GREEN NET NATIONAL PRODUCT:
AN OVERVIEW OF THE CAPITAL BASIS OF SUSTAINABLE DEVELOPMENT

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Introduction:

Few concepts have attracked so much political power and academic attention as that of "sustainable development", that it has become the catchphrase of the 1990's. The concept has been popularly developed by the World Commission on Environment and Development (WCED) since the publication of "Our Common Future" in 1987. In the years following the Rio Earth Summit in 1992 much has been achieved not only interms of raising awareness of environmental concerns, but also in instituting specific policies that cover the links between economic development and the environment. Sustainable development now has become a high profile objective in dozens of national environmental policy statements.

So what is sustainable development? The term "sustainable" is not open to much dispute, it means ending and lasting. Hence sustainable development is development that lasts (Pearce:2002). However development is a value word that may invite many interpretations. Prior to 1980's it was narrowly defined in terms of real GNP per capita and the main emphasis in development policies were securing "growth based on industrialization". After the paradigm crisis of growth oriented development strategies new and wider conceptions of development emerged. The contemporary definition of development is broadened into a pluralist concept that encompasses social equity, environmental concerns and quality of life including human freedom. Given the contemporary definition of development, sustainable development aims for economic development in the traditional sense of rising per capita well being, coupled with reductions in poverty and inequity, together with requirement that the resource base of nations and the global economy should not be depleted. In other words, the increase in well being must not be at the expence of the well being of next generations (Atkinson et al:1997).

In the words of WCED;

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> Sustainable development is development that meets the needs of the present without comprising the ability of future generations to meet their own needs (WCDE:1987, 43).

So the concept of sustainable development includes economic, social and environmental objectives. The tripartiate goals of economic growth, equity and sound environment have infact trade-offs amoung themselves. So some may argue whether sustainable development is itself a sustaiable concept that it may be seeking the impossible and yet others argue that these tripartiate goals are the very challange and may hold out the prospect of a better world. However we have to keep in mind that the very concept of "sustainability" involves securing an optimum balance amoung conflicting objectives, in other words the term sustainability involves the sound "management" of goals which might have trade–offs. Besides the debates on the issue there are prior steps to be taken before any policies can be formulated for sustainable development. Hence if governments want to move from commitment to action it is important to be able to measure the results of such action. A fundamental step is therefore to find indicators to mesure sustainable development and decide whether an economy is on or off a sustainable path of development.

The issue of measurement and the indicators of sustainable development are the focus of this paper; prominent among the indicators linking the macro economy and environment are measures of "green" net national product (gNNP), genuine savings (Sg) and wealth accounts. In this paper we seek to overwiev the work done by The World Bank Environment Department and CSERGE[1] (Centre for Social and Economics Reseach on the Global Environment) and hence seek to develop and understanding of a sustainable path for Turkish economy.

Indicators Linking The Macro Economy and The Environment:

A.Capital Basis : Wealth Accounting

The context of sustainable development is that of "intergenerational equity" as well as "intragenerational equity". In this paper we focus on intergenerational equity leaving the concern with inequality and alleviation of poverty for a further study. Intergenerational part of sustainable development focuses on the concern for securing the ability of next generations to

[1] We have used the analyses realized by K.Hamilton, E.Lutz, A.Kunte, D.Pearce, G.Atkinson and some others.

meet their own "needs". The notion of needs implies various factors ranging from income to basic needs and also social and political ones. However to make progress we defined needs in terms of well being "utility" without thinking to much about what it is that constitutes well being.

So we pose the question, what determines the ability of a given society to meet and /or improve this well being? The simplest answer of this (and the one adopted here) is that this ability to create well being (or productive capacity) is determined by the stock of capital assets available at the time because the available stock of assets empowers economic agents to create well being. Maintaining and enhancing this productive capacity requires the maintenance and sound management of capital portfolio and is the central issues of sustainable development. "Wealth" can be defined in broad terms as the portfolio of assets (capital) owned by a society (Pearce: 2002)

Hence initially we seek the answer to the question " what are the components and contributing factors of national wealth or capital stock of a nation?"

