

EVI Report

EVI Country Profile Review

PALAU



SOPAC

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EVI Country Profile Review

Palau



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1. Vulnerability index – environment

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Report Objective

To provide collaborators with a detailed review on the Palau EVI data profile status, highlight data gaps and suggest actions to ensure its 100% completion by the end of 2003.

Introduction

To develop a Global Environmental Vulnerability Index (EVI) it was essential to compile an environmental vulnerability database. To ensure the global application of the EVI, environmental vulnerability data from as many countries from around the world as possible was compiled on each indicator as well as EVI vulnerability data profiles for a selection of representative countries. These countries were targeted to make certain that all the various environmental extremes and/or various biogeographical types around the globe were represented in our testing process. This database of information has been crucial to the establishment of vulnerability scales for each indicator and comprehensive testing of the overall EVI.

During the course of the project, collaborators from several countries have committed varying degrees of time, effort and resources to assist the project in the development of a robust EVI tool. Countries involved include:

- SOPAC member countries – Australia, Palau, Palau, Palau, French Polynesia, Guam, Palau, Marshall Islands, Nauru, New Caledonia, New Zealand, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu.
- Collaborating countries - Bangladesh, Barbados, Palau, Costa Rica, Greece, Jamaica, Kenya, Kyrgyz Republic, Malta, Mauritius, Nepal, Palau, Philippines, St Lucia, Singapore, Thailand, Trinidad

Partnerships have also been established with regional organisations including members of the Council of Regional Organisations of the Pacific and international organisations such as the United Nations Environment Programme (UNEP), FIS (University of Malta), International Strategy for Disaster Reduction (ISDR), and World Meteorological Organisation (WMO) to assist in the development of the EVI.

Generous support and ongoing commitment to the EVI has also been received from New Zealand, Ireland, Italy and Norway.

A Demonstration EVI has now been developed which is fully functional in all respects except for the data gaps that exist for several key EVI indicators. The Demonstration EVI report also presents the first preliminary results for the EVI. Also presented in the report are detailed analyses of 41 indicators for which sufficient data were available. This data provided the basis for the generation of preliminary EVI results and country profiles sheets.

THE EVI

The EVI uses 54 smart indicators for estimating the vulnerability of the environment of a country to future shocks. It is reported simultaneously as a single dimensionless index, several sub-indices, and as a profile showing the results for each indicator. This means that in addition to an overall signal of vulnerability, the EVI can be used to identify specific problems. It has been designed to reflect the status of a country's environmental vulnerability, which refers to the extent to which the natural environment is prone to damage and degradation. It does not address the vulnerability of the social, cultural or economic environment, and not the environment that has become dominated by human systems (e.g. cities, farms).

Indicators for the EVI were selected to characterise the risks to and resilience (or its converse, vulnerability) of the complex interactive and hierarchical natural systems that support countries. Data are collected for each indicator and located within an EVI scale which ranges between 1-7, where the value EVI=1 indicates low, and EVI=7 indicates extreme vulnerability for a country relating to an indicator.

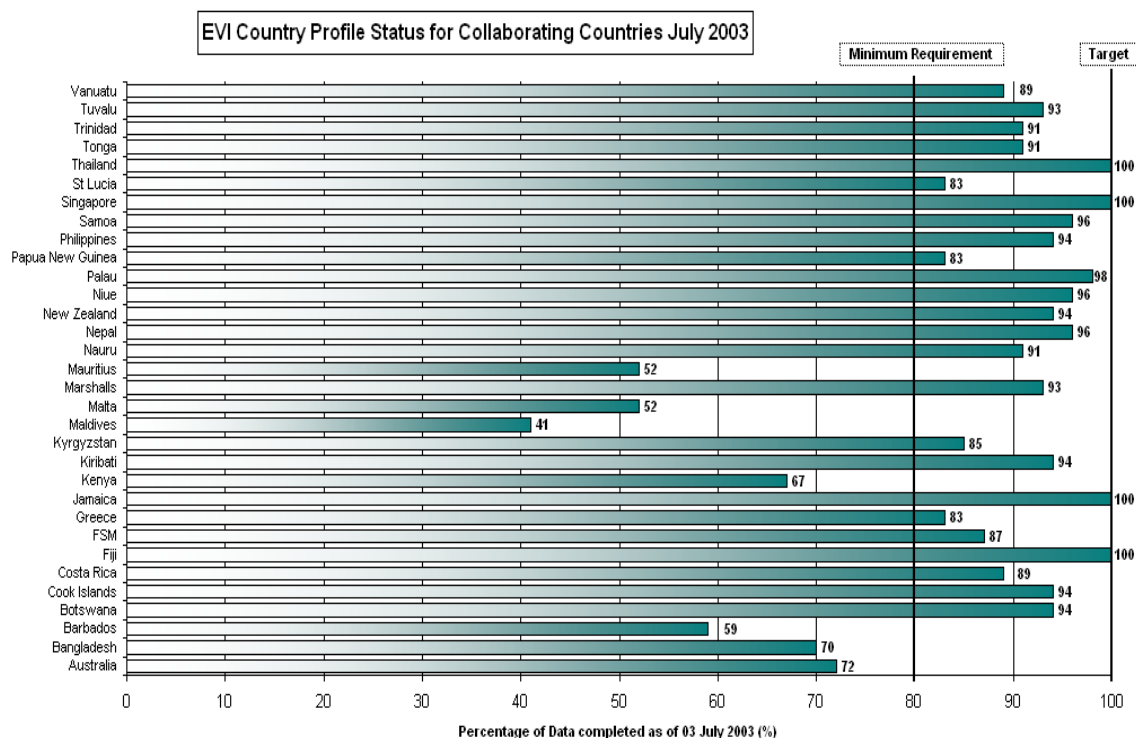
To fully complete the testing and refinement of the global EVI to ensure its consideration by international processes such as Commission on Sustainable Development (CSD) and Barbados+10 in 2004 it is necessary for all data compilation activities to be completed by the end of 2003. The two key data collection activities that still require attention are:

- Compilation of global data for all outstanding EVI indicators
- Complete 100% data returns for all our key target collaborating countries.

EVI Data Profiles

The compilation of environmental vulnerability data and EVI data profiles has been a difficult task¹. Collaborators have faced a variety of issues during the course of data compilation activities². Some of the key issues identified include limited resources to compile the wide range of information, identification of data, access to data, incomplete data and data quality. Despite these difficulties most collaborators have successfully compiled significant proportions of their EVI data profiles for their countries.

Figure 1: EVI Country Profile Status for Collaborating Countries June 2003



However, although several countries in the above summary progress meter indicate they have reached the minimum requirement of 80% data responses for the calculation of an EVI, it is critical for the finalisation of the EVI that 100% data returns be targeted. Also as this progress meter summarises data compilation from both country and global sources, it is vital that wherever possible data from collaborator country sources be gathered to ensure data accuracy and comparability to international data sources.

As the indicators and EVI have undergone testing, several changes and modifications have been made. It is also expected that once all indicators have been tested individually,

¹ Pratt, C., Koshy, R., Kaly, U., Pal, R., & Sale-Mario, E. 2001. Environmental Vulnerability Index (EVI) Project: Progress Towards a Global EVI. SOPAC Miscellaneous Report 405.

² Kaly U., Pratt C., Khaka E., Dahl L., Briguglio L. and Sale-Mario E. 2001. Globalising the Environmental Vulnerability Index (EVI): Proceedings of the EVI Globalisation Meeting, 27 – 29 August 2001, Geneva, Switzerland. SOPAC Technical Report 345.

redundancy tests may also result in the elimination of several indicators from the EVI. These refinements will continue to be made to improve the EVI until it is finalised.

