollars from $2 trillion in 1900 to $37 trillion in 2001, while global per capita income rose from $1,300 annually to more than $6,000. This 18-fold increase in output was not achieved just by doing more and more of the same old things. Most of the increase was achieved through technological innovation: using better recipes to manipulate less physical stuff to give us more services. For example, in the United States producers use less than half the energy they used in 1949 to produce a dollar of GDP. In 2000 a report from the Cap Gemini Ernst and Young Center for Business Innovation calculated that the value of America's GDP per pound of finished product rose from $3.64 in 1977 to $7.96 in 2000. This trend toward ever greater efficiency is driven by the relentless market process that pushes producers to economize on resources. The smart bet is that humanity's steadily dematerializing economy in the 21st century will have less and less "impact" on natural systems while enabling much higher living standards.

Underview: Environmental Degradation Short-term

1. Dirty development is only a temporary phase, but it is necessary to achieve a better living standard and overall stronger environmental protections. [7]

Mohan Munasinghe, Sri Lankan physicist, academic and economist and Founder Chairman of the Munasinghe Institute of Development, ECOLOGICAL ECONOMICS, "Is environmental degradation an inevitable consequence of economic growth: tunneling through the environmental Kuznets curve?" 1999, p. asp
The EKC hypothesis is intuitively appealing. Thus, at the low levels of per capita income associated with pre-industrial and agricultural economies, one might expect rather pristine environmental conditions relatively unaffected by economic activities at the subsistence level. As development and industrialization progressed, the increasing use of natural resources and emission of pollutants, less efficient and relatively `dirty' technologies, high priority given to increases in material output, and disregard for or ignorance of the environmental consequences of growth, would have all contributed to increasing environmental damage. In the final post-industrial stage, cleaner technologies and a shift to information and service-based activities, the growing ability and willingness to pay for a better environment, improved internalization of environmental externalities, and greater financial surpluses that could be used to pay for a more preemptive approach to environmental protection, might be expected to result in reduced environmental degradation.

2. The effects of wealth generation overcome the problems of environmental damage from resource extraction. That means development is the only long-term solution to environmental health.

Frank B. Cross, Professor of Business Law at University of Texas at Austin, CASE WESTERN RESERVE UNIVERSITY LAW REVIEW, "The Naïve Environmentalist," Winter 2002, p. lexis
The world does face a number of serious environmental problems in the developing world. The more developed nations, affluent, with well-developed technology, have gone far toward curing their internal environmental problems. This observation would suggest that the answer to our greatest problems lies not in stopping growth or new technologies, but advancing them. A plenitude of evidence supports that suggestion. When the economy is strong, people demand greater environmental protection, but when the economy struggles, environmental protection measures are sacrificed. Moreover, economic and technological growth create the resources necessary to combat environmental threats. During the 1970s and 1980s, the U.S. economy grew by around seventy percent, yet during this same time period, virtually all forms of domestic pollution decreased, some by over ninety percent. Among developed nations, the wealthier countries tend to adopt stronger environmental protection laws and have greater success in reducing air pollution. The relationship between economic growth and pollution often forms an inverted U-shaped curve, sometimes called a Kuznets curve. That is, in the early stages of economic growth, pollution increases along with the economy and production growth, until a tipping point is reached, and pollution begins to decline as growth increases. A substantial body of cross-national empirical evidence supports the validity of the Kuznets curve for pollution and growth. The best known of this research is by Grossman and Krueger of Princeton, who found that the tipping point for numerous forms of air and water pollution, the point where growth begins to reduce the overall pollution load, comes at a level below $ 8,000 per capita income. Others found a slightly higher turning point (below $ 10,000) for other forms of air pollution. Different turning points may apply to different substances. For water pollution the turning point may be as low as $ 3,300 for nitrates and as high as $ 17,200 for lead. Other studies have found that the intensity of energy use declines with wealth. Others have found that the Kuznets curve appears to apply to deforestation; as national income rises, deforestation decreases. A study of United States counties found a kind of Kuznets curve for hazardous waste exposure. The even better news is that, over time, the curve seems to be shifting down and to the left, meaning that pollution reduction is occurring at lower levels of income. Lomborg himself presents a clear depiction of the Kuznets curve for particulates and sulfur dioxide, showing that pollution has declined with greater income and over time for all income levels.

Underview: Environmental Degradation Short-term [cont'd]

3. Research shows that there is such a thing as an Environmental Kuznets Curve, where ecological damage is only short-term and that growth is the best remedy for it in the long-term.

Mohan Munasinghe, Sri Lankan physicist, academic and economist and Founder Chairman of the Munasinghe Institute of Development, ECOLOGICAL ECONOMICS, "Is environmental degradation an inevitable consequence of economic growth: tunneling through the environmental Kuznets curve?" 1999, p. asp
Panayotou (1995)carried out one of the more systematic studies of the relationship between environmental damage and economic development. On the basis of cross-section data for selected developing and industrialized countries, he concluded that the EKC exists. He also argued that improved policies could help to flatten the peak of the EKC. More specifically, Panayotou showed that the rate of deforestation and per capita income follow the EKC relationship for a large sample of countries. Similar results are obtained for air pollution (SO2 , NOx and particulates), although there is variation in the location of the pollution peak. Earlier studies by Grossman and Krueger (1991), Shafik and Bandyopadhyay (1992) have indicated analogous findings for various types of air pollution.

4. Pollution from increased extraction is only temporary- increased growth allows better technology to be purchased which does away with environmental damages.

James Andreoni and Arik Levinson, University of Wisconsin and Georgetown University, NATIONAL SCIENCE FOUNDATION REPORT, "The Simple Analytics of the Environmental Kuznets Curve", January 5, 2000, p. asp
Still others have suggested that pollution stops increasing and begins decreasing with income because, with economic growth, some constraint becomes non-binding. Stokey (1998), for example, describes a static model with a choice of production technologies with varying degrees of pollution. Her critical assumption is that below a threshold level of economic activity, only the dirtiest technology can be used. With economic growth, pollution increases linearly with income until the threshold is passed and cleaner technologies can be used. The resulting pollution-income path is therefore inverse- V-shaped, with a sharp peak at the point where a continuum of cleaner technologies becomes available. Similarly, Jaeger (1998) rests on the assumption that at low levels of pollution consumers' taste for clean air is satiated, and that the marginal benefit of additional environmental quality is zero. Like Stokey, therefore, Jaeger's pollution-income relationship is inverse-V-shaped, peaking when the optimum moves from a corner solution to an interior solution.

5. Efforts to protect the environment over growth in natural resource extraction only make the environmental impact worse.

Ronald Bailey, science correspondent at Reason magazine, REASON, "Earth Day, Then and Now." May 2000, p. asp.
On the occasions when they admit things have gotten better, doomsters will claim whatever environmental progress has been made over the past 30 years is only a result of the warnings that they sounded. One of the more annoying characteristics of activists such as Ehrlich and Lester Brown is the way in which these prophets of doom get out ahead of a parade that has already started. When things get better, they claim that it's only because people heeded their warnings, not because of longstanding trends and increased efficiencies. As a result, there is always the danger that governments may actually enact their policies, thereby stifling technological progress and economic growth--and making the world worse off. Then the doomsters would be able to say "I told you so." So good or bad, they get to claim that they were right all along.

6. The cause of environmental destruction is a lack of development. Growth is the only answer.

Ronald Bailey, science correspondent at Reason magazine, REASON, "Earth Day, Then and Now." May 2000, p. asp.
Also, Worldwatchers are apparently beginning to understand that poverty, not population, is the chief source of environmental harm. Unfortunately, they do not show any understanding of how economic growth fueled by free markets, secure property rights, and expanding global trade is essential to alleviating poverty and protecting the natural world. However, the vision of a crowded, resource-depleted world promoted by early environmental fundamentalists may at long last now be fading.

Underview: Environmental Degradation Short-term [cont'd]

7. The empirical trend with pollution is that growth eventually remedies the problem.

Ronald Bailey, science correspondent at Reason magazine, THE FUTURIST, "The End is Not Nigh," 3.13.1997, p. asp.
Now let's look at air pollution in the United States, the world's leading industrial economy. Since the first Earth Day, U.S. population has risen 22% and the economy has grown by more than 60%. Yet, instead of increasing, as predicted, air pollutants have dramatically declined. Sulfur dioxide emissions are down 53%, carbon monoxide is down 57%, and the chief components of smog have been reduced by 35%. Total particulates like soot and dust have fallen by 60% from 1972, and there had already been a very long decline prior to this. In other words, economic growth leads to less pollution, not more. The cleanest countries on the planet are the richest countries on the planet. I submit this proposition: Anything that retards economic growth also retards ultimate environmental cleanup. When people rise above mere subsistence, they start demanding environmental amenities like clean air and water. As people get wealthier, they start cleaning up their societies.

Negative Position Two: Lack of Development Worse for Environment

1. A lack of economic development breeds weak institutions and instability in the markets, causing the most destruction from resource use. Reforms are better than abandoning the entire system. [8]

Mohan Munasinghe, Sri Lankan physicist, academic and economist and Founder Chairman of the Munasinghe Institute of Development, ECOLOGICAL ECONOMICS, "Is environmental degradation an inevitable consequence of economic growth: tunneling through the environmental Kuznets curve?" 1999, p. asp
The benefits of countrywide reforms could be negated by unaddressed institutional problems, such as the poor accountability of state-owned enterprises (which would allow them to ignore efficient price signals), weak financial intermediation, or inadequately defined property rights. Addressing such institutional issues would strengthen incentives for sustainable resource management and also improve equity. The shorter-term stabilization process also may have unforeseen adverse environmental and social impacts. For example, general reductions in government spending are often required to limit budgetary deficits and bring inflation under control. However, unless such cutbacks are carefully targeted, they may disproportionately penalize expenditures on environmental protection or social safety nets. Another important linkage is the possible short-term recessionary impact of adjustment on poverty and unemployment, whereby the poor are forced to increase their pressures on fragile lands and `open access' natural resources—due to the lack of economic opportunities elsewhere. In this case, appropriate measures designed to address the possible adverse consequences of adjustment will be justified—on both social and environmental grounds.

2. The negative externalities of environmental harm are inevitable unless economic development allows the institutions to emerge that can internalize pollution and thus eliminate it.

James Andreoni and Arik Levinson, University of Wisconsin and Georgetown University, NATIONAL SCIENCE FOUNDATION REPORT, "The Simple Analytics of the Environmental Kuznets Curve", January 5, 2000, p. asp
An alternative explanation for the inverse-U notes that pollution involves externalities, and that appropriately internalizing those externalities requires relatively advanced institutions for collective decision-making that may only be implementable in developed economies. Jones and Manuelli (1995), for example, posit an overlapping generations model in which economic growth is determined by market interactions and pollution regulations are set through collective decision-making by the younger generation. Depending on the decision-making institution, the pollution-income relationship can be an inverted-U, monotonically increasing, or even a "sideways-mirrored-S."

3. Strong versions of sustainability that require all consumption never deplete or alter the resource base in any way are absurd and untenable.

Wilfred Beckerman, Professor at Balliol College, ENVIRONMENTAL VALUES, "How Would you Like your Sustainability', Sir? Weak or Strong? A Reply to my Critics", 1995, p. asp
But I shall leave Jacobs and Daly to argue between themselves how many corpses are left on the 'weak sustainability' battlefield on which I have, apparently, won a victory - hollow or not. Most of my article had been devoted to this battle because I had assumed that weak sustainability was the more plausible variety of the sustainable development concept, whereas strong sustainability was so obviously absurd that nobody serious could possibly support it, and so was hardly worth spending time on it. The errors in the former concept seemed to me to be less obvious than the objections to the latter and hence required more careful analysis. If Daly and Jacobs are representative, however, of a significant strand of environmentalist thinking, then clearly I must now concentrate on the strong sustainability concept. Before doing so, however, I should take up one or two other points raised by Jacobs, though briefly touched on also by Daly. These are the concept of optimality and the plurality of values, and the question of discounting and fairness towards future generations. Brief sections on these, therefore, will precede a more detailed discussion of strong sustainability.

Negative Position Two: Lack of Development Worse for Environment [cont'd]

4. Advocating a return to ecological values would cause a destruction of nature given massive populations that exist.

Martin W. Lewis, Assistant professor in the Department of Geography and Regional Science, George Washington University, GREEN DELUSIONS: AN ENVIRONMENTALIST CRITIQUE OF RADICAL ENVIRONMENTALISM, 1992, p. 8
Finally, the radical green movement threatens nature by advocating a return to the land, seeking to immerse the human community even more fully within the intricate webs of the natural world. Given the present human population, this is hardly possible, and even if it were to occur it would result only in accelerated destruction. Ecological philosophers may argue that we could follow the paths of the primal peoples who live in intrinsic harmony with nature, but they are mistaken. Tribal groups usually do live lightly on the earth, but often only because their population densities are low. To return to preindustrial "harmony" would necessarily entail much more than merely decimating the human population. Yet unless our numbers could be reduced to a small fraction of present levels, any return to nature would be an environmental catastrophe. The more the human presence is placed directly on the land and the more immediately it is provisioned from nature, the fewer resources will be available for nonhuman species. If all Americans were to flee from metropolitan areas, rural populations would soar and wildlife habitat would necessarily diminish.

5. There is no foundational basis to elevate enjoyment of nature morally above the ability to derive benefit and enjoyment from the resources nature provides.

Wilfred Beckerman, Professor at Balliol College, ENVIRONMENTAL VALUES, "How Would you Like your Sustainability', Sir? Weak or Strong? A Reply to my Critics", 1995, p. asp
Jacobs' second error is to believe that because the environment provides a different and special kind of satisfaction, like most things that people value, it has some independent moral value and constitutes an example of moral pluralism. But the fact that people derive satisfactions of different kinds from different goods and services and personal relationships has nothing to do with the plurality of moral values. Does enjoying a good meal have a moral value because the type of satisfaction that one derives from it is not the same as that which one derives from admiring a Fra Angelico fresco? Indeed, the fact that one can derive direct consumption value from the environment - e.g. from admiring the scenery or the wildlife - can hardly be claimed to be a reason why its pursuit is a moral obligation. If moral values were also invariably prudential, life would be much easier. As it happens, most moral values are probably not only incommensurable with each other, but also lie outside the domain of prudential values and often conflict with them. For example, one may frequently be faced with a conflict between some prudential value - be it some good or service or some valued personal relationship - and some moral value, such as justice, or honesty, or mercy.