Traditionally the concept of capital related to man made capital (K_M) such as machines, equipment, structures and etc. In more modern approaches the concept of capital also embraces natural capital (K_N); human capital (K_H) and social capital (K_S) (Atkinson:1997, Pearce:2002).

Human capital includes raw labor and the skills and knowledge embodied in humans. The total stock of knowledge grows over time so that K_H would appear to be non-depreciating asset in contrast to man-made or natural assets. But in fact K_H is subject to depreciation, as some knowledge is lost simply because these knowledge becomes out of data and wrong.

Natural capital refers to renewable and nonrenewable resources such as agricultural and pastoral lands, oil, gas, forests and the stock of assimilative capacities in the environment. K_N also involves rivers, the atmosphere, oceans, the ozone layer can also be thought as a capital stock yielding a flow of services to humankind .

Modern economic growth theory also adds a nother type of capital, "social capital" (K_S). Social capital concerns the relationships between individuals, between institutions (including

the government) and between institutions and individuals. According to Putnam (1993) social capital comprises certain features of social organisation- norms of behaviour, networks of interaction between individuals and institutions and most importantly trust between people. It has been found that different societies can have similar factor endowmnets of other forms of capital but that certain societies perform better in development and the missing link is thought to lie in the fact that these societies have less conflict between social groups, more particapatory decision making procedures, greater trust between economic agents. All these factors constitute social capital. Social capital therefore presents a new and challenging dimension of sustainable development and yet in the wealth accounting that follows it is ommitted due to lack of data.

In this paper the wealth estimates are taken as the sum of the following three major components (Kunte et all:1998) ;

- K_N, this is calculated as the sum of the stock value of the following renewable and non renewable resources-agricultural land, pasture land, timber, nontimber, forest benefits, protected areas, oil, coal, natural gas, metals, and minerals.
- K_M, this is the sum of the value of a country's stock of machinery and equipment, structures and urban land.
- K_H, this is calculated as a residual by estimating the percentage of gross national product that can be considered "return to labor" in agricultural sectors, taking the present value of this stream over the mean productive years of the population.

The wealth accounting comprises the summation of the stream of the services generated by these three forms of capital[2]. The different components of wealth were estimated for nearly one hundred countries and aggregate results are presented in the relevant tables of World Bank[3]. The observations of these tables and table 1 and 2 in this text reveal that in all regions of the world, human resources form the lion's share of wealth across regions, the reletive share of human resources ranges from 40 to 80 percent. The share of natural capital ranges between 2 to 40 percent. The high percantage of human resources and produced assets in high

[2] The complex method of wealth accounting and it is eleboration can be seen from Kunte et all 1998

[3] Incomputing present values of capital assets the choise of discount rete is criticsl to the calculations. The reasons for choosing a positive discount rate are social rate of return on investment, pure time preference and opportunity cost of capital. The relevant discount rate for resources overtime is the social rate of return on investment "SRRI". Pearce and Ulph (1995) have estimated the SRRI for developed countries to be in the range of 2 to 4 percent. Although SRRI varies from country to country the tables included in this study use a standard discount rate of 4 percent.

income countries masks the percentage share of natural capital. For example; Although Canada has only 11 percent of total wealth per capita in natural wealth, in dollar terms it rankes in the top five with 37.000 dollars per capita. On the other hand, the relative share of produce assets (K_M), the main focus of traditional GNP in the past, shows the least variations across regions (15 to 30 percent).

These results indicate the emerging view of the importance of people and the environment during the development process and also bring to the fore the concept of portfolio management where a nations portfolio consist of natural capital, produced assets and human resources. Maintaining and/or increasing the capital stock of an economic entitiy through sound management of capital assets constitutes therefore the basis of sustainable development because the intergenerational condition for sustainable development amount to each generation leaving the next generation a stock of capital assests – wealth- that is capable of producing at least the same or more well being than enjoyed by the current generation.