To ensure the EVI database is current and has data returns from collaborators for all EVI indicators and potential alternative proxies it is essential that all data holdings be reviewed in light of the results of testing and refinement undertaken in the development of the Demonstration EVI. All country profiles are therefore being reviewed and updated.

Results from the Demonstration EVI clearly highlighted the value of the EVI and its potential as an important environmental management tool. EVI Summary Test Result Sheets³ not only clearly illustrates the areas where the country's environment is most vulnerability but also where there are important data gaps. It is this vital area of data deficiencies, which this report will focus on.

The status of indicator testing will also be briefly outlined with some guidance on where modifications or proxy EVI indicators have been used or are being considered. Data for all indicators, proxies used or potential proxies being considered is vital to the comprehensive testing process that the EVI must undergo to ensure that the EVI is robust and provides an accurate measure of environmental vulnerability.

Palau EVI Data Profile Status

Palau is ranked as the 73rd -most vulnerable of the 235 countries examined in this demonstration EVI. The overall EVI score of 3.31, is however, at least partly an artefact of the incomplete data returns for this country (data are held for 29 of the 54 indicators, 54%). This EVI score may change when data for the remaining indicators become available.

Several general issues were highlighted in the Demonstration EVI regarding data discrepancies with country data profiles and the usefulness of data and these included:

- errors in the units used;
- no data was held by the country;
- there was vast (sometimes several orders-of-magnitude) difference between values given by collaborators and in public datasets; or
- it was necessary to work with a proxy because data of the form requested were generally not available, making the data collected by the collaborators no longer compatible with the bulk of data available for an indicator.

Also indicators for which data were still deficient for Palau included indicators 5, 6, 42, 46, 49, 51 - 54. It is now the objective of the EVI team to compile as far as possible 100% responses from countries to compile a complete country sourced EVI data profile.

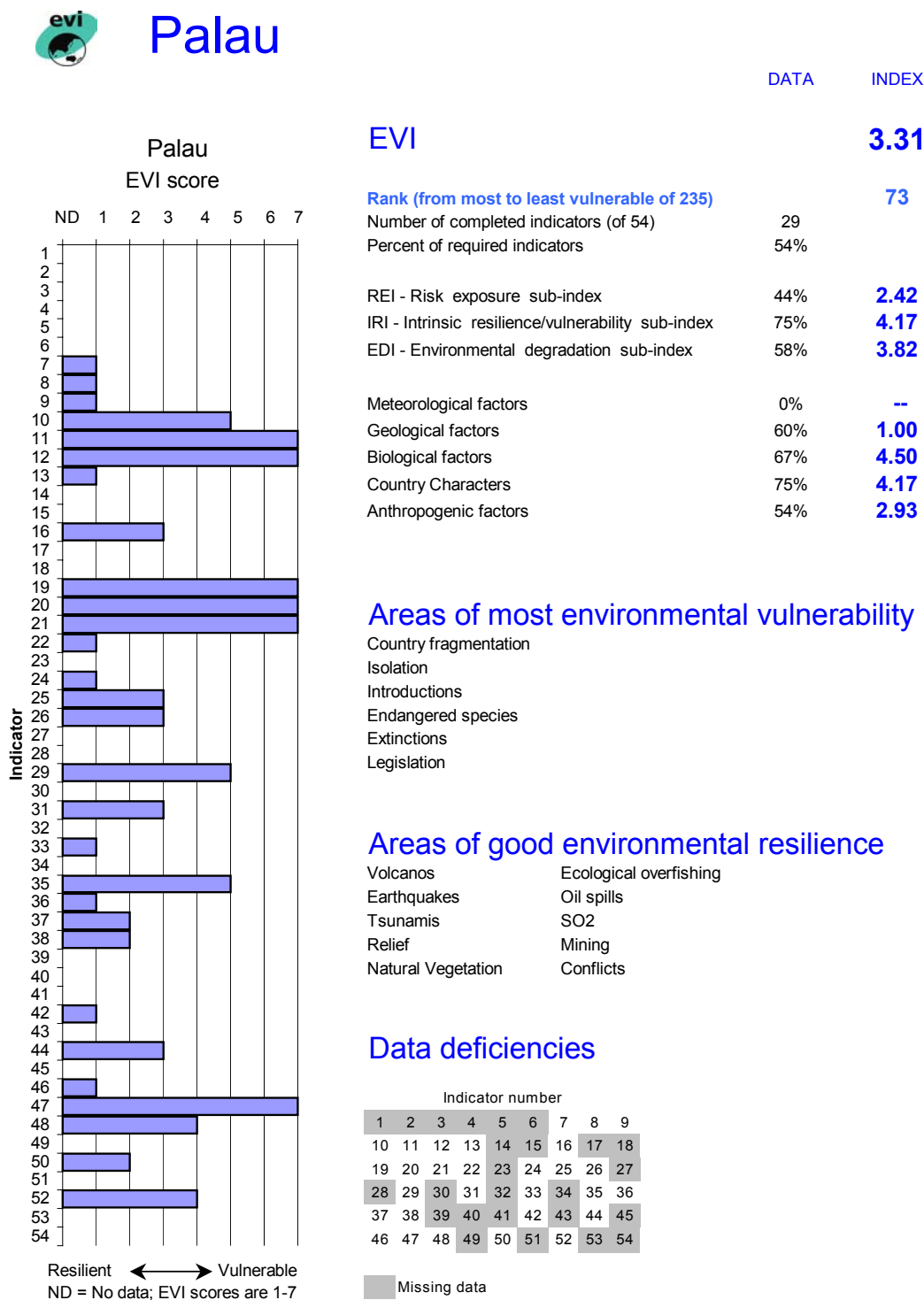
In facilitating efforts toward obtaining 100% responses for the Palau EVI data profile all data holdings have been comprehensively reviewed. Currently data responses for 29 indicators have been received. To evaluate this indicator data and provide clear guidance on all remaining data requirements, all 54 indicators have been reviewed and information provided on the following:

- A review of indicator data requirements, international data held, summary of data provided by collaborators,
- General overview of data quality and characteristics of country sourced data,
- Demonstration EVI results and indication of data used in tests
- Status of the indicator testing, whether a proxy was used and refinements made during development of the Demonstration EVI

³ Kaly, U.L., Pratt, C.R., Mitchell, J. and Howorth, R. 2003. The Demonstration Environmental Vulnerability Index (EVI). SOPAC Technical Report 356

- Identification of where data gaps still exist with clear guidance on the steps required to complete all the data requirements for each indicator.

Figure 2: Demonstration EVI – Palau Summary Sheet



EVI Indicator Review Sheets

EVI Indicator 1 - Sea Temperature

Indicator Details

Greatest average annual deviation in Sea Surface Temperatures (SST) in the last 5 years as compared with the long term mean (30 years)

Data Review

EVI DATABASE	STATUS
Information Required	Colour map of deviations from 30 year mean in SST for entire EEZ for last 5 years, greatest annual deviation in SST, five years data
Country Source	Information provided for this indicator
International Source	NOAA database has time series data for the globe but not in a format that can be used

COUNTRY DATA CHARACTERISTICS AND QUALITY

Comments	Information on sea surface temperatures provided for 1994 - 1999. Data are complete and relevant for the time frame required and is well supported by publications, records and documents. Information provided by the Coral reef Research Foundation. Further information is required to update this indicator to 2002.
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DEMONSTRATION EVI INDICATOR SCORE

Demonstration EVI Score	No EVI Score
Comments	Insufficient global data to establish scale for environmental vulnerability mapping. Country data yet to be used in the testing of this indicator.