6. Environmental protections in the long run destroy the foundations for sustainable resource usage. Growth is the only way out.

James Andreoni and Arik Levinson, University of Wisconsin and Georgetown University, NATIONAL SCIENCE FOUNDATION REPORT, "The Simple Analytics of the Environmental Kuznets Curve", January 5, 2000, p. asp
Evidence suggests that some pollutants follow an inverse-U-shaped pattern relative to countries' incomes. Due to its similarity to the time-series pattern of income inequality described by Kuznets (1955), the environmental pattern has been called an "environmental Kuznets curve." Because the empirical evidence relies on reduced-form regressions of environmental quality on income and other covariates, most researchers avoid interpreting those results structurally, leaving open the question of why pollution follows this inverse-U pattern. Nonetheless, a number of people have appealed to this empirical relationship to argue that economic growth by itself is a panacea for environmental degradation. Beckerman (1992), for instance, writes that "in the end the best – and probably the only –way to attain a decent environment in most countries is to become rich," while Bartlett (1994) claims that "existing environmental regulation, by reducing economic growth, may actually be reducing environmental quality." It is important, therefore, to understand the nature and causes of the environmental Kuznets curve before adopting such far reaching, and to many quite alarming, implications for policy.

Negative Position Two: Lack of Development Worse for Environment [cont'd]

7. Trying to embrace ecologically sound approaches with our present population would destroy the earth overnight by regressing to the worst forms of subsistence living.

Martin W. Lewis, Assistant professor in the Department of Geography and Regional Science, George Washington University, GREEN DELUSIONS: AN ENVIRONMENTALIST CRITIQUE OF RADICAL ENVIRONMENTALISM, 1992, p. 9

An instructive example of the deadly implications of returning to nature may be found when one considers the issue of fuel. Although more common in the 1970s than the 1990s, "split wood not atoms" is still one of the green radicals' favored credos. To hold such a view one must remain oblivious to the clearly devastating consequences of wood burning, including suffocating winter air pollution in the enclosed basins of the American West, widespread indoor carbon monoxide poisoning, and the ongoing destruction of the oak woodlands and savannahs of California. If we were all to split wood, the United States would be a deforested, soot-choked wasteland within a few decades. To be sure, the pollution threat of wood stoves can be mitigated by the use of catalytic converters, but note that these are technologically sophisticated devices developed by capitalist firms. If the most extreme version of the radical green agenda were to be fully enacted without a truly massive human die-off first, forests would be stripped clean of wood and all large animals would be hunted to extinction by hordes of neo-primitives desperate for food and warmth. If, on the other hand, eco-extremists were to succeed only in paralyzing the economy's capacity for further research, development, and expansion, our future could turn out to be reminiscent of the environmental nightmare of Poland in the 1980s, with a stagnant economy continuing to rely on outmoded, pollution-belching industries. A throttled steady-state economy would simply lack the resources necessary to create an environmentally benign technological base for a populace that shows every sign of continuing to demand electricity, hot water, and other conveniences. Eastern Europe shows well the environmental devastation that occurs when economic growth stalls out in an already industrialized society.

8. Growth is necessary to remedy the human problems of underdevelopment that contributed to great suffering throughout developing countries.

Indur M. Goklany, Assistant Director of Programs, Science and Technology Policy for the United States Department of the Interior, CASE WESTERN RESERVE UNIVERSITY LAW REVIEW, "Affluence, Technology, and Well-Being," Winter 2002, p. lexis

One explanation is that economic development indeed improves these indicators. The wealthier the society, the more it can afford technologies targeted to the improvement of specific facets of well-being. Thus, with respect to health captured in Figure 1 by both infant mortality and life expectancy - wealthier societies have, for instance, greater access to safe water (see Figure 1), sanitation, vaccinations, antibiotics and pasteurization, AIDS and oral rehydration therapies, organ transplants, and mammograms and other diagnostic tests. They can also better afford yield-enhancing agricultural technologies, which increases their food supply and, thereby, reduces hunger and malnourishment and, with it, the toll of infectious and parasitic diseases. That, too, reduces mortality and increases life expectancy. And if despite increased food production a country is still short of food, greater wealth makes it possible, through trade, to purchase food security. Greater wealth also makes it more likely that a society will establish and sustain food programs for those on the lower rungs of the economic ladder. Therefore, while "you can't eat GDP," if GDP is larger, you are less likely to go hungry or be undernourished (except by choice). Thus, as Figure 1 illustrates, greater wealth, through a multiplicity of mechanisms, e.g., higher literacy, higher food supplies and greater access to safe water, leads to better health.

9. Economic growth doesn't trade off with human development, it facilitates it.

Indur M. Goklany, Assistant Director of Programs, Science and Technology Policy for the United States Department of the Interior, CASE WESTERN RESERVE UNIVERSITY LAW REVIEW, "Affluence, Technology, and Well-Being," Winter 2002, p. lexis

In the foregoing, economic development and technological change were treated as if they are independent of one another. But, in reality, they are mutually reinforcing coevolving forces. Greater wealth translates into greater resources for researching and developing new technologies, which directly or indirectly advance human well-being. It also means increased resources for advancing literacy and education (see Figure 1) which is also generally conducive to greater technological innovation and diffusion. Equally importantly, wealthier societies are better able to afford new and existing-but-underused technologies, which, as I argue below, is a crucial mechanism whereby economic development improves well-being. In turn, technological change increases productivity and, thereby, economic growth.

Negative Position Two: Lack of Development Worse for Environment [cont'd]

10. Deforestation proves that the problem is caused by poverty and a lack of development, not the extraction itself.

Jerry Taylor, Fellow at the Cato Institute, POLICY ANALYSIS, "Sustainable Development: A Dubious Solution in Search of a Problem," 8.26.2002, accessed 12.5.2013: www.cato.org/pubs/pas/pa449.pdf
Academics who've examined the data conclude that deforestation—where it indeed exists—is less a problem of global demand for timber and croplands outstripping supply than it is a problem of politics. First, the lack of private property rights to forest resources correlates strongly with deforestation problems, suggesting that deforestation is a result of political mismanagement of economic resources (an old story that could be told about any number of industries in any number of socialist states). Second, deforestation correlates strongly with poverty. Economists have discovered, for instance, that once per capita incomes exceeded $4,760 in Africa and $5,420 in Latin America, deforestation rates actually moderated slightly. That's largely because the main driver for deforestation in the developing world is the need for more agricultural land—land that wouldn't be necessary if modern agricultural practices were available to increase yields from existing agricultural lands. Yet modern agricultural practices require capital inputs that are often beyond the means of poor economies. Another way poverty contributes to deforestation is the demand for wood fuel that results from the lack of an electricity grid. In West Africa, for instance, 80 percent of domestic energy consumption is met by wood fuel. In sub-Saharan Africa, wood fuel accounts for 63.5 percent of total energy use. Poverty in the developing world, however, is a legacy of the lack of property rights, the absence of the rule of law, and counterproductive state interventions in the economy.

Underview: Resource Utilization Inevitable

1. The consumption and extraction of resources are inevitable- by focusing on improving development, it is possible to promote environmental welfare. [9]

Mohan Munasinghe, Sri Lankan physicist, academic and economist and Founder Chairman of the Munasinghe Institute of Development, ECOLOGICAL ECONOMICS, "Is environmental degradation an inevitable consequence of economic growth: tunneling through the environmental Kuznets curve?" 1999, p. asp
On the benefit side, liberalizing policies that include the removal of price distortions, promotion of market incentives, and relaxation of trade and other constraints, often give rise to simultaneous gains to both the economy and the environment (i.e. so called `win–win' outcomes). For example, reforms which improve the efficiency of industrial or energy related activities could reduce economic waste, increase the efficiency of natural resource use and limit environmental pollution. Similarly, improving land tenure rights and access to financial and social services not only yields economic gains but also promotes better environmental stewardship and helps the poor. In the same vein, there is evidence to show that shorter-run policy measures aimed at restoring macroeconomic stability will generally yield both socioeconomic and environmental benefits, since instability undermines sustainable resource use and especially penalizes the poor. For example, price, wage and employment stability encourage a longer term-view on the part of firms and households alike. Lower inflation (and discount) rates not only lead to clearer pricing signals and better investment decisions by economic agents, but also protect fixed income earners. These are essential prerequisites for encouraging environmentally sustainable activities.

2. Without sufficient profit incentive, environmental destruction is inevitable.

Martin W. Lewis, Assistant professor in the Department of Geography and Regional Science, George Washington University, GREEN DELUSIONS: AN ENVIRONMENTALIST CRITIQUE OF RADICAL ENVIRONMENTALISM, 1992, p. 165
Other reasons for the dismal environmental failure of communism stem not from Marxist ideology so much as from the specific ways in which Marxist political parties have stimulated production. Since they deny the profit system, other methods of motivating workers and managers have by necessity eventually been devised. The most common system has been for central planners to set production quotas, and then to reward plant managers who exceed them. As it turns out, the production quota system supplies incentives to ignore existing environmental regulations every bit as powerful as those of the profit system. Other forms of "motivation" have been far more sinister: Soviet geographer Ruben Mnatsakanyan notes that the vast power of the destructive Soviet Ministry of Land Reclamation and Water Management stemmed from the fact that it was originally "a KGB department that dealt with the digging of canals by prisoners" ("The Changing Face of Environmentalism in the Soviet Union" 1990:5).

3. Development throughout the developing world will be better for the environment ultimately even if resource usage would increase damage in the short-term.

Ronald Bailey, science correspondent at Reason magazine, REASON, "Earth Day, Then and Now." May 2000, p. asp.
Meanwhile, as many developing countries become wealthier, they will start to pass through the environmental-transition thresholds for various pollutants, and their air and water quality will begin to improve. Certainly air and water quality in the United States, Europe, Japan, and other developed countries will be even better than it is today. Enormous progress will be made on the medical front, and diseases like AIDS and malaria may well be finally conquered. As for climate change, concern may be abating because the world's energy production mix is shifting toward natural gas and nuclear power. There is always the possibility that a technological breakthrough--say, cheap, efficient, non-polluting fuel cells--could radically reshape the energy sector. In any case a richer world will be much better able to cope with any environmental problems that might crop up.

Underview: Demands that Developing Countries Not Develop are Biased

1. Demands from the developed world that the developing world needs to place the environment ahead of resource production are simply attempts to gain a competitive trade advantage.

Jagdish Bhagwati, Arthur Lehman Professor of Economics and Professor of Political Science at Columbia University, THE WORLD ECONOMY, "Trade Liberalisation and 'Fair Trade' Demands: Addressing the Environmental Standards and Labour Issues", 1995, p. asp
The demands for imposing environmental and labour standards on the poor countries reflect several factors. Let me mention just a few of the more compelling ones that bear on the environmental and labour standards questions , I while addressing their merits later. First, the fierce competition as the world economy gets increasingly globalised has led to increased sensitivity to any domestic policy or institution abroad that seems to give one's foreign rivals an extra edge. If then a country's producers have lower environmental and labour regulatory burdens, that is objected to as 'unfair'. Second, protectionists see great value in invoking 'unfairness' of trade as an argument for getting protection: it is likely to be more successful than simply claiming that you cannot hack it and therefore need protection. This has made the diversity of burdens for an industry among different countries appear illegitimate, making demands to reduce it look like a reasonable alternative to overt protectionism. Third, some in the environmental and labour movements worry about the effect that competition with 'Lower'-Standards countries will have on their own standards. If trade shifts activity to where the costs are lower because of lower standards, and if additionally capital and jobs move away to exploit lower standards abroad, then the countries with higher standards may be forced to lower their own.

2. States should be allowed to develop their own environmental protections as they see fit. There should be no attempt to impose a value system on them.

Jagdish Bhagwati, Arthur Lehman Professor of Economics and Professor of Political Science at Columbia University, THE WORLD ECONOMY, "Trade Liberalisation and 'Fair Trade' Demands: Addressing the Environmental Standards and Labour Issues", 1995, p. asp
The diversity of CCII standards will follow from differences in tradeoffs between aggregate pollution and income at different levels of income, as when richer Americans prefer to save dolphins from purse-seine nets whereas poorer Mexicans prefer to put people first and want to raise the productivity of fishing and hence accelerate the amelioration of Mexican poverty by using such nets. Again, countries will have natural differences in the priorities attached to which kind of pollution to attack, arising from differences of historical and other circumstance: Mexicans will want to worry more about clean water, as dysentery is a greater problem, than Americans who will want to attach greater priority to spending pollution dollars on clean air. Differences in technological knowhow and in endowments can also lead to CCII diversity in pollution tax rates. The notion therefore that the diversity of CCII pollution standards taxes is illegitimate and constitutes 'unfair trade' or 'unfair competition', to be eliminated or countervailed by eco- dumping duties, is itself illegitimate. It is incorrect, indeed illogical, to assert that competing with foreign firms that do not bear equal pollution-tax burdens is unfair.

3. Complaints about the social ills of globalization are simply psychological apologies for trying to protect economic privilege in the first world.