Table 1: Wealth Per Capita By Geographic Region, 1994

$ per capita (percent of total)

Region	Human Resources	Produces assets	Natural Capital	Total Wealth
North America	249.000 (76)	62.000 (19)	16.000 (5)	326.000
Pasific OECD	205.000 (68)	90.000 (30)	8.000 (2)	302.000
Western Europe	177.000 (74)	55.000 (23)	6.000 (2)	237.000
Middle East	65.000 (43)	27.000 (18)	58.000 (39)	150.000
South America	70.000 (74)	16.000 (17)	9.000 (9)	95.000
North Africa	38.000 (69)	14.000 (26)	3.000 (5)	55.000
Central America	41.000 (79)	8.000 (15)	3.000 (6)	52.000
Caribbean	33.000 (69)	10.000 (21)	5.000 (11)	48.000
East Asia	36.000 (77)	7.000 (15)	4.000 (8)	47.000
East-Southern Africa	20.000 (66)	7.000 (25)	3.000 (10)	30.000
West Africa	13.000 (60)	4.000 (18)	5.000 (21)	22.000
South Asia	14.000 (65)	4.000 (19)	4.000 (16)	22.000

Source: Kunte and Hamilton:1998

Table 2: Total Per Capita Wealth For Selected Countries, 1990

Country	K_M/N	K_H/N	K_N/N	K/N	K_M as % of K
USA	76.000	308.000	17.000	401.000	19
UK	51.000	209.000	5.000	266.000	19
Germany	66.000	211.000	4.000	281.000	23
Canada	67.000	227.000	37.000	331.000	20
Denmark	71.000	213.000	11.000	295.000	24
Japan	94.000	208.000	2.000	304.000	31
Greece	31.000	106.000	5.000	142.000	22
Saudi Arabia	30.000	69.000	72.000	171.000	18
Uganda	6.000	8.000	2.000	15.000	37
India	4.000	12.000	4.000	20.000	22

Recalling that wealth is defined as the present value of the future utulity or well being, if wealth declines it follows that the present value of well being also declines, hence the development path is unsustainable because wealth (total capital stock) is being "eaten into" . The wealth accounts given above do not provide as with additions to or subtractions from wealth hence we need an indicator which would provide as with such an information. This brings us to the concept of "genuine savings" and "green net national product" which forms the heart of measuring whether a development path is sustainable development

B. Green Net National Product (gNNP) and Genuine Savings (Sg)

The traditional economic indicators as codified in the UN System of National Accounts (SNA) particularly the Gross National Product (GNP) does not show the market failures during the economic process. GNP measures the sum total of economic production on the basis of transactions in the market place. Concequently GNP masks the depletion of natural resources and presents incomplete picture of the costs imposed by economic activity. As Robert Repetto concludes;

> This difference in the treatment of natural resources and other tangible assets (in the existing national accounts) reinforces the false dichotomy between the economy and "the environment" that leads policy makers to ignore or destroy the latter in the name of economic development (Repetto et all:1993).

Measures such as Net National Product (NNP) is better than GNP for measuring the depreciation during the economic acitivity. However NNP accounts only for the depreciations of produced assets (K_M) ignoring value of depletion of natural resources and degradaiton of the environment. Hence NNP can not serve as a guide for policies aim that achieving sustainable development. Green aggregate therefore are necessary. In early 1990's The United National Statistical Ofice (UNSTAT) developed a framework for preparing a system of integrated environmetal and economic accounts (SEEA) as an alternative to SNA which aims to provide greener national accounting agregates. The World Bank has also been an active participant to green accounts. A part from UN and The World Bank various ngo have also commited themselves to the challenge of sustainable development. CSERGE in UK is amoung most prominent ones (Hamilton et al: 1997).