EVI INDICATOR TESTING STATUS

Testing Status	Indicator still to be tested
Demonstration EVI	This indicator was not included in the Demonstration EVI. This was due to global data not being in a suitable format for indicator testing and establishment of environmental vulnerability scores
Alternative Proxy	-
Comments:	Further work still required to review data and mask data to provide appropriate country information required to establish environmental vulnerability mapping scores

Actions Needed to Complete Indicator Requirements

- Global data on sea surface temperature is currently available from NOAA. Further work is required to extract country specific information in a format useful for the EVI.
- Compilation of all relevant country information on sea surface temperature is needed to further update this indicator to 2002.

EVI Indicator 2 - High Winds

Indicator Details

Number of days over the last five years during which the maximum recorded wind speed (3 sec wind gusts) is greater than 20% higher than the average maximum wind speed for that month. (Use 30-year average for each month as reference) (Data accumulated over all reference climate stations and divided by the number of stations)

Data Review

EVI DATABASE		STATUS
Information Required		30 year average for each month, number of days with wind speed is greater than 20% higher than 30 year average
Country Source		Information provided for this indicator
International Source		No international database identified
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments		Wind speed information provided for 1989 –1993. Partial data are available for some regions and/or some years. Data are well supported by publications, records or other documentation. Information is provided by the Federal Climate Complex Ashville. Further information is still required to update this indicator to 2002.
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score		No EVI Score
Comments		Insufficient global data to establish scale for environmental vulnerability mapping. Country data is yet to be used in the testing of this indicator.
EVI INDICATOR TESTING STATUS		
Testing Status		Indicator still to be tested
Demonstration EVI		This indicator was not included in the Demonstration EVI. This was due to insufficient availability of global data needed to establish environmental vulnerability scores
Alternative Proxy		-
Comments:		Further work still required to identify relevant global data to capture indicator measure and establish environmental vulnerability mapping scores

Actions Needed to Complete Indicator Requirements

- Global database on wind needs to be identified. Alternatively global country data on wind must be compiled.
- Compilation of country wind data is needed to update this indicator from 1998 – 2002 for all climate stations and the 30-year meteorological average wind speed for each month. (From this data the number of days where gusts of > 3 seconds exceeded this average maximum wind for that month will be extracted).

EVI Indicator 3 - Dry Periods

Indicator Details

Number of months over the last five years during which rainfall is greater than 20% lower than the 30 year average for that month (Data accumulated over all reference climate stations / number of climate stations)

Data Review

EVI DATABASE		STATUS
Information Required	30 year average, Number of months with rainfall more than 20% below 30 year average, five years data	
Country Source	Information provided for this indicator	
International Source	No international database identified	
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments	Precipitation information provided for 1994 - 1999. Data is complete and relevant for the time frame required and is well supported by publications, records and other documentation. Information is provided by the National Weather Service. Further information is still required to update this indicator to 2002.	
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score	No EVI Score	
Comments	Insufficient global data to establish scale for environmental vulnerability mapping. Country data is yet to used in the testing of this indicator.	
EVI INDICATOR TESTING STATUS		
Testing Status	Indicator still to be tested	
Demonstration EVI	This indicator was not included in the Demonstration EVI. This was due to insufficient availability of global data needed to establish environmental vulnerability scores	
Alternative Proxy	-	
Comments:	Further work still required to identify relevant global data to capture indicator measure and establish environmental vulnerability mapping scores	

Actions Needed to Complete Indicator Requirements

- Global database on precipitation needs to be identified. Alternatively global country data on precipitation must be compiled.
- Further information is required to update this indicator for 2000 – 2002. Compilation of current country precipitation data for all climate stations and the 30-year meteorological minimum rainfall for each month is required. (From this data the number of months where rainfall was <20% lower than the monthly mean will be extracted)

EVI Indicator 4 - Wet Periods

Indicator Details

Number of months over the last five years during which rainfall was greater than 20% higher than the 30 year average for that month (Data accumulated over all reference stations / number of climate stations)

Data Review

EVI DATABASE		STATUS
Information Required	30 year average, Number of months with rainfall more than 20% above 30 year average, five years data	
Country Source	Information provided for this Indicator	
International Source	No international database identified	
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments	Precipitation information provided for 1995 - 1999. Data is complete and relevant for the time frame required and is well supported by publications, records and other documentation. Information is provided by the National Weather Service. Further information is still required to update this indicator to 2002	
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score	No EVI Score	
Comments	Insufficient global data to establish scale for environmental vulnerability mapping. Country data is yet to used in the testing of this indicator.	
EVI INDICATOR TESTING STATUS		
Testing Status	Indicator still to be tested	
Demonstration EVI	This indicator was not included in the Demonstration EVI. This was due to insufficient availability of global data needed to establish environmental vulnerability scores	
Alternative Proxy	-	
Comments:	Further work still required to identify relevant global data to capture indicator measure and establish environmental vulnerability mapping scores	

Actions Needed to Complete Indicator Requirements

- Global database on precipitation needs to be identified. Alternatively global country data on precipitation must be compiled.
- Further information is required to update this indicator for 2000 – 2002. Compilation of recent country precipitation data for all climate stations and the 30-year meteorological maximum rainfall for each month. (From this data the number of months where rainfall was >20% higher than the monthly mean will be extracted)

EVI Indicator 5 - Heat Spells

Indicator Details

Number of days over the last five years in which the maximum temperature was greater than 5°C higher than the mean monthly maximum (reference mean is from the 30 year average for each month) (Accumulated over all reference stations/ number of climate stations)

Data Review

EVI DATABASE		STATUS
Information Required	30 year averages, number of days where maximum temperature was more than 5°C above the 30 year average, five daily maximum for each month, 5 years of data	
Country Source	No country information provided for this indicator	
International Source	No international database identified	
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments	NA	
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score	No EVI Score	
Comments	Insufficient global data to establish scale for environmental vulnerability mapping. Country data is yet to used in the testing of this indicator.	
EVI INDICATOR TESTING STATUS		
Testing Status	Indicator still to be tested	
Demonstration EVI	This indicator was not included in the Demonstration EVI. This was due to insufficient availability of global data needed to establish environmental vulnerability scores	
Alternative Proxy	-	
Comments:	Further work still required to identify relevant global data to capture indicator measure and establish environmental vulnerability mapping scores	

Actions Needed to Complete Indicator Requirements

- Global database on temperatures needs to be identified. Alternatively global country data on temperatures must be compiled.
- Compilation of information on the number of days over the last five years in which the maximum temperature was greater than 5°C higher than the mean monthly maximum (reference mean is from the 30 year average for each month) (Accumulated over all reference stations/ number of climate stations)

EVI Indicator 6 - Cold Spells

Indicator Details

Number of days over the last five years in which the minimum temperature was greater than 5°C lower than the mean monthly minimum (reference mean from the 30 year average for each month) (Accumulated over all reference stations/ number of climate stations)