Jagdish Bhagwati, Arthur Lehman Professor of Economics and Professor of Political Science at Columbia University, CARNEGIE COUNCIL, "In Defense of Globalization," October 28, 2004, p. lexis
What struck me was that the kinds of questions people were raising were very different from the ones which we economists normally address. The conclusion that I then came to was that the issues which many of the people were complaining about had to do with what can best be called social implications of economic globalization. What is the effect of trade, of globalization, on women—in export processing zones, for example—is it hurting the cause of women? Has globalization gone so far that we don't have any sovereign control over our affairs? Is it damaging the environment? Is it accentuating child labor? If you listen to people like Lori Wallach—and therefore Ralph Nader, who takes his cue from her—it is damaging; it is increasing poverty in developing countries. This is a very convenient argument, because if you want to protect yourself and you can convince yourself that by protecting yourself you are also helping the people whom you are hurting, that's a wonderful position to be in psychologically. Then you can freely advocate protection. You go down the line: impact on poorer countries, impact on us, and the loss of our labor standards which we have fought for for over a century. If people say, "We're going to disappear to Singapore or Malaysia and if you don't take a cut in your labor standards," this is a genuine worry on the part of many.

Negative Position Three: Adaptive Measures Offset Negatives of Growth

1. Taking positive policy measures that offset environmental destruction while developing natural resources is the most desirable approach.

Mohan Munasinghe, Sri Lankan physicist, academic and economist and Founder Chairman of the Munasinghe Institute of Development, ECOLOGICAL ECONOMICS, "Is environmental degradation an inevitable consequence of economic growth: tunneling through the environmental Kuznets curve?" 1999, p. asp
Both empirical case studies and theoretical models presented in this paper indicate that economy-wide reforms including removal of price distortions, promotion of market incentives, and relaxation of other constraints often contribute simultaneously to economic, social and environmental gains. However, unintended adverse side effects occur in many cases—when such growth inducing reforms are undertaken while other neglected policy, market or institutional imperfections persist. The remedy does not generally require reversal of the original economy-wide reforms, but rather the implementation of additional complementary measures (both economic and non-economic) that remove such policy, market and institutional difficulties. Introducing such remedial measures ex-ante, before broad reforms are undertaken, is the most desirable approach. Measures aimed at restoring macroeconomic stability also will generally yield economic, social and environmental benefits. However, the stabilization process may have unforeseen adverse short-term impacts on sustainability issues. Once again, specific complementary measures designed to address the possible adverse environmental and social consequences of stabilization policies would be justified.

2. The answer to the problems of equitable development are not to abandon the attempt to improve human society, but to correct for the market errors that cause abuse.

Mohan Munasinghe, Sri Lankan physicist, academic and economist and Founder Chairman of the Munasinghe Institute of Development, ECOLOGICAL ECONOMICS, "Is environmental degradation an inevitable consequence of economic growth: tunneling through the environmental Kuznets curve?" 1999, p. asp
At the same time, there are important exceptions where such potential gains cannot be realized unless the macro-reforms are complemented by additional environmental and social measures which protect both the environment and the poor. Negative impacts are invariably unintended and occur when some broad policy changes are undertaken while other hidden or neglected policy, market or institutional imperfections persist. In general, the remedy does not require reversal of the original reforms, but rather the implementation of additional complementary measures (both economic and non-economic) that remove such policy, market and institutional difficulties.

3. Environmental destruction is not an inevitable part of development anymore- developing countries can take proactive policy measures to regulate resource extraction and thus maintain environmental quality.

Mohan Munasinghe, Sri Lankan physicist, academic and economist and Founder Chairman of the Munasinghe Institute of Development, ECOLOGICAL ECONOMICS, "Is environmental degradation an inevitable consequence of economic growth: tunneling through the environmental Kuznets curve?" 1999, p. asp
Economy-wide reforms often contribute simultaneously to economic, social and environmental gains. However, Unintended adverse side effects occur in many cases—when such growth inducing reforms are undertaken while neglecting other policy, market or institutional imperfections. The remedy does not generally require reversal of the original economy-wide reforms, but rather the ex-ante implementation of additional complementary measures that remove such imperfections. The EKC approach seeks to relate the state of the environment to the stage of development. Developing countries could learn from the experiences of industrialized nations, and restructure growth and development to `tunnel' through any potential EKC—thereby avoiding going through the same stages of growth that involve relatively high (and even irreversible) levels of environmental harm. An environmentally adjusted measure of national income could significantly change the shape of the development-environment relationship. Recommendations for decision-making include: actively seeking `win–win' policies that simultaneously yield both economic and environmental gains; pre-empting environmental harm through ex-ante remedial measures; and fine-tuning reform policies to avoid severe environmental damage. The adoption of more sustainable policies will facilitate the attainment of higher levels of development at a lower environmental cost.

Negative Position Three: Adaptive Measures Offset Negatives of Growth [cont'd]

4. The environmental consequences of development are not inherent to a growth economy- it is because of market imperfections that could be solved with better policy.

Mohan Munasinghe, Sri Lankan physicist, academic and economist and Founder Chairman of the Munasinghe Institute of Development, ECOLOGICAL ECONOMICS, "Is environmental degradation an inevitable consequence of economic growth: tunneling through the environmental Kuznets curve?" 1999, p. asp
The paper explores some practical policy-oriented questions—what systematic linkages, if any, might exist between economic development and the environment; and how appropriate policies could be designed. The emphasis is on the short and medium term (decades-long) time horizon which would most concern decision makers. Accordingly, Section 2 of this paper begins with a review of recent empirical evidence linking economic reform programs (including macroeconomic stabilization and structural adjustment) with environmental sustainability. One important conclusion is that it is the combination of growth and economic imperfections that lead to environmental damage and unsustainable outcomes. The section continues with a discussion of some key elements underlying economic–environmental linkages, including a basic theoretical framework for analyzing the empirical findings. Both micro- and macro-economic models confirm the important conclusion regarding the key role of economic imperfections. In Section 3, the relationship between the stage of development and environmental degradation is discussed in the context of the environmental Kuznets curve hypothesis. A basic theoretical model is presented to better understand the market for environmental quality, and draw out policy implications. Once again, an important result is the potential for reducing environmental damage associated with growth, by removing economic imperfections that lead to a divergence between private decisions and socially optimal ones. Section 4 examines measurement issues, including the role of green national income accounting. Finally, the main findings and key policy conclusions are summarized in Section 5.

5. There is no reason that developing nations today have to repeat the entire process of the industrial revolution and destroy the environment in the process- they can learn from others' mistakes and avoid environmental destruction. [10]

Mohan Munasinghe, Sri Lankan physicist, academic and economist and Founder Chairman of the Munasinghe Institute of Development, ECOLOGICAL ECONOMICS, "Is environmental degradation an inevitable consequence of economic growth: tunneling through the environmental Kuznets curve?" 1999, p. asp
In contrast, we argue below that the developing countries could learn from the past experiences of the industrialized world by adopting measures which would permit them to `tunnel' through the EKC (as shown in Fig. 3)—preferably under the safe limit beyond which at least some types of environmental damage (like biodiversity loss) could become irreversible (Munasinghe, 1995). They could thereby avoid the peak of environmental degradation (at B in the figure) associated with a conventional development path (like ADBEC), which merely mimicked the evolution of the market economies. Thus, the emphasis is on identifying policies that will help de-link environmental degradation and growth, so that environmental harm will be reduced along the development path—e.g. path IK in Fig. 4, rather than path IJ. With such a focus, the EKC becomes useful mainly as a metaphor or framework for policy analysis, while other issues become less important—such as the exact shape of the EKC, or whether the empirically estimated EKCs which tend to be based on cross-section or pooled data (rather than a time series of observations) can adequately capture the growth characteristics of any single country.

Negative Position Three: Adaptive Measures Offset Negatives of Growth [cont'd]

6. The remedy to environmental problems is not to halt growth or development because that would devastate the poorest countries. Instead, market adjustments should be established by the government to regulate resource flows. [11]

Mohan Munasinghe, Sri Lankan physicist, academic and economist and Founder Chairman of the Munasinghe Institute of Development, ECOLOGICAL ECONOMICS, "Is environmental degradation an inevitable consequence of economic growth: tunneling through the environmental Kuznets curve?" 1999, p. asp
Next, suppose an economic reform package stimulates growth and shifts the timber demand curve outward to D1. This `income effect' could be the result of increased domestic demand (e.g. timber required by a construction boom), and/or higher timber exports (e.g. due to trade liberalization and devaluation that make such exports more profitable). Now, the deforestation rate could quickly shift to QS, greatly exceeding the safe limit QL and causing serious environmental harm. Clearly, the remedy is not to stop growth (especially in a poor country), but rather to introduce complementary measures that establish a proper market price for timber. As a first step, property rights may need to be re-established in open access areas and an `efficient' stumpage fee imposed—to eliminate the economic subsidy (ES) and correctly reflect the opportunity cost of the timber. The resulting efficient price (pE) would reduce the logging rate to QE, which still exceeds QL. The next step might be to impose an additional externality cost (EC) that reflects the loss of biodiversity or damage to watersheds, and thereby establish the full environmentally adjusted price (pEN). The deforestation rate would now fall to QEN<QL.

7. Developing countries don't have to engage in irreversible environmental degradation to grow their economies- adaptive policy changes can offset that destruction.

Mohan Munasinghe, Sri Lankan physicist, academic and economist and Founder Chairman of the Munasinghe Institute of Development, ECOLOGICAL ECONOMICS, "Is environmental degradation an inevitable consequence of economic growth: tunneling through the environmental Kuznets curve?" 1999, p. asp
The EKC approach seeks to relate the state of the environment to the stage of development of a country. Understanding the processes underlying this phenomenon is important from the decision-making viewpoint because it could be a useful guide for formulating policies to achieve sustainable development. Curves of varying shape that link development and the environment have been empirically observed in the case of several types of environmental degradation. A model that analyses the underlying relationships suggests that the extremes of environmental degradation could be avoided by sound policy interventions, which eliminate economic imperfections such as market failures, policy distortions, and institutional constraints. In short, the developing countries could learn important lessons from the experiences of the industrialized nations, and devise development strategies that can `tunnel' through any potential EKC—thereby avoiding going through the same stages of growth that involve relatively high (and even irreversible) levels of damage to the environment.

8. Current trends in economic growth need to be bolstered to achieve lasting environmental protection throughout the developing world.

Jerry Taylor, Fellow at the Cato Institute, POLICY ANALYSIS, "Sustainable Development: A Dubious Solution in Search of a Problem," 8.26.2002, accessed 12.5.2013: www.cato.org/pubs/pas/pa449.pdf
The concept seems innocuous enough. After all, who would favor "unsustainable development"? A careful review of the data, however, finds that resources are becoming more—not less—abundant with time and that the world is in fact on a quite sustainable path at present. Moreover, the fundamental premise of the idea—that economic growth, if left unconstrained and unmanaged by the state, threatens unnecessary harm to the environment and may prove ephemeral—is dubious. First, if economic growth were to be slowed or stopped—and sustainable development is essentially concerned with putting boundaries around economic growth—it would be impossible to improve environmental conditions around the world. Second, the bias toward central planning on the part of those endorsing the concept of sustainable development will serve only to make environmental protection more expensive; hence, society would be able to "purchase" less of it. Finally, strict pursuit of sustainable development, as many environmentalists mean it, would do violence to the welfare of future generations. The current Western system of free markets, property rights, and the rule of law is in fact the best hope for environmentally sustainable development.

Negative Position Three: Adaptive Measures Offset Negatives of Growth [cont'd]

9. There is not a race to the bottom that will cause a spiral of falling environmental standards- there is no evidence to support it.

Jagdish Bhagwati, Arthur Lehman Professor of Economics and Professor of Political Science at Columbia University, THE WORLD ECONOMY, "Trade Liberalisation and 'Fair Trade' Demands: Addressing the Environmental Standards and Labour Issues", 1995, p. asp

While we do not have similar evidence on the latter proposition, it is hardly likely that, as a systematic tendency, countries would be actually lowering Environmental standards in order to attract capital. As it happens, countries, and even state governments in federal countries (e.g. President Bill Clinton, when Governor of Arkansas), typically play the game of attracting capital to their jurisdictions: but this game is almost universally played, not by inviting firms to pollute freely but instead through tax breaks and holidays, land grants at throwaway prices etc., resulting most likely in a 'race to the bottom' on business tax rates which wind up below their optimal levels! It is therefore not surprising that there is little systematic evidence of governments lowering Environmental standards in order to attract scarce capital. Contrary to the fears of the environmental groups, the race to the bottom on Environmental standards therefore seems to be an unlikely phenomenon in the real world.

Underview: Correcting Market Distortions Solves

1. Resource extraction can be reduced to sustainable rates by eliminating the subsidies in place that make overproduction an attractive economic option.

Mohan Munasinghe, Sri Lankan physicist, academic and economist and Founder Chairman of the Munasinghe Institute of Development, ECOLOGICAL ECONOMICS, "Is environmental degradation an inevitable consequence of economic growth: tunneling through the environmental Kuznets curve?" 1999, p. asp
Export promotion measures that increase the profitability of natural resource exports, might encourage excessive extraction or harvesting of this resource if it were underpriced or subsidized (for example, deforestation caused by low stumpage fees for timber). Similarly, market-oriented liberalization could lead to economic expansion and the growth of wasteful energy-intensive activities in a country where subsidized energy prices persisted. In both cases, eliminating the subsidies would help to reduce environmental damage. Growth induced by successful economy-wide reforms may be associated with excessive environmental damage—for example, if external environmental effects of economic activities (such as air or water pollution), are not adequately reflected in market prices that influence such activities. Here, the introduction of pollution taxes would help to internalize and limit environmental harm.