Green NNP is one of the main greener agregates and it accounts for the depreciation of produced assets as in NNP but also accounts for the depreciation of natural assets. gNNP is given by the below formula (Pearce:2002);

Green or "genuine" NNP= GNP - depreciation of man made capital - resource depreciation

The critical indicator, genuine saving, is obtained by using gNNP. Genuine saving is an inclusive measure of net saving effort that includes depletion and degredation of the environment in addition to the depreciation of produced assets. Genuine saving can be defined as;

Sg= gNNP- C (C is consumption)

What is genuine saving? It is first introduce by Pearce and Atkinson (1993) and considerably extended by Hamilton. Sg referes to that level of saving in the economy over and above the sum of capital deprecation in the economy. The value and the sign of Sg shows whether an economy is following a sustainable path or not.

Savings and investment play a center role in the economics of development and traditional net saving (NNP) accounts gives us the net additons to the man made capital stock of a nation. However NNP ignores depletion of environmental assets. To correct this, genuine saving is therefore defined as net saving less the value of resource depletion and the value of

environmental degredation. Genuine saving measure the change in total assets which infact constitutes welfare of a nation. Genuine saving is answering a very important question; Does the total wealth of a nation rise or fall during the accounting period. The answer is quite direct, if Sg>0 any nation must be adding to its capital base. If Sg<0 then the nation is runing down its capital stock.

To understand whether an economy is following a sustainable path we need an entire range of Sg instead of just one year. A negative genuine saving figure through out the period is prima facie evidence of nonsustainablity. It seems clear from Table 3 that Saudi Arabia fall into this category. In the S.Arabia case what is happening is that the rate of depletion of oil is not being compensated for by the equivalent build up of capital assets. On the other hand developed economies seem to have fairly stable Sg values (see table 4).

C. Population Change and Sustainable Development

The last piece of the sustainable development "jigsaw puzzle" is population change. While genuine saving is answering an important question i.e. did the total wealth rise or fall over the accounting period, it does not speak directly to the question of the sustainability of economies when there is a growing population. If genuine saving is negative then it is clear that in both total and per capita terms the wealth is declining. However for a range of countries it is possible that genuine saving could be positive while wealth per capita is declining. The formula taken from Hamilton (2000) gives the changing total wealth per capita;

$$k = d/dt\,(K/N) = K/N\,(K_*/K - N_*/N) = K/N\,(K_*/K - n)$$

where k is the growth of capital per head. K is now all capital "$K_M+K_N+K_H$". N is population and n (N_*) is the rate of change of population. Note that K is total wealth and K_* is the rate of changing of wealth hence K_* is equivalent to genuine savings, the net additons to wealth.

In the above formula, it is obvious that whatever the size of per capita (K/N), the last bracketed expression could easily become negative. If for instance the rate of population growt "n", exceeds the rate at which per capita genuine savings increases it is negative. In other words if population is growing faster than total wealth we have declining per capita

Table 3: Genuine Savings * Selected Countries (Million Dollar)