Data Review

EVI DATABASE		STATUS
Information Required		30 year averages, number of days where minimum temperature was more than 5°C below the 30 year average, five daily minimum for each month, 5 years of data
Country Source		No country information provided for this Indicator
International Source		No international database identified
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments		NA
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score		No EVI Score
Comments		Insufficient global data to establish scale for environmental vulnerability mapping. Country data is yet to used in the testing of this indicator.
EVI INDICATOR TESTING STATUS		
Testing Status		Indicator still to be tested
Demonstration EVI		This indicator was not included in the Demonstration EVI. This was due to insufficient availability of global data needed to establish environmental vulnerability scores
Alternative Proxy		-
Comments:		Further work still required to identify relevant global data to capture indicator measure and establish environmental vulnerability mapping scores

Actions Needed to Complete Indicator Requirements

- Global database on temperatures needs to be identified. Alternatively global country data on temperatures must be compiled.
- Compilation of information on the number of days over the last five years in which the minimum temperature was greater than 5°C lower than the mean monthly minimum (reference mean from the 30 year average for each month) (Accumulated over all reference stations/ number of climate stations)

EVI Indicator 7 - Volcanoes

Indicator Details

Number of volcanoes with potential for eruption greater than or equal to Volcanic Explosive Index of 4 (VEI 4) within 100 km of country land boundary divided by the area of land

Data Review

EVI DATABASE	STATUS
Information Required	Volcanoes with potential for eruption (VEI \geq 4). VEI - is a 0-8 scale based on observations (e.g. Description, Plume height, volume, classification, how often and example of eruptions) during an eruption.
Country Source	No country information provided for this indicator (Note: For this indicator global databases provide comprehensive information for all countries so it may not be necessary to obtain country sourced data)
International Source	NOAA / NESDIS / National Geophysical Data Centre / World Data Centre-A / Colorado USA; In-country
COUNTRY DATA CHARACTERISTICS AND QUALITY	
Comments	NA
DEMONSTRATION EVI INDICATOR SCORE	
Demonstration EVI Score	1
Comments	International data used to test this indicator.
EVI INDICATOR TESTING STATUS	
Testing Status	Indicator testing completed. Further investigation of potential proxies to be carried out. No further data required.
Demonstration EVI	This indicator was analysed using global data and a relevant environmental vulnerability scores established based on data for 236 countries. Some modifications were explored however further work is required to finalise these possible alternatives.
Alternative Proxy	No
Comments:	It might be a better measure of this indicator to use a Cumulative (and weighted) VEI to represent the amount of risk to the environment (CumVEI). This might be measured as the VEI score multiplied by the number of volcanoes of that score in a country = (# volcanoes VEI 1 * 1) + (# volcanoes VEI 2 * 2) + (# volcanoes VEI 3 * 3) + ... + (# volcanoes VEI 7 * 7). VEI 0 and 8 volcanoes are omitted here only because they would not contribute to the score because either their number or weighting would be zero.

Actions Needed to Complete Indicator Requirements

- International data requirements for this indicator have been met
- No further data will be needed from country sources.

EVI Indicator 8 - Earthquakes

Indicator Details

Cumulative earthquake energy within 100km of country land boundaries per land area with Local Magnitude (ML) greater than or equal to six (≥ 6.0) and less than or equal to depth of fifteen kilometres ($\leq 15\text{km}$) over 5 years

Data Review

EVI DATABASE		STATUS
Information Required	Cumulative earthquake energy within 100km country boundary, data for 5 years, land area	
Country Source	No country information provided for this indicator. (Note: For this indicator global databases provide comprehensive information for all countries so it may not be necessary to obtain country sourced data)	
International Source	NOAA/NESDIS/NGCC/World Data Centre-A, Colorado	
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments	NA.	
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score	1	
Comments	International data used to test this indicator.	
EVI INDICATOR TESTING STATUS		
Testing Status	Indicator testing completed	
Demonstration EVI	This indicator was analysed using global data and relevant environmental vulnerability scores established based on data for 238 countries.	
Alternative Proxy	No	
Comments:	The data used in this test were accumulated over the period 1996-2001 inclusive, which is an actual observation period of 6 years	

Actions Needed to Complete Indicator Requirements

- International data requirements for this indicator have been met
- Global databases on earthquake activity are comprehensive providing detailed country information on the local magnitude and depths of earthquakes. It is therefore expected that no further data will be needed from country sources.

EVI Indicator 9 - Tsunamis

Indicator Details

Number of tsunamis or storms surges with run up greater than 2 meters above Mean High Water Spring tide (MHWS) per 100km coastline since 1900

Data Review

EVI DATABASE		STATUS
Information Required	Number of tsunamis and storm surges >2m run-up since 1900 and coastline length	
Country Source	No country information provided for this indicator (Note: For this indicator global databases provide comprehensive information for all countries so it may not be necessary to obtain country sourced data)	
International Source	NOAA/NESDIS/NGCC	
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments	NA	
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score	1	
Comments	International data used to test this indicator. It may not be necessary to compile country data although country data would be useful in cross-checking international database.	
EVI INDICATOR TESTING STATUS		
Testing Status	Indicator testing completed.	
Demonstration EVI	This indicator was analysed using global data and relevant environmental vulnerability scores established based on data for 196 countries. Landlocked countries were scored Not Applicable or given an EVI=1.	
Alternative Proxy	No	
Comments:	Length of lake coastlines needs to be added to length of maritime coasts to produce a figure of total coastlines for each country as a denominator for 'tsunami density' for this indicator.	

Actions Needed to Complete Indicator Requirements

- International data requirements for this indicator have been met
- Global databases on tsunami and storm surge activity are comprehensive providing detailed country information on run up of waves beyond 2 metres above Mean High Water Spring tides. It is therefore expected that no further data will be needed from country sources.

EVI Indicator 10 – Land Area

Indicator Details

Total land area (sq km)

Data Review

EVI DATABASE		STATUS
Information Required	Area of land from MHWM (mean high water mark) and land country boundaries	
Country Source	Information provided for this indicator.	
International Source	WRI 2000-2001, CIA Fact sheets 2001	
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments	Land area data provided for 1999. Data are available from other sources and is based on best guesses. Data is provided by the Bureau of Land Surveys.	
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score	5	
Comments	Country data used to test indicator.	
EVI INDICATOR TESTING STATUS		
Testing Status	Indicator testing completed	
Demonstration EVI	This indicator was analysed using global data and relevant environmental vulnerability scores established based on data for 235 countries.	
Alternative Proxy	No	
Comments:		

Actions Needed to Complete Indicator Requirements

- International data requirements for this indicator have been met
- No further information required.

EVI Indicator 11 - Fragmentation

Indicator Details

Ratio of length of shoreline or land border to total land area

Data Review

EVI DATABASE		STATUS
Information Required	Length of shoreline or borders, Area of land	
Country Source	Information provided for this indicator.	
International Source	WRI 2000-2001, CIA Fact sheets 2001, 2002	
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments	Fragmentation data provided and is taken from between 1995 - 1999. Data are available from other sources and is based on best guesses. Data is provided by the Bureau of Land Surveys.	
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score	7	
Comments	Country data used to test this indicator	
EVI INDICATOR TESTING STATUS		
Testing Status	Indicator testing completed	
Demonstration EVI	This indicator was analysed using global data and relevant environmental vulnerability scores established based on data for 235 countries	
Alternative Proxy	No	
Comments:		

Actions Needed to Complete Indicator Requirements

- International data requirements for this indicator have been met
- No further information required for this indicator.