2. The competitive drive of capitalism ensures that inequalities in exchange will eventually even out.

Martin W. Lewis, Assistant professor in the Department of Geography and Regional Science, George Washington University, GREEN DELUSIONS: AN ENVIRONMENTALIST CRITIQUE OF RADICAL ENVIRONMENTALISM, 1992, p. 173-174
Business leaders have opposed apartheid not because of their magnanimity, but rather because discrimination is in many respects highly disfunctional for the economy. Many South African companies have long suffered from shortages of skilled labor, yet they have been politically prevented from tapping a huge segment of the populace for such positions. As a result, wages for white workers have been far greater than the market would dictate, a situation hardly advantageous for capital. Even more importantly, the fact that so many people have been reduced to dire poverty by political edict greatly reduces the internal South African market, which in turn undercuts the potential profitability of consumer goods firms. The underdevelopment of the consumer economy, in turn, severely hampers the country's overall economic performance. The same underlying patterns may be seen, albeit in weaker form, in the United States. It was, of course, the capitalistic Republican Party that dismantled slavery until relatively recent times the Democratic Party of workers and farmers formed the bulwark of discrimination. As a system, capitalism thrives on equality of opportunity. Efficient corporations welcome talented individuals from all social ranks into their middle and upper echelons-so long as they are adept at making profits. Thus the editor of Fortune magazine tells us that "One of America's great competitive weapons is that we are far ahead of the Japanese and. most other foreign competitors in at last beginning to admit women to positions of real power" (July 30, 1990, p. 4). Of course, individual capitalists can be as bigoted as anyone else, and many are blind to the general requirements of the system as a whole. And so too, equality of opportunity must never be confused with social equity, as those individuals lacking the demanded skills and motivation will always be poorly rewarded by the rational corporation. Although capitalism, in the end, precludes economic equality, it does suffer if wage differentials grow too great, as we have already noted in the case of South Africa. As many Marxist scholars now recognize, low wages across the board translate into minimal purchasing power, which is hardly advantageous for a capitalist machine often desperate to find markets for its abundant goods. Thus, in the virtuous capitalistic spiral of "Fordism" (Scott and Storper 1986), productivity gains have been partially shared with workers in the form of higher wages, the aggregate result being a prosperous working class and a healthy economy.

Underview: No Necessary Link Between Growth and Pollution

1. Environmental harm is not a necessary outgrowth of economic activity- progressive policies can be adopted to help ameliorate the impact.

Mohan Munasinghe, Sri Lankan physicist, academic and economist and Founder Chairman of the Munasinghe Institute of Development, ECOLOGICAL ECONOMICS, "Is environmental degradation an inevitable consequence of economic growth: tunneling through the environmental Kuznets curve?" 1999, p. asp
This rather simple example helps to clarify how the expansionary effects of economic reform policies could combine with hitherto neglected economic distortions to cause environmental harm. It also indicates that environmental damage need not be inextricably linked to economic growth (as suggested by the EKC), but might be moderated by sound policy measures. Thus the parallel introduction of complementary measures that address the specific distortions would allow the broader reforms to proceed without adverse environmental impacts. Such additional environmental measures would need to be built (ex-ante) into the overall reform package, rather than introduced as an afterthought.

2. Resource extraction and environmental reform are compatible. There is no need to let protection trump use.

Martin W. Lewis, Assistant professor in the Department of Geography and Regional Science, George Washington University, GREEN DELUSIONS: AN ENVIRONMENTALIST CRITIQUE OF RADICAL ENVIRONMENTALISM, 1992, p. 174-175
It is also essential to recognize that state-mandated social and environmental regulations can actually aid the capitalist system, even if they do burden individual firms. A capitalist society cannot long persist if individually rapacious companies are allowed to destroy their workers or demolish the environment. Despite Marxian-and reactionary-claims to the contrary, environmental regulation has contributed little to our economic slowdown (Leonard 1988:57); many experts would go so far as to argue that it functions in the long run to enhance national competitiveness (for example, Porter 1990). Similarly, many American corporate directors are realizing that Japan's socialized medical system gives its firms a profound advantage in competing against American companies suffering under heavy health insurance burdens. Nor is it coincidental that the most successful capitalist economies of the past two decades Japan, South Korea, and Taiwan-are distinguished by their relatively equitable distributions of wealth, whereas those countries with the greatest gaps between the rich and the poor, such as Brazil, have faltered mightily (see chapter six). It is for this reason that conservative proponents of capitalism would be well advised to reexamine the recent socio-economic history of the United States.

3. There is not a necessary link between resource extraction and environmental destruction- proactive policy measures can offset the peak to environmental damage as a country develops.

Mohan Munasinghe, Sri Lankan physicist, academic and economist and Founder Chairman of the Munasinghe Institute of Development, ECOLOGICAL ECONOMICS, "Is environmental degradation an inevitable consequence of economic growth: tunneling through the environmental Kuznets curve?" 1999, p. asp
The foregoing arguments may be brought together to show that (MBY−MCY) could well be negative in the early to middle stages of development, and becomes positive only in the later stages. The corresponding shifts in the MB and MC curves in Fig. 5 indicate geometrically how the EKC result emerges as shown in the bottom half of the figure—note that this is an EKC rotated by ninety degrees. Thus the MB and MC curves intersect at the equilibrium points F, G, H, I and J corresponding to the marginality condition in Eq. (2). The respective pairs of points (Ei, Yi) for i=0, ..., 4, define the points K, L, M, N and P which generate the EKC. This process would readily give rise to the EKC effect shown in Fig. 3, where the two parts of the curve ADB and BEC correspond to the conditions a>0 and a<0, respectively. The highly peaked path ADBEC could be caused by economic imperfections. Policies that remove such inefficiencies would permit the economy to tunnel through the EKC along the path ADEC.

Answers to: "Affluent Societies Don't Value Environment"

1. Raising levels of affluence throughout a society is the only way to create the needed momentum for environmental protections.

Indur M. Goklany, Assistant Director of Programs, Science and Technology Policy for the United States Department of the Interior, CASE WESTERN RESERVE UNIVERSITY LAW REVIEW, "Affluence, Technology, and Well-Being," Winter 2002, p. lexis

The wealthier such a society, the more affordable - and more demanding - its laws. At the same time, increasing affluence and the secular march of technology enables society to better and more cheaply improve its environmental quality. Affluence also makes R&D targeted on cleaner technologies more affordable, as it does the purchase and use of such technologies, especially if their up-front costs are higher. Thus, EI undergoes a period of transition. Ultimately, greater affluence and technological change should result in a decline in EI. Other factors have reinforced ETs in the richer countries for traditional (industry-related) pollutants. Historically, economic development involved technology mediated transformations from, first, an agrarian to an industrial society and, then, an industrial to a post-industrial knowledge-and information-based society. Emissions of industrial pollutants per capita or per GNP (both leading, rather than true, indicators of environmental impacts) increased with the first transformation but declined with the second, and temporal trends for these leading indicators also look like stylized IUs. Second, as the industrial sector waxed and waned so did its political and demographic power. In 1900 the U.S. mining and manufacturing sectors, traditionally associated with pollution, employed 40.2 percent of non-farm labor. This had dropped to 28.2 percent in 1970 and 17 percent in 1997. A decline in a sector's economic and demographic power only makes stiffer environmental laws more likely for that sector, particularly in a democracy. Currently we see this principle in operation for the U.S. ranching, mining, forestry and agricultural sectors.

2. Rising affluence will trigger technological changes that can remedy environmental harm.

Indur M. Goklany, Assistant Director of Programs, Science and Technology Policy for the United States Department of the Interior, CASE WESTERN RESERVE UNIVERSITY LAW REVIEW, "Affluence, Technology, and Well-Being," Winter 2002, p. lexis

Historical evidence shows that as a society becomes wealthier and technology advances with the passage of time, it first addresses the problems it perceives to be the most critical hunger, malnutrition, safe water, sanitation, education, and health care - before turning to those perceived to be less critical, such as air pollution, non-public health related water pollution, and solid waste. This makes sense in a world where the resources, both human and fiscal, needed to address all these myriad problems are scarce. Accordingly, we see that the critical indicators of wellbeing improve more or less steadily with wealth and technology, and while second order problems initially become worse, then they go through a period of transition before finally improving. For these second order problems, wealth and technology make matters worse before the transition, but after the transition, wealth and technology help solve the very problems they may have helped aggravate, if not create.

Answers to: "Developing Countries Will Sacrifice Environment"

1. Differing environmental protections in different countries are not loopholes to exploit the environment. They simply reflect different valuations.

Jagdish Bhagwati, Arthur Lehman Professor of Economics and Professor of Political Science at Columbia University, THE WORLD ECONOMY, "Trade Liberalisation and 'Fair Trade' Demands: Addressing the Environmental Standards and Labour Issues", 1995, p. asp
We should recognise that if we lose competitive advantage because we put a larger negative value on a certain kind of pollution whereas others do not is simply the flip side of the differential valuations. To object to that implication of the differential valuation is to object to the differential valuation itself, and hence to our own larger negative valuation. To see this clearly, think of a closed economy without trade. If we were to tax pollution by an industry in such an economy, its implication would be precisely that this industry would shrink: it would lose competitive advantage vis-a-vis other industries in our own country. To object to that shrinking is to object to the negative valuation being put on the pollution. There is therefore nothing 'unfair' from this perspective, if our industry shrinks because we impose Higher Standards (i.e. pollution taxes) on our industry while others, who value that pollution less, choose Lower Standards (i.e. pollution taxes).

2. There is no real race to the bottom. It is a theoretical construct with no empirical reality.

Jagdish Bhagwati, Arthur Lehman Professor of Economics and Professor of Political Science at Columbia University, THE WORLD ECONOMY, "Trade Liberalisation and 'Fair Trade' Demands: Addressing the Environmental Standards and Labour Issues", 1995, p. asp
But one more worry needs to be laid at rest if the demands for upward harmonisation of standards or eco-dumping duties in lieu thereof are to be effectively dismissed. This is the worry that I noted at the outset: that free trade with countries with Lower Standards will force down one's Higher Standards. The most potent of these worries arises from the fear that 'capital and jobs' will move to countries with Lower Standards, triggering a race to the bottom (or more accurately a race towards the bottom), where countries lower their standards in an inter-jurisdictional contest, below what some or all would like, in order to attract capital and jobs. So, the solution would lie then in coordinating the standards-setting among the nations engaged in freer trade and investment. In turn, this may (but is most unlikely to) require harmonisation among countries to the Higher Standards (though, even then, not necessarily at those in place) or perhaps there might be improvement in welfare from simply setting minimum floors to the standards. This is undoubtedly a theoretically valid argument. The key question for policy, however, is whether the empirical evidence shows, as required by the argument, that: (1) capital is in fact responsive to the differences in environmental standards and (2) different countries/jurisdictions actually play the game then of competitive lowering of standards to attract capital. Without both these phenomena holding in a significant fashion in reality, the 'race to the bottom' would be a theoretical curiosity.

3. There is no empirical evidence to support that globalization creates worse environmental externalities.

Jagdish Bhagwati, Arthur Lehman Professor of Economics and Professor of Political Science at Columbia University, THE WORLD ECONOMY, "Trade Liberalisation and 'Fair Trade' Demands: Addressing the Environmental Standards and Labour Issues", 1995, p. asp
I would conclude that both the 'unfair trade' and the 'race to the bottom' arguments for harmonising CCII standards or else legalising eco-dumping duties at the WTO are therefore lacking in rationale: the former is theoretically illogical and the latter is empirically unsupported. In addition, such WTO-legalisation of eco-dumping will facilitate protectionism without doubt. Anti-dumping processes have become the favoured tool of protectionists today. Is there any doubt that their extension to eco-dumping (and equally to social-dumping), where the 'implied subsidy' through lower standards must be inevitably 'constructed' by national agencies such as the Environmental Protection Agency in the same jurisdiction as the complainant industry, will lead to the same results, even more surely? The 'fixing' of the WTO for environmental issues therefore should not proceed along the lines of legitimating eco-dumping. However, the political salience of such demands remains a major problem. One may well then ask: are there any 'second-best' approaches, short of the eco-dumping and CCII harmonisation proposals, that may address some of the political concerns at least economic cost?

Answers to: "Economic Logic Can't Value the Environment Properly"

1. **Complaints that economics is blind to moral obligations between people are not reflexive enough to realize that it is the environmentalists who paternalistically and violently presume they know what is best for people, especially for some of the world's worse-off.**

   Wilfred Beckerman, Professor at Balliol College, ENVIRONMENTAL VALUES, "How Would you Like your Sustainability', Sir? Weak or Strong? A Reply to my Critics", 1995, p. asp
   Jacobs complains of the need for economists to show more humility. But it is our insistence on the weight that must be given to individual preference that is the hallmark of our humility. It is true that strong - and very debatable - value judgments are concealed in the usual welfare economist's respect for consumer sovereignty. But the concept of 'merit' goods shows that economists do recognise some limitations on the extent to which society is under moral obligation to respect preferences, and the literature of welfare economics is also full of discussions of these and other value judgments. Nevertheless, the economist ' s respect for preferences - even circumscribed - contrasts favourably with the views of hard ecologists and the fans of strong sustainability who display a messianic certainty that they know what is good for people and that they occupy the moral high ground so that detailed logical argument is unnecessary.

2. **Asserting that economics reduces everything to monetary value is absurd- a reasonable person can admit that a plurality of values and enjoyments exist.**

   Wilfred Beckerman, Professor at Balliol College, ENVIRONMENTAL VALUES, "How Would you Like your Sustainability', Sir? Weak or Strong? A Reply to my Critics", 1995, p. asp
   I am not quite sure what Jacobs has in mind here, and I am reluctant to trust Jacobs as an authority on 'orthodox economic thinking'. But I do think that he has touched - perhaps unintentionally - on an interesting problem concerning the nature of welfare economics. I think I am right in saying that orthodox economics does not claim that all goods and services provide the same sort of satisfactions. I do not believe that any economist in his senses would claim that one obtains exactly the same sort of satisfaction out of eating food, listening to music, enjoying the company of friends or family, admiring the scenery, reading books, or any other of the thousands of activities that people enjoy and which they will hence pursue for prudential motives. In fact, there is an important school of demand theory, stemming from pioneer work by Kevin Lancaster, that analyses goods and services in terms of their different characteristics and types of satisfaction that they provide.