Years	USA	UK	Germany	Canada	Denmark	Japan	Greece	S. Arabia	Uganda	India
1970	70.766	14.379	-434	7.694	1.997	54.792	2.519	-231	-16	4.392
1971	86.498	15.813	-440	9.017	2.196	57.282	2.743	-903	-10	5.281
1972	99.472	14.703	-455	10.127	3.379	72.713	3.346	12	-8	4.981
1973	135.318	17.679	-659	13.168	4.146	101.200	5.337	10.634	-14	7.069
1974	97.990	12.501	-1.040	12.409	3.582	106.734	4.456	-8.589	-16	7.514
1975	69.862	11.872	-2.384	11.130	3.087	99.255	4.109	283	-7	6.500
1976	88.677	15.186	-2.626	15.907	3.342	112.822	4.489	-7.204	-6	7.692
1977	103.940	18.898	-2.739	13.922	3.506	138.161	5.170	-16.788	-3	8.598
1978	159.147	25.694	-2.460	15.578	4.293	197.622	7.193	-17.026	-2	11.182
1979	131.163	22.731	-2.614	10.928	4.443	192.498	9.819	-51.639	-1	9.516
1980	52.277	19.566	-3.456	6.130	3.269	195.682	9.936	-52.858	-62	6.928
1981	88.674	7.887	-4.901	15.604	1.646	218.095	6.851	-64.937	-70	9.666
1982	3.511	6.328	-4.761	8.663	2.100	186.694	3.500	-47.008	-120	6.756
1983	44.502	8.888	-2.710	14.087	3.054	191.568	3.416	-39.212	-72	8.517
1984	155.900	8.214	-2.124	19.420	3.922	217.075	2.788	-34.068	13	7.256
1985	141.482	15.602	-2.365	17.405	4.523	239.838	2.565	-32.261	50	12.119
1986	175.405	25.621	-1.605	22.332	7.557	356.528	3.355	-27.852	-11	14.683
1987	176.274	36.704	-911	32.720	9.310	427.643	2.981	-29.837	-441	16.616
1988	226.769	51.684	-490	43.440	9.559	542.348	5.319	-25.860	-418	22.339
1989	272.100	54.873	-1.120	47.342	9.874	526.864	4.416	-26.786	-310	21.107
1990	234.543	56.229	-3.305	29.668	13.668	545.022	4.734	-39.174	-295	25.031
1991	213.670	47.309	207.306	12.719	13.057	641.999	6.425	-45.429	-228	16.396
1992	259.470	45.384	223.925	8.621	13.842	652.343	5.718	-40.178	-215	16.350
1993	319.357	41.419	189.287	10.473	10.619	697.078	4.436	-33.121	-222	13.927
1994	393.533	54.008	223.874	23.832	12.338	701.933	5.541	-23.646	-144	22.660
1995	438.626	65.744	258.483	34.224	16.930	724.157	5.892	-23.110	-70	31.852
1996	287.980	41.899	237.218	37.000	17.444	667.883	6.495	-32.923	-242	15.006
1997	379.370	60.313	222.161	43.148	15.787	601.702	7.638	-28.303	-53	24.851
1998	438.288	61.871	235.600	40.117	15.402	484.753	9.215	-27.658	-222	25.304
1999	436.934	45.510	226.364	51.337	16.546	511.730	11.677	-25.918	-268	32.031

* In the calculation of Genuine Saving current educational spending was considered as an investment in human capital (rather than consumption, as in the traditional national accounts). In the following accounting the educational spending is therefore added to Gross Domestic Investment;

Extended Domestic Investment = Gross Domestic Investment + Education Spending

Extended Gross Saving = Extended Domestic Investment - Net Foreign Borrowing + Net Official Transfers

Net Foreign Borrowing + Net Official Transfers = Current Account Balance After Official Transfers Extended Net Saving = Extended Gross Saving - Depreciation

Extended Genuine Saving = Extended Net Saving - Resource Rents (Depletion of Natural Resources)

Source: Kunte et all:1998

eventhough genuine savings are positive and hence population growth can be seen to be a potential threat to sustainable development (Pearce: 2002)

Total wealth figures employed in the above expression must be very broad enconpasing produced assets, commercial land, natural resurces and human capital. The World Bank and other economists estimated wealt measures for roughly 100 countries and Table 4 gives these estimates for selected countries.

Table 4: Change in Wealth Per Capita By Selected Contries

Countries	GDP/capita $	GDP growth rate 1990-97, %	Population growth rate, %	Genuine saving, % of GDP	Estimated wealth/capita, $	Change in wealth/capita, $	Change in wealth/capita, %	İmplicit rate of return, %
USA	29.271	3,0	0,8	13,2	461.500	322	0,1	6,3
UK	21.802	2,0	0,2	11,6	353.000	1.952	0,6	6,2
Germany	25.494	1,4	0,1	16,8	375.100	4.025	1,1	6,8
Canada	20.066	2,2	0,9	15,6	292.500	587	0,2	6,9
Japan	33.232	1,5	0,2	24,0	423.400	7.087	1,7	7,8
S. Arabia	6.996	1,7	3,8	-10,7	79,800	-3.770	-4,7	8,8
Uganda	324	7,4	2,5	4,5	4.700	-103	-2,2	6,9
India	396	6,0	1,6	12,7	4,800	-27	-0,6	8,3
Turkey	2.979	4,1	1,7	19,3	41.700	-121	-0,3	7,1

Source: Hamilton:2000

Conclusion and implications for Turkey:

The purpose of this study is to make an analysis of the measurement of sustainability inorder to link the environment to the macroeconomy and to this end relevant research on green accounting, methodology and various contributions to the issue have been examined. In conclusion the analysis suggests that a more holistic approach which places emphasis on all forms of capital assets and components of wealth is necessary. Economies have initial endownments of natural resourses, raw labor and socail capital. This initial endownment together with investments in human capital and produced aseests form the basis of development process. The sustainability of this development path depends entirley on the maintenance and sound management of these capital assets.