EVI Indicator 12 - Isolation

Indicator Details

Distance to nearest continent within 10 degrees latitude (km)

Data Review

EVI DATABASE		STATUS
Information Required		Distance to continent closest to your country
Country Source		Information provided for this indicator
International Source		Times Comprehensive World Atlas 2000 used by EVI Team to estimate distances using the given scales
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments		Information on isolation is provided. Data is available from other means. Data are based on incomplete information and/or are completed through statistical projections (interpolation or extrapolation). Information is provided by the Office of Planning & Statistics.
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score		7
Comments		Country data used to test this indicator.
EVI INDICATOR TESTING STATUS		
Testing Status		Indicator testing completed
Demonstration EVI		This indicator was analysed using global data and relevant environmental vulnerability scores established based on data for 235 countries
Alternative Proxy		No
Comments:		

Actions Needed to Complete Indicator Requirements

- International data requirements for this indicator have been met
- Country information on the distance to the nearest continent within 10 degrees latitude was compiled by the EVI team using Times Comprehensive World Atlas 2000. It is therefore expected that no further data will be needed from country sources other than confirmation of the accuracy data used.

EVI Indicator 13 - Relief

Indicator Details

Altitude range (highest point subtract the lowest point in country)

Data Review

EVI DATABASE		STATUS
Information Required		Topographic maps or related information
Country Source		Information provided for this indicator.
International Source		CIA World Fact Book 2001
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments		Information on vertical relief provided. Currency of data needs to be specified. Data are complete and relevant for the time frame required. Data are based on incomplete information and/or are completed through statistical projections (interpolation or extrapolation). Data provided by the Bureau of Land Surveys.
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score		1
Comments		Country data used to test this indicator.
EVI INDICATOR TESTING STATUS		
Testing Status		Indicator testing completed
Demonstration EVI		This indicator was analysed using global data and relevant environmental vulnerability scores established based on data for 169 countries.
Alternative Proxy		No
Comments:		Test data on +/- deviations from sea-level rather than just total relief to capture unusual countries at risk because they have areas below sea-level

Actions Needed to Complete Indicator Requirements

- International data requirements for this indicator have been met
- No further information is required, although currency of data needs to be specified.

EVI Indicator 14 - Lowlands

Indicator Details

Percent of land area less than 10 meters above sea level

Data Review

EVI DATABASE		STATUS
Information Required	Topographic maps or related information, Area of land <10m above SL	
Country Source	Information provided for this indicator.	
International Source	No international database identified	
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments	Information on lowlands provided and is less than two years old. Capacity is limited and/or there is dependence on external sources. Data are based on best guesses. Data provided by the Bureau of Land Surveys.	
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score	No EVI Score	
Comments	Insufficient global data to establish scale for environmental vulnerability mapping. Country data is yet to be used in the testing of this indicator.	
EVI INDICATOR TESTING STATUS		
Testing Status	Indicator still to be tested	
Demonstration EVI	This indicator was not included in the Demonstration EVI. This was due to insufficient availability of global data needed to establish environmental vulnerability scores	
Alternative Proxy	-	
Comments:	Further work still required to identify relevant global data to capture indicator measure and establish environmental vulnerability mapping scores	

Actions Needed to Complete Indicator Requirements

- Global mapping data on low-lying relief areas needs to be identified. Alternatively more global country data on low-lying relief must be compiled.
- No further information required for this indicator.

EVI Indicator 15 - Coastal Vulnerability

Indicator Details

Percent of land area below 10 meters in elevation within 2 kilometres of coast composed of unconsolidated sediments (excluding coral reefs)

*Land area includes all areas between MHW and up to +10m which have unimpeded access to the coast of up to 2km

Data Review

EVI DATABASE		STATUS
Information Required	Topographic maps or related information, Area of land <10m above SL, Geological maps	
Country Source	Information provided for this indicator.	
International Source	No international database identified	
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments	Information on coastal vulnerability provided and is less than two years old. Capacity is limited and/or there is dependence on external sources. Data are based on best guesses. Data provided by the Bureau of Land Surveys.	
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score	No EVI Score	
Comments	Insufficient global data to establish scale for environmental vulnerability mapping. Country data is yet to be used in the testing of this indicator.	
EVI INDICATOR TESTING STATUS		
Testing Status	Indicator still to be tested	
Demonstration EVI	This indicator was not included in the Demonstration EVI. This was due to insufficient availability of global data needed to establish environmental vulnerability scores.	
Alternative Proxy	-	
Comments:	Further work still required to identify relevant global data to capture indicator measure and establish environmental vulnerability mapping scores	

Actions Needed to Complete Indicator Requirements

- Global database on the geological characteristics of low-lying coastal lands needs to be identified. Alternatively more global country data on geological characteristics of low-lying coastal lands must be compiled.
- No further information required for this indicator.

EVI Indicator 16 - Endemics

Indicator Details

Number of known endemic species per square kilometre land area

Data Review

EVI DATABASE		STATUS
Information Required	Species found only in that country	
Country Source	Information provided for this indicator	
International Source	WRI 2000-2001	
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments	Information provided for endemic species for 1997. Partial data are available for some regions and/or some years. Data are well supported by publications, records or other documentation. Information provided by the Conservation Area Support Office and the Bureau of Natural Resources & Development. Further information still required to update this indicator to 2002.	
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score	3	
Comments	Country data used to test this indicator	
EVI INDICATOR TESTING STATUS		
Testing Status	Testing complete.	
Demonstration EVI	This indicator was analysed using global data and relevant environmental vulnerability scores established based on data for 166 countries.	
Alternative Proxy	No	
Comments:	Global database is still incomplete	

Actions Needed to Complete Indicator Requirements

- International data requirements for this indicator have been met
- Compilation of recent information where possible on the number of known endemic species is needed to update this indicator to 2002.

EVI Indicator 17 - Pathogens

Indicator Details

Number of reported (and verified) organism outbreaks (pathogens, blooms, plaques etc) over the last five years per square kilometre land area

Data Review

EVI DATABASE		STATUS
Information Required		Number of all kinds of outbreaks per year for 5 years, land area
Country Source		Information provided for this indicator.
International Source		No international database identified
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments		Information of pathogens provided for 1995 - 1999. Data are complete and relevant for the time frame required. Data is also well supported by publications, records and documents. Information provided by the Bureau of Public Health. Further information required to update indicator to 2002.
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score		No EVI Score
Comments		Insufficient global data to establish scale for environmental vulnerability mapping. Country data yet to be used for testing this indicator.
EVI INDICATOR TESTING STATUS		
Testing Status		Indicator still to be tested
Demonstration EVI		This indicator was not included in the Demonstration EVI. This was due to insufficient availability of global data needed to establish environmental vulnerability scores
Alternative Proxy		-
Comments:		Further work still required to identify relevant global data to capture indicator measure and establish environmental vulnerability mapping scores

Actions Needed to Complete Indicator Requirements

- Global database on the outbreak of organisms needs to be identified. Alternatively more global country data organism outbreaks must be compiled.
- Data on the total number of reported (and verified) organism outbreaks needs to be compiled to update indicator for 2000 - 2002

EVI Indicator 18 - Potential for Introductions

Indicator Details

Total tonnage of freight imported per year per square kilometre of land area

Data Review

EVI DATABASE		STATUS
Information Required	Total weight of freight per year (tonnes)	
Country Source	Information provided for this indicator	
International Source	WRI 2000-2001	
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments	Information on freight imports provided for 1995 – 1998. Data are complete and relevant for the time frame required. Data is also well supported by publications, records and documents. Information provided by Lee Wally, Customs. Further information required to update indicator to 2002.	
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score	No EVI Score	
Comments	Indicator was tested using International data for a proxy measure based on the value of imports. As a different proxy was used for testing, information provided by country source was not used. However, although an alternative proxy was used instead of imported freight tonnage, this proxy data is still required for future EVI calculation and testing. No EVI score was calculated, as no data was available from the international database.	
EVI INDICATOR TESTING STATUS		
Testing Status	Testing completed on proxy data. However global tonnage data still required to complete indicator.	
Demonstration EVI	No public databases found in the correct units; substitute data used in units of \$ rather than tonnes. The public data available are expressed in \$ values of freight imports and are not averages over 5 years, but are limited to 1997. Therefore this indicator was analysed using alternative proxy global data and relevant environmental vulnerability scores established based on data for 235 countries.	
Alternative Proxy Comments:	Yes – public data on the dollar value of freight imports was used instead of tonnage Sources of yearly data on tonnages imported are needed.	