3. **Environmental protections are commensurate with economic logic. Value systems allow for different sets of values to exist, which means that the drive for resources won't overrun the environment.**

   Wilfred Beckerman, Professor at Balliol College, ENVIRONMENTAL VALUES, "How Would you Like your Sustainability', Sir? Weak or Strong? A Reply to my Critics", 1995, p. asp
   Furthermore, the claim that all goods and services provide the same sort of satisfaction is not even necessary for the purposes of conventional economic theory. As long as people can rank the different degrees of satisfaction that they derive from different quantities of different goods and services available to them they will be prepared to exchange them at different rates. As the philosopher James Griffin argues, we can all agree that there is no '...single mental state running through all the things that we rank in terms of which we rank them' but that this '...does not mean that there is no single scale for ranking prudential values' (i.e. those things that make a person's own life valuable to him).

Answers to: "Economic Logic Can't Value the Environment Properly" [cont'd]

4. Economics does not reduce everything in life to use-value. That argument is based on a misreading of theory.

Wilfred Beckerman, Professor at Balliol College, ENVIRONMENTAL VALUES, "How Would you Like your Sustainability', Sir? Weak or Strong? A Reply to my Critics", 1995, p. asp
Nevertheless, it is true that economists have found it convenient to describe a consumer' s preference for one bundle of goods over another as representing the maximisation of a 'utility' function, or to describe a preference by society for one state of nature (defined in terms of a distribution of individuals' utilities) as representing the maximisation of a social 'welfare' function. This terminology has greatly helped the elucidation of many theorems in the analysis of consumer behaviour or in 'welfare' economics, particularly when mathematical analysis has been important or crucial. But that does not imply that 'welfare' is really seen as some homogeneous form of intrinsic end-good to which everything else (e.g. peoples' utilities) is a purely instrumental input. Even when 'utility' is explicitly equated with 'desiredness', as it was for many earlier writers, this did not imply that goods encompassed in welfare economics were desired on account of their being the source of the same kind of satisfaction.

5. Without pricing determined by the market, resources will be extracted in an even more wasteful fashion.

Martin W. Lewis, Assistant professor in the Department of Geography and Regional Science, George Washington University, GREEN DELUSIONS: AN ENVIRONMENTALIST CRITIQUE OF RADICAL ENVIRONMENTALISM, 1992, p. 164-165
The dismal environmental conditions of the communist world stem from the political and economic structures implicit in Marxism and not, as academic Marxist apologists would have it, from either historical contingencies or the structural power of the capitalist world system. As has been widely noted, under a "dictatorship of the proletariat" (which in practice has proved to be a dictatorship to be sure, but hardly one of the working class), independent activist groups seeking environmental protection enjoy a precarious standing at best. During Eastern Europe's long Marxian night, only a few feckless scientific organizations could dare even ask for environmental consideration. More intractable problems derive from Marxist economic philosophy, especially from the belief that labor is the sole source of value. As Rolston (1989:76) writes, "Marxists often argue that natural resources should be unpriced, for in fact resources as such have no economic value." Although Marxian regimes never actually distribute natural resources at no cost, they do consistently undervalue oil, timber, and other such materials. By assigning extremely low prices to natural resources, Marxist economics ensure that they will be wastefully employed, leading inevitably to needless environmental degradation (see, for example, Barr 1988 on Soviet forestry). Finally, as is widely appreciated, any large-scale economic system that dispenses with the market must instead rely on command for fixing the price structure of goods and services. Yet no government command center can ever obtain adequate information to avoid production and distribution bottlenecks. Command economies are thus inherently inefficient, generating economic waste that is invariably linked with environmental degradation.

6. Market mechanisms and promoting free capitalism is the best way to achieve environmental protections.

Stephen Moore, President of the Club for Growth, THE WASHINGTON TIMES, "Surer Way to Sustain the Planet," 8.30.2002, p. lexis.
What has been the driving force behind this miraculous progress. Three words: free market capitalism. If only the intellectual elite and the power-holders around the world in South Africa this week would go home and deregulate their economies, cut tax rates, expand democracy, and cut government rules and bureaucracies, we could blaze a path to alleviating world poverty in a generation or two. If only markets, not governments, controlled the price and usage of natural resources, we would see a further abundance of food, minerals and energy - enough for the entire world to share in the bounty. The U.N. Earth Summit is based on a cancerous and discredited creed of limits to growth. It is insane to hope that people who believe in limits to growth will create the conditions that nurture growth. Even the term "sustainable development" is offensive and suggests that economic development and improving the environment are somehow incompatible - which is precisely the opposite of the historical record. Where there is economic development and capitalism, there is clean air and clean water and well-educated citizens and abundant resources and low disease rates. Where there is no capitalism, there is an abundance of these maladies.

Answers to: "Future Generations Must Be Protected"

1. Even if there are obligations to protect nature for future generations, there is no reason to expect any generation to accept an intolerably high rate of sacrifice in the name of some other generation.

Wilfred Beckerman, Professor at Balliol College, ENVIRONMENTAL VALUES, "How Would you Like your Sustainability', Sir? Weak or Strong? A Reply to my Critics", 1995, p. asp
Daly criticises the discounting procedure on the grounds that the discount rate used is a price like any other price and, like any other price, its relative level is determined by, inter alia, the distribution of resources among people. Since future generations are not represented in the market in which the discount rate is fixed, we cannot assume that it is the one that would fairly reflect what their particular preferences would be. That is true. But nor do we have any reason to believe that they would prefer a higher or lower discount rate or that we should make different assumptions concerning the future relative price of environmental services. I am not at all sure that I believe that my grandparents or parents should have made even greater sacrifices of their consumption levels in order to bequeath more to their descendents, which is what a lower discount rate would have implied. What discount rate should be used for social investments is, of course, a difficult question that has been much studied in the economics literature.

2. There is no way to be perfectly fair to future generations. The inability to account for those who are not yet present makes a just calculation impossible.

Wilfred Beckerman, Professor at Balliol College, ENVIRONMENTAL VALUES, "How Would you Like your Sustainability', Sir? Weak or Strong? A Reply to my Critics", 1995, p. asp
What discount rate 'fairly' represents the interests of future generations depends partly on what one means by being 'fair' to future generations. This is an issue to which philosophers have only recently given much attention. The well-known Rawlsian theory of justice does not, in fact, provide any consistent and clear guidance on this matter, contrary to the claims often made by some environmentalists. Indeed, Rawls himself denies that he can present any clear solution to the problem. At the same time, as Brian Barry argues, it is in his treatment of inter-generational justice that Rawls is closest to his main insight, namely of justice as 'fairness' , and this does, perhaps, provide one way of getting to grips with the problem of discounting.

3. Fairness is a dead-end when it comes to future generations. Human behavior will inevitably prioritize the present generation's needs.

Wilfred Beckerman, Professor at Balliol College, ENVIRONMENTAL VALUES, "How Would you Like your Sustainability', Sir? Weak or Strong? A Reply to my Critics", 1995, p. asp
For one simple refutation of the claim that discounting is 'unfair' to future generations, is, I think, one that I have presented elsewhere. This is to suppose that a sudden leap in medical science meant that we all expected to live for at least another two hundred years. We would still be well advised to use the discount rate to ration scarce investment resources, since this is the way we would maximise the flow of goods and services that we would expect to enjoy over our lifetimes. In fact, of course, we shall not live for two hundred years and it will be different people who will experience the consequence of our discounting procedure. But they cannot complain that we have been 'unfair' to them since we would have experienced the same consequences if it had been us that had been alive in two hundred years' time, instead of them. We are treating them in exactly the same way as we would have treated ourselves had we expected to be in their place in two hundred years' time. This surely satisfies Kantian tests of impartiality and hence of Rawlsian fairness. In the event that the discounting practice was not in their interests it would not have been in our interests either. So we cannot be treating them 'unfairly' for selfish motives.

4. Resource extraction does not negatively impact future generations.

Jerry Taylor, Fellow at the Cato Institute, POLICY ANALYSIS, "Sustainable Development: A Dubious Solution in Search of a Problem," 8.26.2002, accessed 12.5.2013: www.cato.org/pubs/pas/pa449.pdf
The third and final problem with strong sustainability is the implicit suggestion that today's natural resource base (and the health thereof) will necessarily be of significant interest to future generations. On the contrary, conserving today's natural resource base does not ensure that tomorrow's natural resource base is secure. Likewise, drawing down today's natural resource base does not necessarily mean that tomorrow's natural resource base will be put in jeopardy. Resources are simply those assets that can be used profitably for human benefit.

Answers to: "Future Generations Must Be Protected" [cont'd]

5. Demands for intergenerational equality are impossible and have no sound philosophical basis.

Jerry Taylor, Fellow at the Cato Institute, POLICY ANALYSIS, "Sustainable Development: A Dubious Solution in Search of a Problem," 8.26.2002, accessed 12.5.2013: www.cato.org/pubs/pas/pa449.pdf
Yet the concept of tangible rights to resources for those not even conceived is dubious to say the least. First, it is philosophically inconsistent. Those disincorporated beings not yet even a glimmer in someone's eye are said to have rights to oil, tin, copper, trees, or whatever but not, apparently, to life itself (unless, of course, Western societies decide to outlaw abortion). Moreover, once individuals are conceived, we do not maintain that they have a right to all the resources of the parent. If, for example, a retired couple spends $50,000 on a trip around the world, we do not argue that the couple has violated the resource rights of their children. If intergenerational equity is to be taken seriously, then the claims one generation has on another should not be affected by the distance in time between the two. The concept of intergenerational equity, moreover, is hopelessly inconsistent. If the choice to draw down resources is held exclusively by future generations, then are we not some previous generation's "future" generation? Why is the present generation bereft of that right? If the answer is that no generation has the right to deplete resources as long as another generation is on the horizon, then the logical implication of the argument is that no generation (save for the very last generation before the extinction of the species) will ever have a right to deplete any resource, no matter how urgent the needs of the present may be. If only one generation (out of hundreds or even thousands) has the right to deplete resources, how is that intergenerational equity?

6. The only way the next generation will be better off than the present one is if we continue economic development and resource growth.

Jerry Taylor, Fellow at the Cato Institute, POLICY ANALYSIS, "Sustainable Development: A Dubious Solution in Search of a Problem," 8.26.2002, accessed 12.5.2013: www.cato.org/pubs/pas/pa449.pdf
Compounding that problem is the fact that future generations will almost certainly be far, far better off economically than present generations. If we were serious about equality between generations, then, we might take economist Steven Landsburg's advice and "allow the unemployed lumberjacks of Oregon to confiscate your rich grandchildren's view of the giant redwoods." The math is actually quite simple. If U.S. per capita income manages to grow in real terms by 2 percent a year (a conservative assumption), then in 400 years, the average American family of four will enjoy an income of $2 million a day in 1997 dollars (roughly, Microsoft CEO Bill Gates's current income). If per capita income grew a bit faster—say, at the rate reported by South Korea over the past couple of decades—it would take only 100 years for an average family of four to earn $2 million daily. "So each time the Sierra Club impedes economic development to preserve some specimen of natural beauty," writes Landsburg, "it is asking people who live like you and me (the relatively poor) to sacrifice for the enjoyment of future generations that will live like Bill Gates." Furthermore, the notion of resource rights for future generations is premised on the argument that one has a right to forcibly take property from someone else in order to satisfy a personal need. Although that is an argument best left unexplored here, suffice it to say that such a claim is expansive and fraught with moral peril.

7. Even if there is an obligation to other generations, market mechanisms are the best way to achieve that, not environmental protections that distort signals.

Jerry Taylor, Fellow at the Cato Institute, POLICY ANALYSIS, "Sustainable Development: A Dubious Solution in Search of a Problem," 8.26.2002, accessed 12.5.2013: www.cato.org/pubs/pas/pa449.pdf
Finally, the belief that the interests of future generations are more likely to be protected by political than by market agents is dubious. Indeed, any clear-eyed survey of government versus market decisionmaking finds that market agents are far more likely to invest for the future than governmental agents. As noted by economists Peter Hartley from Rice University and Andrew Chisolm and Michael Porter of the Tasman Institute: Future generations do not take part in elections, but they are represented in the capital market. While many voters are concerned about future generations, democratically elected governments have a tendency to reflect the wishes of the marginal voter in the currently marginal electorate, so it is unreasonable to expect governments to be more conservation- minded than such a voter. Markets, on the other hand, can reflect more extreme views on the future value of a resource. Since the value of an asset hinges on expectations of what others may pay for access in the future, speculators become the representatives of future generations in today's markets. Since advocates of sustainable development rely upon governmental action to ensure the success of their agenda, it is unlikely—no matter how well-intentioned their efforts or successful their political campaigns—that their goals will be realized through state intervention in the economy.

Answers to: "Global Biodiversity Declining Because of Growth"

1. Overall environmental health around the globe is improving because of technological gains.

Ronald Bailey, science correspondent at Reason magazine, REASON, "Earth Day, Then and Now." May 2000, p. asp.
Three decades later, of course, the world hasn't come to an end; if anything, the planet's ecological future has never looked so promising. With half a billion people suiting up around the globe for Earth Day 2000, now is a good time to look back on the predictions made at the first Earth Day and see how they've held up and what we can learn from them. The short answer: The prophets of doom were not simply wrong, but spectacularly wrong. More important, many contemporary environmental alarmists are similarly mistaken when they continue to insist that the Earth's future remains an eco-tragedy that has already entered its final act. Such doomsters not only fail to appreciate the huge environmental gains made over the past 30 years, they ignore the simple fact that increased wealth, population, and technological innovation don't degrade and destroy the environment. Rather, such developments preserve and enrich the environment. If it is impossible to predict fully the future, it is nonetheless possible to learn from the past. And the best lesson we can learn from revisiting the discourse surrounding the very first Earth Day is that passionate concern, however sincere, is no substitute for rational analysis.