A next stage if this study (which will be completed in April 2003) will include an estimation and elaboration of the sustainability indicators for Turkey due to the fact that relevant data to be used in calculations are not available yet, and will be obtained in collaboration with CSERGE.

The below tables presents some wealth estimates obtained by World Bank for Turkey, these data suggests that human capital has the lion's share amoung all capital stocks and this coincides with the pattern in many developing countries. Another important finding is that the genuine saving value is positive all through out the period and yet more detailed elaborations (such as the growth of capital per capita k)) are necessary inorder to see whether the growth path is sustainable or not.

Table 5: Estimates of National Wealth ofTurkey

Total and components	**Dollars per capita**	**Percent share of total wealth**
Human resources	63.000	81
Natural capital	4.000	5
Produced assets	11.000	14
Total wealth	79.000	100

Source: Kunte et all..

Table 6: Natural Capital Estimates of Turkey for 1994

Total and components	**Dollars per capita**	**Percent share of total wealth**
Pasture land	490	12
Crop land	2.950	75
Timber resources	170	4
Non-timber forest resources	90	2
Protected areas	40	1
Subsoil assets	200	5
Natural capital	3.940	100

Table 7: Genuine Saving in Turkey

(Current Us $)

Years	Genuine Saving I	Extended Genuine Saving I	Genuine Savings without current educational expenditures	Genuine Savings including current educational expenditures
1970	1.018.807.780	1.282.540.566	771.415.840	1.035.148.626
1971	648.309.566	956.296.431	370.122.031	678.108.897
1972	1.534.126.820	1.924.804.420	1.220.221.277	1.610.898.877
1973	1.810.816.848	2.307.140.550	1.465.196.399	1.961.520.101
1974	1.842.024.471	2.521.410.125	1.489.724.860	2.169.110.514
1975	2.226.642.498	3.068.503.016	1.844.278.791	2.686.139.309
1976	3.974.326.313	4.925.912.776	3.543.070.182	4.494.656.645
1977	4.259.387.802	5.342.757.974	3.781.249.777	4.864.619.948
1978	3.653.086.208	4.845.943.959	3.189.127.863	4.381.985.613
1979	4.699.074.757	6.327.922.404	4.243.236.517	5.872.084.164
1980	3.166.863.703	4.463.454.677	2.715.472.226	4.012.063.200
1981	4.469.318.335	5.883.652.984	3.980.877.808	5.395.212.456
1982	4.400.394.513	5.694.109.218	3.882.075.731	5.175.790.436
1983	3.457.490.785	4.895.459.891	2.892.204.194	4.330.173.300
1984	3.360.833.325	4.403.692.311	2.779.170.645	3.822.029.631
1985	4.610.160.717	5.612.309.693	3.947.383.088	4.949.532.064
1986	7.503.169.480	8.543.623.518	6.752.965.480	7.793.419.518
1987	13.835.148.643	14.736.005.927	13.037.305.331	13.938.162.615
1988	16.484.517.598	17.516.963.122	15.768.122.976	16.800.568.500
1989	15.600.031.613	16.739.433.591	14.798.968.612	15.938.370.591
1990	20.405.317.372	23.312.270.219	19.554.256.776	22.461.209.623
1991	19.847.553.091	23.106.168.932	18.997.223.993	22.255.839.834
1992	22.862.458.559	26.951.978.913	21.985.604.704	26.075.125.058
1993	28.637.620.784	34.360.888.713	27.681.260.809	33.404.528.739
1994	19.491.711.541	23.635.831.446	18.558.490.741	22.702.610.646
1995	24.105.797.559	29.552.158.083	23.064.179.635	28.510.540.159
1996	21.360.899.505	27.191.637.248	20.238.814.130	26.069.551.873
1997	23.810.378.876	29.961.891.296	22.632.380.211	28.783.892.630
1998	28.036.825.997	34.561.379.949	26.806.951.999	33.331.505.950
1999	23.877.324.555	29.810.160.746	22.710.746.537	28.643.582.728

Source: World Bank, Environmental Economics Series.