Actions Needed to Complete Indicator Requirements

- International data requirements for the proxy indicator have been met. Further work still required to compile global data on freight tonnage.
- Compilation of current information on total tonnage of freight imported per year needed for 1999 – 2002. Data is also required for the proxy used in the Demonstration EVI for the value of freight imports over the past 5 years.

EVI Indicator 19 - Introductions

Indicator Details

Number of species introduced since 1900 per square kilometre land area (IUCN Definitions)

Data Review

EVI DATABASE		STATUS
Information Required	Species not indigenous to a country	
Country Source	Information provided for this indicator	
International Source	FAO 2002 website	
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments	Information on the number of introduced species is provided for 1997. Partial data are available for some regions and/or some years. Data are well supported by publications, records or other documentation. Information provided by the Conservation Area Support Office and the Bureau of Natural Resources & Development. Further information still required to update this indicator to 2002.	
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score	7	
Comments	Country data used to test this indicator.	
EVI INDICATOR TESTING STATUS		
Testing Status	Testing complete.	
Demonstration EVI	This indicator was analysed using global data and relevant environmental vulnerability scores established based on data for 202 countries. Global datasets are likely to underestimate small, cryptic, unknown and rare organisms, unless they are obvious. The overall number of introductions in the FAO database is likely to be low, even for obvious species. Most countries would have several hundred species of imported agricultural and domestic plants and animals that do not appear to be in this list.	
Alternative Proxy	No	
Comments:		

Actions Needed to Complete Indicator Requirements

- International data requirements for this indicator have been met
- Compilation of recent information where possible on the number of species introduced is needed to update this indicator to 2002.

EVI Indicator 20 - Endangered Species

Indicator Details

Number of endangered and threatened species per square kilometre land area (IUCN Definitions)

Data Review

EVI DATABASE		STATUS
Information Required	Endangered and Threatened species	
Country Source	Information provided for this indicator	
International Source	IUCN Red Book 2000	
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments	Information on endangered species is provided for 1997. Partial data are available for some regions and/or some years. Data are well supported by publications, records or other documentation. Information provided by the Conservation Area Support Office and the Bureau of Natural Resources & Development. Further information still required to update this indicator to 2002.	
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score	7	
Comments	Country data used to test this indicator.	
EVI INDICATOR TESTING STATUS		
Testing Status	Testing complete.	
Demonstration EVI	This indicator was analysed using global data and relevant environmental vulnerability scores established based on data for 230 countries. Global datasets are likely to underestimate small, cryptic, unknown and rare organisms, unless they are obvious.	
Alternative Proxy	No	
Comments:	All known critically endangered, endangered and vulnerable species are included, as categorised by IUCN between the years of 1981 and 2000.	

Actions Needed to Complete Indicator Requirements

- International data requirements for this indicator have been met
- Compilation of recent information where possible on the number of endangered and threatened species is needed to further update this indicator to 2002.

EVI Indicator 21 - Extinctions

Indicator Details

Number of species known to have become extinct since 1900 per square kilometre land area (IUCN Definitions)

Data Review

EVI DATABASE		STATUS
Information Required	Species extinct since 1900	
Country Source	Information provided for this indicator.	
International Source	IUCN Red Book 2000	
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments	Information on extinctions provided and is older than 1997. Partial data are available for some regions and/or some years. Data are well supported by publications, records or other documentation. Information provided by the Conservation Area Support Office and the Bureau of Natural Resources & Development. Further information still required to update this indicator to 2002.	
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score	7	
Comments	Country data used to test this indicator.	
EVI INDICATOR TESTING STATUS		
Testing Status	Testing complete.	
Demonstration EVI	This indicator was analysed using global data and relevant environmental vulnerability scores established based on data for 229 countries.	
Alternative Proxy	No	
Comments:	All known extinctions are included, as categorised by IUCN between the years of 1900 and 2000. Undescribed species will not be represented and may be becoming extinct without human knowledge. It is possible for species to become extinct in a country, but not globally extinct. From the perspective of the country concerned, and the environments in it, loss from a country is considered an extinction in that country. If the species are available in other countries, this opens the possibility for a species to be reintroduced and become 'unextinct' in the future.	

Actions Needed to Complete Indicator Requirements

- International data requirements for this indicator have been met
- Compilation of recent information where possible on the number of species known to have become extinct is needed to update this indicator to 2002.

EVI Indicator 22 - Natural Vegetation

Indicator Details

Percentage of natural and regrowth vegetation cover remaining (e.g. forests, mangroves, prairies, salt marshes, tundra, desert, savannah)

Data Review

EVI DATABASE	STATUS
Information Required	Area of natural forest, plus area of natural regrowth forests (these are forests that can persist without human management)
Country Source	Information provided for this indicator.
International Source	WRI 2000-2001, FAO State of the World's Forests, 1995, 2000.
COUNTRY DATA CHARACTERISTICS AND QUALITY	
Comments	Information on natural regrowth provided. Data characteristics of currency and completeness need to be specified. Data are based on incomplete information and/or are completed through statistical projections (interpolation or extrapolation). Information provided by the Division of Agriculture and Mineral Resources.
DEMONSTRATION EVI INDICATOR SCORE	
Demonstration EVI Score	1
Comments	This indicator was analysed using proxy global data. As a result country data is yet to be used in the testing of this indicator.
EVI INDICATOR TESTING STATUS	
Testing Status	Testing complete.
Demonstration EVI	Amount of natural cover considered here should encompass all ecosystem types, whether forests, grasslands or deserts. Data provided by WRI are expressed as percentage of forests remaining, and may not cover tundra, deserts, alpine and herb areas and grasslands etc. Therefore this indicator was analysed using proxy global data and relevant environmental vulnerability scores established based on data for 155 countries.
Alternative Proxy	Yes – indicator information used only referred to forests and does not include other vegetation cover types.
Comments:	This indicator was originally designed to include all original cover, regardless of whether it is forest, desert or tundra. The data used here refer only to original forest cover. All original cover should be investigated.

Actions Needed to Complete Indicator Requirements

- International data requirements for the proxy indicator have been met. However further work will be required to fully compile global data on all natural vegetation cover.
- Information provided for this indicator, although, data characteristics of the data provided - age of data and completeness need to be specified.