2. Wealth effects are responsible for generating social demands for the protection of individual species.

Ronald Bailey, science correspondent at Reason magazine, REASON, "Earth Day, Then and Now." May 2000, p. asp.
What mostly accounts for relatively low rates of extinction? As with many other green indicators, wealth leads the way by both creating a market for environmental values and delivering resource-efficient technology. Consider, for example, that one of the main causes of extinction is deforestation and the ensuing loss of habitat. According to the Consultative Group on International Agricultural Research, what drives most tropical deforestation is not commercial logging, but "poor farmers who have no other option for feeding their families than slashing and burning a patch of forest." By contrast, countries that practice high yield, chemically assisted agriculture have expanding forests. In 1920, U.S. forests covered 732 million acres. Today they cover 737 million acres, even though the number of Americans grew from 106 million in 1920 to 272 million now. Forests in Europe expanded even more dramatically, from 361 million acres to 482 million acres between 1950 and 1990. Despite continuing deforestation in tropical countries, Roger Sedjo, a senior fellow at the think tank Resources for the Future, notes that "76 percent of the tropical rain forest zone is still covered with forest." Which is quite a far cry from being nine-tenths gone. More good news: In its State of the World's Forests 1999, the U.N.'s Food and Agriculture Organization documents that while forests in developing countries were reduced by 9.1 percent between 1980 and 1995, the global rate of deforestation is now slowing. "The developed countries in the temperate regions appear to have largely completed forestland conversion to agriculture and have achieved relative land use stability. By contrast, the developing countries in the tropics are still in a land conversion mode. This suggests that land conversion stability correlates strongly with successful economic development," concludes Sedjo, in his chapter on forestry in The True State of the Planet, a collection of essays I edited. In other words, if you want to save forests and wildlife, you had better help poor people become wealthy.

3. Species loss is nothing new for earth. Changes in biodiversity levels are part of life.

Jerry Taylor, Fellow at the Cato Institute, POLICY ANALYSIS, "Sustainable Development: A Dubious Solution in Search of a Problem," 8.26.2002, accessed 12.5.2013: www.cato.org/pubs/pas/pa449.pdf
One of the oft-heard alarm bells rung by conservationists is the assertion that the world is in the midst of a biodiversity crisis. Mass extinctions, it is charged, are decimating flora and fauna populations with dangerous implications for ecosystem health throughout the world. It's worth bearing in mind, however, that even if we accept the alarms about current extinction rates, the number of species living on the planet today is far, far greater than at any other period in earth's history, and even the most dramatic projections of species lost will not bring species diversity below the earth's historic norm.

Answers to: "Global Biodiversity Declining Because of Growth" [cont'd]

4. There is inherent variability in any given ecosystem. There is no way to 'protect' the environment.

Jerry Taylor, Fellow at the Cato Institute, POLICY ANALYSIS, "Sustainable Development: A Dubious Solution in Search of a Problem," 8.26.2002, accessed 12.5.2013: www.cato.org/pubs/pas/pa449.pdf
In addition, there is growing doubt within the ecological community whether ecosystems are naturally stable at all. This has important implications. For instance, if ecosystems do not tend toward stabilization, then policies that are intended to promote species preservation through sustainable ecosystems are unnatural and without ecological merit. Furthermore, if ecosystems are not functionally and structurally complete, then "sustainable management" of those stocks will prove suboptimal. Finally, if ecosystems do not tend toward stability, then calculations about the economic or ecological value of natural capital are impossible on a macro level.

5. Economic growth in developing countries is the only way to remedy present environmental harms.

Jerry Taylor, Fellow at the Cato Institute, POLICY ANALYSIS, "Sustainable Development: A Dubious Solution in Search of a Problem," 8.26.2002, accessed 12.5.2013: www.cato.org/pubs/pas/pa449.pdf
There is also general concern about whether the developing world can sustain "megacities" given the widespread belief that human health and the environment are natural resource casualties of rapid Third World urbanization. Although it's certainly true that governmental interventions in the less-developed countries often indirectly foster the growth of megacities at the expense of the agricultural economy and the efficiency of the economy as a whole, megacities are, as a general matter, an important component of economic growth, particularly in the less-developed world. Their emergence is a sign not of demographic disaster but of economic development. Urban growth is so important to the developing world that scholars believe restricting urbanization to combat pollution will do more economic harm than good. Moreover, there is good reason to believe that restricting city size would actually increase overall national pollution rates by fostering resource-costly inefficiencies and increasing overall transportation costs and attendant fuel-based emissions.

Answers to: "Globalization Distorts Development"

1. Abuses and dangers of globalization are because of distortions by the powerful countries, not the system itself.

Jagdish Bhagwati, Arthur Lehman Professor of Economics and Professor of Political Science at Columbia University, CARNEGIE COUNCIL, "In Defense of Globalization," October 28, 2004, p. lexis
It's only our Administration right now which wants to because it is ideologically linked to capital flows and they have been trying to get it in through bilateral trade agreements with Singapore and with Chile, by saying that you can't use capital controls. Our current game plan is to shove in all ideological issues, lobbing concerns into these little bilaterals, then establish templates, and then break up the coalition of the developing countries of the WTO. You have to put politics into the economics. But on capital flows it would be very hard to find a decent economist today who doesn't share the concerns. It just happened as a normal swing of the pendulum, because you had so much intervention everywhere in the past. The trouble with developing countries is that Adam Smith's "invisible hand" is nowhere to be seen. So naturally you are trying to move to the other side, and you had to hold yourself at the center, not go over to libertarianism as a recoil.

2. There is no evidence that economic development hurts the working class around the globe- developing countries need more resources to make improvements.

Jagdish Bhagwati, Arthur Lehman Professor of Economics and Professor of Political Science at Columbia University, CARNEGIE COUNCIL, "In Defense of Globalization," October 28, 2004, p. lexis
But going back to the question you were raising earlier, there is a tendency to say "winners and losers," to the point where we wind up believing that there have to be lots of losers. What the book does show is that no, there aren't all that many losers. But for the small groups which are hurt, here is an institutional way of helping, which we have been doing in this country since 1962, when President Kennedy instituted an adjustment assistance program with George Meany of the AFL-CIO to get the Kennedy Round Negotiations going. One of the things I frequently agitated about is that the poor countries which are trying to liberalize to share in the prosperity don't have these adjustment assistance programs. We have to be imaginative in addressing this issue, not just stay put with the kinds of solutions from President Kennedy's era. But when you ask, "Will there be losers in the working class?" I argue that there is very little evidence that the working class has been hurt.

3. Trade and globalization do not promote resource extraction. They incentivize ways to sustain development in the long run.

Jagdish Bhagwati, Arthur Lehman Professor of Economics and Professor of Political Science at Columbia University, CARNEGIE COUNCIL, "In Defense of Globalization," October 28, 2004, p. lexis
You are absolutely right. But again, I ask, is that really globalization? I call them socially undesirable results. China's developing is simply based on everybody having cars, and they think that's part of development. The whole problem is one of changing valuations of the environment. We have been making progress and that's where the role of the environmental NGOs is most important. Also, on the Africa problem, where I am on the advisory committee for the Secretary General, there is a huge need for skilled manpower to handle AIDS and malaria—they will need doctors and nurses—and to be able to get into our markets on agriculture, which is where pesticides are involved. We have to worry about pesticides, but at the same time it does make it difficult for poor countries to export to us. If they don't have scientists handling these sanitary issues, they will not be able to get into our markets. Nothing would have happened on the environment unless the NGOs were there busily pushing for a different tradeoff between income and environment. But I totally agree with you that we have to deal with the environment. And globalization must follow from that, because if you value things differently, you won't trade on them either. You won't be just cutting down your forests that way; you will be worried more about keeping them. So policies will follow suit, and trade is only following what you do by way of production and consumption.

Answers to: "Globalization Distorts Development" [cont'd]

4. Claims that growth displaces pollution to the developing world are false. It proves that we need to emphasize internal development and growth more.

Frank B. Cross, Professor of Business Law at University of Texas at Austin, CASE WESTERN RESERVE UNIVERSITY LAW REVIEW, "The Naïve Environmentalist," Winter 2002, p. lexis
Some argue that the Kuznets curve may be attributable not to pollution control, but to displacement. Richer countries, they argue, simply exported their polluting industries to poorer nations. There may be some truth here, but it does not respond to the theory that economic growth restrains pollution increases, it simply demonstrates the need for greater development and growth in the nations that are now relatively poor. As those countries develop, they will demand better environmental quality and force the cleanup of their own industries.

Answers to: "Growth Can't Be Sustained"

1. Nothing in life is infinitely substitutable. That isn't a reason why we should forego some enjoyment of natural resources in the short-term just because future generations will also need to find a way to utilize them as well.

Wilfred Beckerman, Professor at Balliol College, ENVIRONMENTAL VALUES, "How Would you Like your Sustainability', Sir? Weak or Strong? A Reply to my Critics", 1995, p. asp
In my article I argued that the discount rate should be used to select between alternative investments, environmental or otherwise, in the interests of maximising the economic 'welfare' of society over whatever time period (and hence number of generations) was considered relevant. I maintained that this was the means by which the interests of future generations would be protected and that the claims of 'sustainability' did not detract from this proposition. Daly and Jacobs criticise this argument for totally different reasons. Jacobs falls back, once again, on the alleged uniqueness of the environment as compared with other sources of welfare. But the logic of his argument is difficult to follow. He claims that discounting is no good because 'natural and human-made capital are not infinitely substitutable'. Well, so what? Nobody suggested that they were. Hardly any ordinary goods and services are infinitely substitutable for each other either, but this does not prevent people trading them off against each other, or calculating how much it is worth investing in one rather than the other. Even John Rawls, who shares - like most economists - the widespread condemnation of 'pure' time preference, agrees that the interest rate should be used to ration limited funds for investment.

2. Capitalism is not about to collapse. Claims that it is fundamentally unsustainable are false.

Martin W. Lewis, Assistant professor in the Department of Geography and Regional Science, George Washington University, GREEN DELUSIONS: AN ENVIRONMENTALIST CRITIQUE OF RADICAL ENVIRONMENTALISM, 1992, p. 167-168
Several fundamental errors, however, tarnish the crisis and decay thesis. Most importantly, radicals of all stripes consistently overestimate the signs of doom. To appreciate this we can play two schools of extremism against each other and in so doing arrive at a reasonable middle ground. The anti-environmentalist ideologue Ben Wattenburg (1984), on the one hand, argues that all measures of social well-being actually show signs of vast and continual improvement; we are misled by the apocalyptic prophets, he claims, because we see the past through rose-colored glasses. The eco-Marxist James O'Connor (1987), on the other hand, sees only decay wherever he looks. Neither view is particularly instructive, and both would prove paralyzing if taken at face value. We should listen to both Pollyana and Cassandra, but we would be foolish to accept either as offering accurate assessments or clear prophesies. In a backhanded and unintended manner, the thesis of inevitable capitalist decay is actually belied in the writings of many contemporary Marxists. Such scholars consistently and rightfully point to the damages caused by the Reagan and Bush administrations' social policies. James O'Connor, for example, argues that Reaganomics required us to sacrifice our "dreams of an equitable and just society" (1987:39). This sentiment implies, however, that the recently demolished social programs previously enacted by the Democratic Party were bringing justice and equity to capitalistic American society. Yet if Marxism tells us anything it is that justice and equity are absolutely impossible under capitalism. Here we encounter a great intellectual game of "cake eating and having." When social progress is made within a capitalist society it is ignored or dismissed as chimerical; when social regression occurs it is highlighted as very real indeed-even if it entails nothing but the dismantling of programs previously denied as unreal. Such sophistry does indeed allow one to argue that capitalist society will only ratchet ever downward into more brutal forms of injustice and exploitation.

Answers to: "Growth Can't Be Sustained" [cont'd]

3. Sufficient economic growth allows for society to entirely decouple from the environment, overcoming limits.

Martin W. Lewis, Assistant professor in the Department of Geography and Regional Science, George Washington University, GREEN DELUSIONS: AN ENVIRONMENTALIST CRITIQUE OF RADICAL ENVIRONMENTALISM, 1992, p. 18-19
In marked contrast, the decoupling perspective endorsed here seeks to separate human activities from nature both in order to protect nature from humanity (for nature's sake) and to allow continued technological progress (for humanity's sake). This entails acknowledging a profound division between humankind and the rest of nature, a distinction that many greens allege is itself at the root of the ecological crisis. Yet the radical environmentalists who condemn this example of dualistic thinking merely substitute for it their own parallel gulf, one separating modern (or technologically oriented) human beings from nature. This in turn entails positing a radical discontinuity in human development, a dualism of human nature separating moderns from primals (or primitives). As I shall argue at length in this work's conclusion, such a division of humankind is, in the end, both bigoted and empirically unsupportable. We would be better off admitting that while humankind is indeed of nature, intrinsically creative human nature is a phenomenon not found in nature's other creations. In a Promethean environmental future, humans would accentuate the gulf that sets us apart from the rest of the natural world-precisely in order to preserve and enjoy nature at a somewhat distant remove. Our alternative is to continue to struggle within nature, and in so doing to distort its forms by our inescapably unnatural presence. Finally, where radical greens often emphasize philosophical (or even spiritual) purity, this work stresses pragmatic gains. Since the anarchic utopianism that marks the dominant strains of radical environmentalism stands little chance of gaining public acceptance, much less of creating a feasible alternative economy, an emphasis on the purity of ideals can lead only to the frustration of goals. I would suggest that a pragmatic approach stands a much better chance of accomplishing our shared ends. The prospect of humankind someday coexisting easily with the earth's other inhabitants – a vision entertained by Arcadian and Promethean environmentalists alike – can best be achieved through gradual steps that remain on the track of technological progress.

4. Economic growth is the solution to all of its problems, overcoming any environmental harm encountered in the pursuit of resource development.