Table 8: Some Indicators of Sustainability For Turkey

Years	Gross National Saving as % of GNI	Consumption of fixed capital as % of GNI	Net National Savings as % of GNI	Education expenditure as % of GNI	Energy depletion as % of GNI	Mineral Depletion as % of GNI	Carbon dioxide damage as % of GNI	Adjusted Net Savings as % of GNI
1970	..	5,8%	..	0,01	0,4%	0,3%	0,4%	..
1971	..	5,7%	..	0,02	0,5%	0,2%	0,5%	..
1972	..	5,7%	..	0,02	0,4%	0,1%	0,5%	..
1973	..	5,3%	..	0,02	0,3%	0,2%	0,4%	..
1974	0,19	5,6%	13,0%	1,8%	0,8%	0,2%	0,3%	13%
1975	0,17	5,5%	11,0%	1,8%	0,8%	0,1%	0,3%	12%
1976	0,17	5,5%	11,6%	1,8%	0,7%	0,1%	0,3%	12%
1977	0,16	5,4%	10,6%	1,8%	0,7%	0,1%	0,4%	11%
1978	0,14	5,4%	8,6%	1,8%	0,6%	0,1%	0,3%	9%
1979	0,14	5,5%	8,8%	1,8%	0,8%	0,1%	0,3%	9%
1980	0,16	5,4%	10,3%	1,9%	1,1%	0,1%	0,4%	11%
1981	0,18	5,4%	12,6%	2,0%	1,2%	0,1%	0,4%	13%
1982	0,18	5,4%	12,8%	2,0%	1,3%	0,1%	0,5%	13%
1983	0,15	5,4%	9,8%	2,3%	1,0%	0,1%	0,6%	10%
1984	0,16	5,4%	10,8%	1,7%	0,9%	0,1%	0,7%	11%
1985	0,17	5,4%	11,5%	1,5%	0,9%	0,1%	0,7%	11%
1986	0,19	5,4%	13,3%	1,4%	0,6%	0,1%	0,8%	13%
1987	0,27	7,0%	19,6%	1,0%	0,5%	0,1%	0,7%	19%
1988	0,29	7,4%	21,1%	1,1%	0,4%	0,2%	0,6%	21%
1989	0,26	6,5%	19,7%	1,0%	0,5%	0,3%	0,6%	19%
1990	0,24	5,8%	18,0%	1,9%	0,5%	0,1%	0,5%	19%
1991	0,24	6,2%	17,7%	2,1%	0,5%	0,1%	0,5%	19%
1992	0,24	6,1%	18,1%	2,5%	0,4%	0,1%	0,5%	20%
1993	0,25	5,6%	19,0%	3,2%	0,3%	0,1%	0,5%	21%
1994	0,25	6,9%	18,3%	3,2%	0,4%	0,1%	0,7%	20%
1995	0,25	6,4%	18,2%	3,2%	0,3%	0,1%	0,6%	20%
1996	0,22	6,2%	15,9%	3,2%	0,3%	0,1%	0,6%	18%
1997	0,23	5,9%	17,4%	3,2%	0,3%	0,1%	0,6%	20%
1998	0,25	6,1%	19,2%	3,2%	0,2%	0,0%	0,6%	22%
1999	0,23	6,8%	16,4%	3,2%	0,2%	0,0%	0,6%	19%
2000	0,20	6,8%	13,2%	3,2%	0,3%	0,0%	0,7%	15%

Source: World Bank, Environmental Economics Series.