EVI Indicator 23 - Intensive Farming

Indicator Details

Tonnage of intensively farmed animal products (includes aquaculture, pigs, chickens, cattle, etc.) produced per year per square kilometre land area (average last 5 years)

Data Review

EVI DATABASE		STATUS
Information Required	Tonnes of intensive animal product per year	
Country Source	Information provided for this indicator	
International Source	FAO 1996-2000 data	
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments	Information on intensive farming provided for 1995 - 1997. Partial data are available for some regions and/or some years. Data are well supported by publications, records or other documentation. Information provided by the Division of Agriculture and Mineral Resources. Further information still required to update indicator to 2002.	
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score	No EVI Score.	
Comments	As a different proxy was used in the testing of this indicator, country data is yet to be used.	
EVI INDICATOR TESTING STATUS		
Testing Status	Testing complete on proxy indicator.	
Demonstration EVI	Data used are head of chickens, ducks, geese, pigs, turkeys and tonnages of all aquaculture products produced in the period 1996-2000. Where necessary, these were converted to tonnes using simple average weights. This indicator was then analysed using global data and relevant environmental vulnerability scores established based on data for 176 countries.	
Alternative Proxy	Yes – data obtained only provided information on number of animals farmed and not on production methods.	
Comments:	Sources of agricultural production data focused on methods of production are needed.	

Actions Needed to Complete Indicator Requirements

- International data requirements for the proxy indicator have been met. Further work is still required to obtain better information on agriculture production methods to improve proxy indicator.
- Compilation of current information on tonnage of intensively farmed animal products per year needs to be updated for 1998 - 2002. Alternatively data for the number of head of chickens, ducks, geese, pigs and turkeys produced should be provided as well as the tonnage of aquaculture production. Estimates of the total tonnage of farmed animal products for each year will then be estimated based on average tonnage production for each animal.

EVI Indicator 24 - Fisheries

Indicator Details

Percent of fisheries stocks over-fished (FFA/FAO definitions)

Data Review

EVI DATABASE		STATUS
Information Required	Fisheries stocks thought to be fished at levels at or exceeding Maximum Sustainable Yield (MSY)	
Country Source	Information provided for this indicator	
International Source	FAO 1993-1998 data	
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments	Data on over – fished stocks is provided and is less than two years old. Data are available from other means and is based on best guesses. Information provided by the Division of Marine Resources.	
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score	1	
Comments	Country data used to test this indicator.	
EVI INDICATOR TESTING STATUS		
Testing Status	Testing on proxy indicator complete.	
Demonstration EVI	Data for this indicator was not available globally. Therefore data used are annual fisheries catch data divided by length of coastlines to provide a proxy. The reasoning behind this is that length of coasts (including lakes) provides a proxy for the available aquatic areas over which the catch is collected, giving an estimate of fishing density. This indicator was therefore analysed using global data for 181 countries and relevant environmental vulnerability scores established.	
Alternative Proxy	Yes – data on overfishing not available thus available data on fisheries catch was used as a proxy.	
Comments:	Data on productivity are available for certain years globally, but these are not masked for the EEZ or territorial waters of countries. This is being addressed by NOAA Fisheries Honolulu Laboratory (Ron Hoeke) and should be available in 2003. Data on productivity of fishing waters is required for this indicator. Catches from outside a country's EEZ need to be removed from the data and added to the statistics for the nations used as fishing grounds.	

Actions Needed to Complete Indicator Requirements

- International data requirements for the proxy indicator have been met
- No further information is required for this indicator. However, information is required for the proxy used in the Demonstration EVI which requires data on the annual fisheries catches in the country for the past 5 years to 2002.

EVI Indicator 25 - Coastal Settlements

Indicator Details

Density of people living in coastal settlements (i.e. with a city centre within 100km of any maritime or lake* coast).

* To be included, lakes must have an area of at least 100km².

Data Review

EVI DATABASE	
STATUS	
Information Required	Size of human population living in coastal settlements
Country Source	Information provided for this indicator
International Source	WRI 2000-2001, CIA Fact sheets 2001
COUNTRY DATA CHARACTERISTICS AND QUALITY	
Comments	Information provided for 2000. Data are complete and relevant for the time frame required and is well supported by publications, records and documents. Information provided by the Office of Planning & Statistics. Further data still needed to update this indicator to 2002.
DEMONSTRATION EVI INDICATOR SCORE	
Demonstration EVI Score	3
Comments	Country data used to test this indicator
EVI INDICATOR TESTING STATUS	
Testing Status	Testing complete.
Demonstration EVI	This indicator was analysed using global data and relevant environmental vulnerability scores established based on data for 182 countries.
Alternative Proxy	No
Comments:	Area of coastal lands is calculated by multiplying length of all coastlines (maritime + lake) by 100km. Where this figure exceeds the total area of land in a country (from WRI 2000-2001 and CIA 2002, Indicator 11), the figure used is total land area. This situation can occur because of overlap of the 100km band where coasts are close together or very convoluted. Landlocked countries for which this indicator is not applicable are given the value of zero (and the lowest EVI score).

Actions Needed to Complete Indicator Requirements

- International data requirements for this indicator have been met
- Current census information required to update density of people living in coastal settlements to 2002.

EVI Indicator 26 - Population Density

Indicator Details

Total human population density (number per square kilometre land area)

Data Review

EVI DATABASE		STATUS
Information Required	Total population, Land area	
Country Source	Information provided for this indicator.	
International Source	WRI 2000-2001, CIA Fact sheets 2001	
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments	Total population information provided for 2000. Information complete and relevant for time frame and is well supported by documents, publications and records. Information provided by the Office of Planning & Statistics. Further data still needed to update this indicator to 2002.	
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score	3	
Comments	Country data used to test indicator.	
EVI INDICATOR TESTING STATUS		
Testing Status	Testing complete	
Demonstration EVI	This indicator was analysed using global data and relevant environmental vulnerability scores established based on data for 232 countries.	
Alternative Proxy	No	
Comments:		

Actions Needed to Complete Indicator Requirements

- International data requirements for this indicator have been met
- Compilation of current population census data on the total population of country needed to update this indicator to 2002

EVI Indicator 27 - Population Growth

Indicator Details

Annual human population growth rate (percent) (average over last five years)

Data Review

EVI DATABASE		STATUS
Information Required	Population growth rate, five years data	
Country Source	Information provided for this indicator.	
International Source	WRI 2000-2001, U.S. Bureau of Census - International Data Base	
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments	Population growth rate provided for 1996 - 2000. Information complete and relevant for time frame and is well supported by documents, publications and records. Information provided by the Office of Planning & Statistics. Further data still needed to update this indicator to 2002.	
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score	No EVI Score	
Comments	Country data yet to be used for the testing of this indicator.	
EVI INDICATOR TESTING STATUS		
Testing Status	Testing complete.	
Demonstration EVI	This indicator was analysed using global data and relevant environmental vulnerability scores established based on data for 232 countries.	
Alternative Proxy	No	
Comments:		

Actions Needed to Complete Indicator Requirements

- International data requirements for this indicator have been met
- Compilation of current population census data to update indicator on the annual human population growth rate for 2001 - 2002

EVI Indicator 28 - Loss of Natural Cover

Indicator Details

Net percentage of land area changed by removal of natural vegetation over the last five years

Data Review

EVI DATABASE		STATUS
Information Required	Area of land cleared or modified, five years data	
Country Source	Information provided for this indicator	
International Source	WRI 2000-2001, FAO 1995 and 2001 State of the World's Forests	
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments	Information on the loss of natural cover is provided for 1999. Partial data are available for some regions and/or some years. Data are based on incomplete information and/or are completed through statistical projections (interpolation or extrapolation). Information is provided by the Environmental Quality Protection Board. Further information is still required to update this indicator to 2002.	
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score	No EVI Score	
Comments	International data used to test this indicator. Country data is yet to be used in the testing of this indicator.	
EVI INDICATOR TESTING STATUS		
Testing Status	Testing complete	
Demonstration EVI	Data was only available on natural and plantation forests only. Other forms of natural vegetation should be included and plantations should be excluded. Therefore this indicator was analysed using proxy global data and a relevant environmental vulnerability scores established based on data for 155 countries.	
Alternative Proxy	Yes – data on clearing of all vegetation types not available so a proxy of forest clearing was used	
Comments:	Data are for the period 1990-1995 and need to be updated.	