Michael Zey, Professor of Management at Montclair State University, SEIZING THE FUTURE, 1998, p. 36-37
Once we discover new capacities, both technological and human, we are set off in novel directions, crossing boundaries and exploring frontiers we never thought existed. The Spanish explored the New World in order to extract natural resources such as gold from the Earth and spread Christianity. Many English settlements were established by people simply trying to escape religious intolerance. None could have guessed that their expression of progress circa 1600 would lead to the birth of an independent nation that became the crucible for personal liberation and technological innovation. The fact that progress itself leads to new definitions of human growth also explains the West's faith in progress. Our accomplishments consistently exceed our wildest dreams. Regardless of the stated purpose of a technology, the applications usually exceed such purposes. The automobile became important as a means of redistributing the population from cities to the suburbs; the discovery of the steam engine revolutionized industry and the very concept of abundance. Third, growth itself contains to their economic woes. hence, he concludes that in order to ensure the solutions to the problems it produces. Supporting this principle is the World Bank's 1992 report "Development and the Environment," which blatantly states that growth is a powerful antidote to a number of ills plaguing Third World countries, including the pollution that growth supposedly generates. The report thus contends that eliminating poverty should remain the top goal of world policymakers. Although economic growth can initially lead to such problems as pollution and waste, the resulting prosperity also facilitates the developments of technologies that lead to cleaner air and water. In fact, once a nation's per capita income rises to about $4000 in 1993 dollars, it produces less of some pollutants per capita, mainly due to the fact that it can afford technology like catalytic converters and sewage systems that treat a variety of wastes.

Answers to: "Growth Can't Be Sustained" [cont'd]

5. Economic growth allows for the economy to dematerialize, overcoming resource and environmental limits.

Ronald Bailey, science correspondent for Reason magazine, REASON, "Dematerializing the Economy," 9.5.2001, p. lexis.
Since 1977 the value of the U.S. economy has doubled, yet the amount of physical stuff it took to supply all the needs and wants of Americans fell from 1.18 trillion pounds to 1.08 trillion pounds. Even more astonishing: the "weight" of the economy fell while U.S. population grew by some 55 million people. This is no small matter. Economic growth using less physical resources was not supposed to be possible, according to the infamous 1972 Club of Rome report, The Limits To Growth. That document, still referenced in all sorts of economic and environmentalist debates, saw economic growth as dependent upon ever greater amounts of material resources. The production of those resources, went the argument, would eventually lead to a depleted planet and then a massive population die-off. The report concluded that humanity must accept "a state of global equilibrium" in which there was no economic growth. Kate Kane and her colleagues at the Cap Gemini Ernst and Young Center for Business Innovation, in Cambridge, Massachusetts, weighed the economy by estimating the cost per pound of finished product for 500 different Standard Industrial Classifications (SIC) codes in agriculture, mining, construction, and manufacturing. For a first estimate, Kane divided the annual gross output within each of these SIC categories by her cost-per-pound estimates. Since many industries produce inputs for other industries, this first estimate involves some double counting, which Kane handled by taking the gross weight of output for each SIC code and multiplying it by the proportion of real Gross Domestic Product produced by that industry. Based on these rough calculations, Kane estimates that the value of GDP per pound rose from $3.64 in 1977 to $7.96 in 2000. Kane's work confirms former Vice-President Al Gore's claim made at the 1999 annual meeting of the American Association for the Advancement of Science: "Throughout our economy, skills, intelligence, and creativity are replacing mass and money -- which is why, in the past 50 years, the value of our economy has tripled, while the physical weight of our economy as a whole has barely increased at all." In other words, we got richer not just by using more stuff, but by being smarter about the stuff use.

Answers to: "Growth Mentality Should Be Rejected"

1. Allowing degrowth to occur without changing our overall assumptions or values will cause the experiment to backfire and increase social misery.

Joan Martinez Alier, is deputy-director at the Universitat Autonoma de Barcelona and Professor of Economics and Economic History, DEVELOPMENT AND CHANGE, "Socially Sustainable Economic De-growth," 2009, p. asp
However, de-growth might lead to social problems, and these must be faced for the de-growth proposal to be socially accepted. If labour productivity (e.g. number of cars that a worker produces per year) grows by 2 per cent annually, but the economy is not doing the same, this will lead to increased unemployment. The answer must be twofold. Increases in productivity are not well measured. If there is replacement of human energy by machines, does the price of energy take into account the depletion of resources and negative externalities? We know that it does not. Furthermore, we should separate the right to receive remuneration from the fact of being employed. This separation already exists in many cases (children and young people, pensioners, persons receiving unemployment benefits), but it should be extended further. We have to redefine the meaning of 'job', taking into account unpaid domestic services and the voluntary sector, and we must introduce or expand the coverage of a universal Basic Income or Citizen Income. Another objection is raised. Who will pay the mountain of debts, mortgages and other debt if the economy does not grow? The answer must be that no-one will pay. We cannot force the economy to grow at the rate of compound interest at which debts accumulate. The financial system must have rules different from those which apply today. In the United States and Europe what is new is not, therefore, Keynesianism, or even Green Keynesianism. What is new is a growing social movement for sustainable de-growth. The current crisis opens up opportunities for new institutions and social habits.

2. Failures of non-capitalist economies to achieve environmental protection are so extreme that it cannot be considered an accident.

Martin W. Lewis, Assistant professor in the Department of Geography and Regional Science, George Washington University, GREEN DELUSIONS: AN ENVIRONMENTALIST CRITIQUE OF RADICAL ENVIRONMENTALISM, 1992, p. 163-164
The easiest defense of capitalism is simply to contrast it with existing and recently existing examples of Marxian socialism. As is now abundantly clear, Marxism's record is dismal on almost every score, be it economic, social, or environmental. These failures cannot be dismissed as errant quirks; Marxian regimes have come to power in numerous countries, and everywhere the results have been disheartening. From impoverished African states like Mozambique, Ethiopia, Guinea, Madagascar, and the Congo to highly industrialized, once-prosperous European countries like the former East Germany and Czechoslovakia, all Marxist experiments have ended in disaster. Chapter six will address the failings of Marxism in the Third World; the present discussion is concerned with the formerly communist industrial states of Eastern Europe. For convenience sake, the analysis focuses on conditions that pertained before the democratic revolutions of the late 1980s and early 1990S. Radical greens admit that environmental conditions in Eastern Europe are as bad as those found in the West. But such admissions are far from adequate; by almost every measure, the communist environment is more severely degraded than the capitalist environment. Only with the recent downfall of Marxian regimes has the ecological debacle of the East come to light. As our knowledge increases, the environmental conditions of Eastern Europe are revealed as ever more horrific. And when one considers the poor performances of the economies that have wreaked such destruction, the comparison between capitalism and communism becomes one-sided indeed.

Answers to: "Growth Mentality Should Be Rejected" [cont'd]

3. The environmental record of non-capitalist countries is absolutely abysmal .

Martin W. Lewis, Assistant professor in the Department of Geography and Regional Science, George Washington University, GREEN DELUSIONS: AN ENVIRONMENTALIST CRITIQUE OF RADICAL ENVIRONMENTALISM, 1992, p. 164

Although the general state of environmental devastation in Eastern Europe is now well known, a few specific examples are still in order. It is quite possible that the world's most industrially devastated landscape is that of Poland's Silesia, an area in which the soil is so lead-impregnated as to render farm products virtually poisonous. Nor are conditions much better in other Polish regions. Many Polish rivers are so filthy that their waters cannot even be used for industrial purposes. As Fischo (1991:13) reports, "by U.S. and European standards, the country has virtually no potable water." In Poland's industrial belt, air pollution, especially sulfur dioxide contamination, far exceeds anything found in the West. Many buildings in Cracow are simply melting away in an acid bath. Devastation of similar magnitude may be found in many regions within the former Soviet Union. Latvia, for example, is burdened by many poorly regulated and constantly oozing toxic waste pits, and its Baltic shores are heavily contaminated with bacteria, heavy metals, and even chunks of phosphorus (in 1988 the Soviet army dropped 400 bombs burning 20 tons of phosphorus into the Baltic Sea [Burgelis n.d.:7]). The transformation of the once-rich Aral Sea into a shrunken, almost lifeless sump is now a virtual international emblem of the powers of human destructiveness (Kotlyakov 1991). Everywhere one looks the stories are the same, recounting one ecological disaster after another. Equally telling are comparative figures on energy use. One of the principle reasons for Eastern Europe's environmental catastrophe is its appallingly inefficient use of energy. As The Economist (February 17, 1990) reports: "On average, the six countries of Eastern Europe. . . use more than twice as much energy per dollar of national income as even the more industrialized countries of Western Europe. Poland, with on some counts a GDP smaller than Belgium's, uses nearly three times as much energy; Hungary, whose GDP is supposedly only a fifth of Spain's, uses more than a third as much energy." Here one can appreciate the environmental consequences of an economy that has approached the vaunted steady-state; lacking economic vitality, the East has been forced to retain an antiquated, inefficient, and highly polluting set of industrial plants. Factories have remained in operation that would have been shuttered decades ago in the West.

4. We are not accountable for defending the worst instances of resource extraction- unless a clear alternative to the market can be established, we should stick with the status quo arrangement.

Martin W. Lewis, Assistant professor in the Department of Geography and Regional Science, George Washington University, GREEN DELUSIONS: AN ENVIRONMENTALIST CRITIQUE OF RADICAL ENVIRONMENTALISM, 1992, p. 161-162

The remainder of this chapter largely bypasses the internal debates within the radical left on the nature of capitalism; for such an account one should turn to the writings of Corbridge and other post-Marxists. I do not feel compelled to address these issues in part because to do so would be to engage the debate on Marxian terrain. Here the non-Marxist is on perilous ground indeed, since the arguments have been structured beforehand to ensure the defeat of capitalism. In a tactically brilliant but intellectually indefensible gambit, Marxists have insisted that capitalism be judged by its most egregious practices, whereas Marxism is to be evaluated according to its diverse and never stationary critique of capitalism. In contrast, the stance taken here is that both capitalism and Marxism must be assessed by the same criteria. In particular, we should examine how each system has performed in practice, and we should explore the potentialities of each system for achieving environmental sustainability and social justice. On the former score, capitalism-for all its faults-is clearly preferable. In regard to the latter issue, Marxism begins with an initial advantage deriving from its utopian visions. But until Marxist thinkers begin to devise blueprints of how "true" socialism might be achieved, one is forced to regard those visions as jejune fantasies. Capitalism, on the other hand, has historically demonstrated vast potential for real social and environmental reform, while potentially workable designs for further amelioration have been forwarded by numerous liberal scholars.

Answers to: "Growth Mentality Should Be Rejected" [cont'd]

5. Attempts at engineering economic development outside of the market only translates into appalling working conditions and misery.

Martin W. Lewis, Assistant professor in the Department of Geography and Regional Science, George Washington University, GREEN DELUSIONS: AN ENVIRONMENTALIST CRITIQUE OF RADICAL ENVIRONMENTALISM, 1992, p. 166-167

The social failure of Marxian socialism is probably best illustrated by examining the working and living standards of its own laborers-the supposed beneficiaries of the whole system. Simply put, socialist workers lived in penury when compared to their counterparts in industrial capitalism. Polish steelworkers, for example, could hope to earn roughly the equivalent of $100 a month; if one were to factor in the loss of time entailed in queuing, their remuneration would have to be reduced still further. But such deprivation is utterly mild when contrasted with the lot of Soviet coal miners-men who labored under such appalling conditions that their average longevity was a mere forty-seven years (The Economist, "Dark Satanic Mills," October 13, 1999, p. 56). Indeed, industrial safety standards have been virtually nonexistent through much of the Eastern bloc. -Because of this failing, up to 80 percent of Polish steel workers were disabled and thus forced to retire early. According to Marxist ideology; these Polish and Soviet workers were not exploited-even if their political leaders and party bosses were able to live in aristocratic splendor. ("Exploitation," one will recall, is defined in terms of the surplus extraction that occurs only under a capitalist mode of production.) Such reasoning, evidently, held little appeal for the Polish and Russian proletariat; despite the long years in which it has held absolute political, social, and cultural mastery, Marxism was never able to achieve intellectual hegemony in eastern Europe. What seems inevitable now is the collapse of communism, not capitalism.

Answers to: "Inequalities Prevent Development"

1. Additional growth is the only way to promote social liberalization to overcome existing inequalities.

Gregg Easterbrook, journalist and former fellow at Brookings, NEW YORK TIMES, "The Capitalist Manifesto," 11.27.2005, p. lexis.
Each American, the World Wildlife Federation calculates, demands more than four times as much of the earth as the global average for all men and women, most of this demand being resource consumption. Some think such figures mean American resource consumption must go down; to Friedman's thinking, any reduction would only harm the rest of the world by slowing global growth. What the statistic actually tells you, he would say, is that overall global resource consumption must go up, up, up -- to bring reasonable equality of living standards to the developing world and to encourage the liberalization and increased human rights that accompany economic expansion. If by the middle of the 21st century everyone on earth were to realize the living standard of present-day Portugal (taking into account expected population expansion), Friedman calculates, global economic output must quadruple. That's a lot of growth.

2. Further economic development is the only way to resolve the global food situation.

Ronald Bailey, science correspondent at Reason magazine, REASON, "Earth Day, Then and Now." May 2000, p. asp.
What will Earth look like when Earth Day 60 rolls around in 2030? Here are my predictions: As the International Food Policy Research Institute projects, we will be able to feed the world's additional numbers and to provide them with a better diet. Because they are ultimately political in nature, poverty and malnutrition will not be eliminated, but economic growth will make many people in the developing world much better off. Technological improvements in agriculture will mean less soil erosion, better management of freshwater supplies, and higher productivity crops. Life expectancy in the developing world will likely increase from 65 years to 73 years, and probably more; in the First World, it will rise to more than 80 years. Metals and mineral prices will be even lower than they are today. The rate of deforestation in the developing world will continue to slow down and forest growth in the developed economies will increase.

3. Resource shortages are artificially produced, not a result of finite limits. More growth is the cure.

Ronald Bailey, science correspondent at Reason magazine, REASON, "Earth Day, Then and Now." May 2000, p. asp.
Where did the doomsters go wrong? They assumed that overpopulation drives world hunger. To the extent that such conditions exist in certain places, the real culprit was--and is--poverty. "The images evoked by the term overpopulation--hungry families, squalid, overcrowded living conditions, early death--are real enough in the modern world, but these are properly described as problems of poverty," explains Harvard population researcher Nicholas Eberstadt. "Poverty, like all other possible human attributes, is represented in individual members of a population. It is an elementary lapse in logic to conclude that poverty is a `population problem' simply because it exists."

4. The negative impacts of underdevelopment can only be remedied by further growth.

Bjorn Lomborg, Professor of Statistics at the University of Aarhuus, THE SKEPTICAL ENVIRONMENTALIST, 2001, p. 101.
Nevertheless there is a moral problem in that the growth rate in the world's agricultural production is diminishing while there are still people starving. This, however, is caused not by a fundamental problem of production but rather by the fact that these people do not have the money to demand more food. In the FAQ's words: "It is now well recognized that failure to alleviate poverty is the main reason why undernutrition persists." Therefore, as discussed in the last chapter, the road ahead for the starving in the poorest countries is larger economic growth such that these individuals will also be allowed a decent existence.

Answers to: "Market Logics Inherently Flawed"

1. It is better to seek ways to reform policies within structures of capitalism. More radical value priorities risk massive backlash.

Martin W. Lewis, Assistant professor in the Department of Geography and Regional Science, George Washington University, GREEN DELUSIONS: AN ENVIRONMENTALIST CRITIQUE OF RADICAL ENVIRONMENTALISM, 1992, p. 171-172

In contemplating the likely future of a revolutionary United States, we encounter the ultimate paradox of contemporary Marxism: the unintended collusion of the radical left and the radical right. Even during periods of normality, the opposing ends of the political spectrum feed strongly on each other-in sardonic fashion, they are each other's best allies. The Marxian left is extraordinarily frightening to the vast majority of the populace, and the stronger it becomes, the more seductive the propaganda of the radical right grows. The equation can also be reversed; leftist rhetoric draws its real power in opposition to the radical right, not the accommodating center. With every KKK outrage, with every atrocity committed by the Los Angeles Police Department, the Marxian message grows ever more convincing to horrified progressives. The broad center of responsible conservatives, moderates, and liberals may attempt to remain dispassionate and to refute both extremes, but in a deteriorating political environment, marked by inflamed passions, such a stance will seem to many increasingly inadequate. If, in the event of extraordinary crisis, the center does fold, I must conclude that most Americans would follow the far right rather than the far left. American society has simply been too prosperous, and the majority of its citizens too accustomed to owning property, to be willing to risk everything on a communist experiment. Alexander Cockburn of The Nation has repeatedly pleaded with liberals not be afraid to endorse socialism-a fine position indeed if one would like to see reactionaries gain uncontested power throughout the United States. If truly concerned about social justice and environmental protection, I would counter, liberals should not be afraid first to embrace, and then seek to reform, capitalism. American Marxism is thus intrinsically paradoxical; not only is it self-defeating, but it actually reinforces (in a perverse antidialectic) its own antithesis. And if that antithesis ever gains power, it will not merely retain status quo, but rather pull society fiercely backward, leading it into a truly nightmarish world. But a critique of Marxism, no matter how powerful it may be, will fail to impress the majority of eco-radicals, individuals who have never accepted more than Marx's basic arguments against capitalism. In order to further the cause of Promethean environmentalism it is necessary to show how capitalism can be transformed into an ecologically benign economic system.

2. There is no alternative to development through the market. We cannot transition beyond the confines of a capitalist system.

Martin W. Lewis, Assistant professor in the Department of Geography and Regional Science, George Washington University, GREEN DELUSIONS: AN ENVIRONMENTALIST CRITIQUE OF RADICAL ENVIRONMENTALISM, 1992, p. 171

Marxists, however, would likely counter this argument by citing the several cases of successful socialist revolutions. Successful though they were, none makes a compelling analogue. First, no Marxist revolution has ever come close to occurring in an advanced capitalist nation. Triumphant leftist revolutions have only taken place in economically backward countries, and generally only after an unrelated war had demoralized the old guard. More importantly, as Hamerow (1990) clearly shows, 11 successful Marxian revolutions have relied on the strategic cooperation of the bourgeoisie against the aristocracy; only after the old regime is toppled are the fractionated moderates cut out of power. Considering the fate that has generally befallen them under such circumstances, it is unlikely that the business classes-even in the world's more feudal countries-would again be tempted by the promises of a mixed economy offered to them by would-be leftist revolutionaries. Except perhaps in El Salvador and Peru, contemporary Marxist revolutionary movements are irritants to the ruling elites rather than real threats.

Answers to: "Market Logics Inherently Flawed" [cont'd]

3. Attempts at social engineering outside of market structures will abjectly fail just like Marxism.

Martin W. Lewis, Assistant professor in the Department of Geography and Regional Science, George Washington University, GREEN DELUSIONS: AN ENVIRONMENTALIST CRITIQUE OF RADICAL ENVIRONMENTALISM, 1992, p. 166

Still, Marxist apologists will continue to inform us that communist leaders just made a few critical errors, and that if we were once again to begin building communism, this time we could get it right. This position might be reasonable had the world known only a single Marxist state, but the sad fact is that the experiment has been just as disastrous on every occasion and in every social environment in which it has been attempted. Scholars seeking real material and structural explanations in history would be forced to admit that Marxism's political failure has been rather more unavoidable than accidental.

Answers to: "Resource Extraction Doesn't Result in Development"

1. Empirical evidence shows that intensive efforts at development and growth translate into better environmental conditions and lower poverty.

Jagdish Bhagwati and T.N. Srinivasan, Arthur Lehman Professor of Economics and Professor of Political Science at Columbia University, and Professor of Economics at Yale, AMERICAN ECONOMIC REVIEW, "Trade and Poverty in the Poor Countries", May 2002, p. asp

While freer trade, or "openness" in trade, is now widely regarded as economically benign, in the sense that it increases the size of the pie,' the recent anti-globalization critics have suggested that it is socially malign on several dimensions, among them the question of poverty. Their contention is that trade accentuates, not ameliorates, and that it deepens, not diminishes, poverty in both the rich and the poor countries. The theoretical and empirical analysis of the impact of freer trade on poverty in the rich and in the poor countries is not symmetric, of course. We focus here only on the latter. In doing so, we distinguish between two different strands of argumentation: static and dynamic. I. Static Arguments The central effect on poverty is assumed to come from the effects on real wages of the unskilled workers, endowed with labor but no human or financial capital. The natural presumption following the Stolper-Samuelson argumentation, would be that, if anything, freer trade should help in the reduction of poverty in the poor countries which use their comparative advantage to export labor-intensive goods. This, in fact, is the central message of Anne Krueger's (1983) findings from a multi-country project on the subject of the effects of trade on wages and employment in developing countries. Another approach also suggests that trade is beneficial for poverty reduction in the developing countries. Much empirical evidence suggests that inflation hurts the poor in these countries. It is equally clear that, if a country wishes to maintain an export-promoting as distinct from an import-substituting, strategy (so that it is generally speaking opting for freer trade), then it will have to maintain macroeconomic stability. Thus, such macroeconomic stability must be regarded as endogenous to the policy choice in favor of freer trade. Therefore, commitment to an outward-oriented trade policy indirectly assists the poor since they are vulnerable to inflation. II. Dynamic Arguments The more direct and salient analysis of the problem, however, has been in the growth context. Here, the central argument has proceeded in two steps: trade promotes growth; and growth reduces poverty. In regard to the former, there are ample precedents for this hypothesis. Thus, Dennis Robertson (1940) long ago characterized trade as an "engine of growth." In regard to the latter, one could go back to Adam Smith (1776 [1937 p. 81]), who argued that when society is "advancing to the further acquisition ... the condition of the labouring poor, of the great body of the people, seems to be the happiest." In modern times, the favorable link between growth and poverty has been the underpinning of the Indian planning efforts that began as far back as the mid-1950's. As one can readily imagine, it is easy to write down models which refute each of the foregoing two hypotheses; and in fact there is no dearth of such models. The real question then, as always but even more tellingly here, is which models get at the reality. Here, we would argue that the empirical evidence is more persuasively in support of the two propositions we have just stated. We therefore consider first the theoretical arguments and then the empirical evidence.

2. Data that shows trade and growth don't help eliminate poverty are distorted and fictitious.

Jagdish Bhagwati and T.N. Srinivasan, Arthur Lehman Professor of Economics and Professor of Political Science at Columbia University, and Professor of Economics at Yale, AMERICAN ECONOMIC REVIEW, "Trade and Poverty in the Poor Countries", May 2002, p. asp

Regarding trade and growth, the best evidence is to be found in the detailed country studies pioneered by the OECD project directed by Ian Little et al. (1970) and the National Bureau of Economic Research (NBER) project directed by Bhagwati and Krueger. The recent reliance on cross-country regressions, by contrast, produces mixed evidence in both directions: for example, Jeffrey D. Sachs and Andrew Warner (1995) and Jeffrey Frankel and David Romer (1999) are on the positive side, and Anne Harrison (1996) and Francisco Rodriguez and Rodrik (1999) are skeptical, the latter even leaning to being opposed. However, as we have argued in Srinivasan and Bhagwati (2001), in riposte to the criticisms from Rodrik, the cross-country regressions are a poor way to approach this question. The choice of period, of the sample, and of proxies, will often imply many effective degrees of freedom where one might almost get what one wants if one tries hard enough!

Answers to: "Resource Extraction Doesn't Result in Development" [cont'd]

3. Countries cannot develop their internal societies in autarkic isolation- trade is necessary to allow for positive development and the reduction of human misery- China and India prove.

Jagdish Bhagwati and T.N. Srinivasan, Arthur Lehman Professor of Economics and Professor of Political Science at Columbia University, and Professor of Economics at Yale, AMERICAN ECONOMIC REVIEW, "Trade and Poverty in the Poor Countries", May 2002, p. asp

Nonetheless, it is interesting that practically no country that has been close to autarkic as managed to sustain a high growth performance over a sustained period. Furthermore the work of David Dollar and Aart Kraay (200 2) notes that, if one classifies countries into globalizers and nonglobalizers by reference to their relative performance in raising the trade share in GNP during 1977-1997, the former group has shown higher growth rates. Failure, like success, has many fathers, and no one cause will ever explain big outcomes like growth. Nonetheless, the many reasons why autarky would put a country behind make these empirical observations quite salient. The evidence on growth and poverty is best approached through focus on the two countries: China and India. The vast majority of the world' s poor live in the rural areas of these two countries. Both countries achieved significant reductions in poverty during 1980-2000 when they grew rapidly. According to World Bank (2000 table 4-2) estimates, real GDP grew at an annual average rate of 10 percent in China and 6 percent in India during these two decades. No country in the world had as rapid growth as China, and fewer than ten countries exceeded the Indian growth rate. The effect on reduction in poverty in both countries was dramatic, entirely in keeping with the "Bhagwati hypothesis" of the early 1960's that growth is a principal driver of poverty reduction. Thus, according to the Asian Development Bank (2000 table 3-1) estimates, the incidence of poverty in China, by standard measures, declined from 28 percent in 1978 to 9 percent in 1998. By the Government of India's (2000 table 5) estimates, poverty incidence fell from 51 percent in 1977- 1978 to 27 percent in 1999-2000. It is also relevant that these were also the decades in which both China and India increased their integration in to the world economy. In fact, in the previous three decades (1950-1980) India's autarkic policies alongside other damaging policies (such as extreme interventionism and controls and proliferation of an inefficient public sector in economic activity well beyond utilities) were associated with an annual growth rate of only 3.5 percent, with the natural consequence that the incidence of poverty fluctuated around 5 percent with no declining trend. Obviously, the experience of the two giant economies of China and India in achieving faster growth and reduction in poverty through greater integration into the world economy, treating such integration as an opportunity rather than as a threat, is salutory. According to Dollar (2001), other economies such as Vietnam and Uganda have had similar experiences. Indeed, Dollar (2001 p. 17) argues that the only developing countries that have registered significant declines in poverty are those that also have integrated faster into the world economy on the dimensions of trade and direct investment. The opponents of trade who allege that it accentuates or bypasses poverty are therefore not credible.

Answers to: "Resource Extraction Doesn't Result in Development" [cont'd]

4. Predictions that globalization only facilitates a race to the bottom or that it increases misery are false-people don't respond to economic changes in that way.

Jagdish Bhagwati, Arthur Lehman Professor of Economics and Professor of Political Science at Columbia University, CARNEGIE COUNCIL, "In Defense of Globalization," October 28, 2004, p. lexis
At that time, I also happened to be advisor to the UN on globalization. Whatever problem they were debating, I would always hear them say "in a globalized economy" or "because of globalization." There was no logic. They asserted each time that globalization was going on and here were all these horrible things, even at the beginning of the 21st century, that somehow one was the cause of the other. I started with two hypotheses, one of which was the terminology that "globalization needs a human face." These are people who are worried that on balance economic globalization has an adverse impact and they get a marginal impact on these issues. The conclusion I reached was that globalization had a human face, meaning that on balance it advanced rather than set us back on the agenda. The intervention you come up with then changes dramatically depending on which viewpoint you take. There are one or two issues on which I would depart from my own conclusion. Suppose you claim that improving export performance will expand child labor because parents will say, "I'll take one more child out of school and put her to work because I am getting more income as a result of being able to export." So the income effect of additional export earnings as the result of globalization would be to have a wicked parent say, "I'm going to maximize the family income," and therefore that it will hurt your drive to reduce child labor. In that case, you are faced with what economists call a tradeoff problem, because you value additional income for the peasants who will be earning these additional incomes; at the same time, socially you also value education for children rather than working. In the jargon, we would say that we must have a social welfare function for society, a tradeoff between child labor and income. Supposing that you say, "It reduces child labor because parents are not wicked." A virtuous parent will take children, now that they are better off, away from work and put them into schools. There is a huge amount of evidence in several countries which show that parents do not act in the wicked fashion we might expect. What is the policy implication? Certainly you don't want to stop globalization; you want to promote it.