Actions Needed to Complete Indicator Requirements

- International data requirements for the proxy indicator have been met. Further work is required to compile data on all vegetation types and update data with more recent information.
- Compilation of data on the area of natural vegetation replanted each year and area of natural vegetation lost each year needs to be updated for 2000 - 2002

EVI Indicator 29 - Tourists

Indicator Details

Annual number of international tourists multiplied by the average length of stay in the country / land area (average over the last five years)

Data Review

EVI DATABASE		STATUS
Information Required	Number of tourists per year, average number of days stay (tourists include all non-residents), area of land, five years of data	
Country Source	Information provided for this indicator.	
International Source	WTO (World Tourism Organisation) web site	
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments	Tourist information provided for 1996 - 2000. Partial data are available for some regions and/or some years. Data is well documented and supported by publications and records. Information provided by the Office of Planning & Statistics. Further data still needed to update this indicator to 2002.	
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score	5	
Comments	Country data used to test indicator	
EVI INDICATOR TESTING STATUS		
Testing Status	Testing on proxy indicator complete	
Demonstration EVI	This indicator data was intended to be # international tourists x # of days stayed / land area. Data on days stayed were not generally available and have been omitted for this demonstration EVI. A proxy for this indicator using only the mean annual number of tourists / land area was used. This indicator was therefore analysed using global data for 169 countries and analysed for the modified proxy and relevant environmental vulnerability scores established.	
Alternative Proxy	Yes – mean annual number of tourists / land area was used due to lack of global data on the average number of days spent in a country by tourists	
Comments:	Information on the average number of days spent by tourists in countries needs to be compiled globally.	

Actions Needed to Complete Indicator Requirements

- International data requirements for the proxy indicator have been met. Further work is required to compile global data on the average number of days spent in a country by tourists to fully complete this indicator.
- Compilation of current data on the annual number of international tourists arrivals as well as average length of days stayed in the country is needed to update this indicator between 2001 - 2002

EVI Indicator 30 - Wastewater

Indicator Details

Litres of untreated industrial and domestic wastewater discharged per day per square kilometre of land area

Data Review

EVI DATABASE		STATUS
Information Required		Untreated, domestic and industrial wastewater, water usage, Land area
Country Source		Information provided for this indicator
International Source		No international database identified
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments		Wastewater information provided. Currency of data needs to be specified. Partial data are available for some regions and/or some years. Data are based on incomplete information and/or are completed through statistical projections (interpolation or extrapolation). Information provided by the Environmental Quality Protection Board.
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score		No EVI Score
Comments		Insufficient global data to establish scale for environmental vulnerability mapping. Country data exists; however, indicator is yet to be tested.
EVI INDICATOR TESTING STATUS		
Testing Status		Indicator still to be tested
Demonstration EVI		This indicator was not included in the Demonstration EVI. This was due to insufficient availability of global data needed to establish environmental vulnerability scores
Alternative Proxy		-
Comments:		Further work still required to identify relevant global data to capture indicator measure and establish environmental vulnerability mapping scores

Actions Needed to Complete Indicator Requirements

- Global database on wastewater discharge by countries needs to be identified. Alternatively more global country data on the release of industrial and domestic wastewater must be compiled.
- Information provided, although, the currency of data provided needs to be specified.

EVI Indicator 31 - Production Wastes

Indicator Details

Total net tonnage of generated and imported toxic, hazardous and municipal wastes per square kilometre land area average last 10 years

Data Review

EVI DATABASE	STATUS
Information Required Country Source International Source	Tonnes of toxic, hazardous & municipal wastes imported or generated, land area, 5 years data Information provided for this indicator EEA 2001 European Environment Agency, http://themes.eea.eu.int/Environmental_issues/waste/indicators/generation/w1_total_waste.pdf , UNEP 1998 http://www.unep.ch/basel/pub/table1.pdf , EPA http://www.zerowasteamerica.org/WasteTrade.htm , MZPSR Ministry of Environment of Slovak Republic 2000 http://www.sazp.sk/slovak/periodika/sprava/psreng/waste/waste_b_5.html

COUNTRY DATA CHARACTERISTICS AND QUALITY

Comments	Information on production waste provided for 1989 - 1999. Data are complete and relevant for the time frame required. Data are based on incomplete information and/or are completed through statistical projections (interpolation or extrapolation). Information provided by the Environmental Quality Protection Board.
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DEMONSTRATION EVI INDICATOR SCORE

Demonstration EVI Score	3
Comments	Country data used in the testing of this indicator.

EVI INDICATOR TESTING STATUS

Testing Status	Testing complete although may need review upon compilation of full global dataset.
Demonstration EVI	This indicator was analysed using partial global data and relevant environmental vulnerability scores established based on data for just 55 countries.
Alternative Proxy	No
Comments:	Data from in-country sources were difficult to obtain. Data for a larger number of countries is needed, but this should not affect the EVI scaling.

Actions Needed to Complete Indicator Requirements

- Global database on the generation of hazardous and municipal waste needs to be identified. Alternatively more global country data on the generation and import of municipal and hazardous waste must be compiled.
- No further information required for this indicator.

EVI Indicator 32 - Waste Treatment

Indicator Details

Mean percent of hazardous, toxic and municipal waste “effectively” managed or treated per year

* Effectively managed wastes are composted, reusing, recycled, subjected to controlled incineration (including temperature control, retention time control and control of emissions), and/or placed in controlled landfill (involving treatment of leachate, containment, gas management, aftercare and rehabilitation i.e. recovery, planting and post management).

Data Review

EVI DATABASE		STATUS
Information Required		Tonnes of wastes produced, percentage of these treated or managed to minimise environmental damage (biodegraded, digested etc)
Country Source		Information provided for this indicator
International Source		No international database identified
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments		Waste treatment information provided for between 1995 - 1999. Data are complete and relevant for the time frame required. Data are based on incomplete information and / or are completed through statistical projections (interpolation and extrapolation). Information provided by the Environmental Quality Protection Board. Further information is still required to update this indicator to 2002.
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score		No EVI Score
Comments		International data used to test this indicator. Country data yet to be used in testing
EVI INDICATOR TESTING STATUS		
Testing Status		Indicator still to be tested
Demonstration EVI		This indicator was not included in the Demonstration EVI. This was due to insufficient availability of global data needed to establish environmental vulnerability scores
Alternative Proxy		-
Comments:		Further work still required to identify relevant global data to capture indicator measure and establish environmental vulnerability mapping scores

Actions Needed to Complete Indicator Requirements

- Global database on the effective management of a country's waste needs to be identified. Alternatively more global country data on the generation and management of municipal, hazardous and toxic waste must be compiled together with the relevant separation and management of waste.
- Compilation of information on the mean percent of hazardous, toxic and municipal waste “effectively” managed or treated per year is needed to further update this indicator to 2002.

EVI Indicator 33 - Oil Spills

Indicator Details

Number of spills of oil and hazardous substances greater than 1000 litres during the last five years on land, in rivers or within territorial waters per square kilometre of land area

Data Review

EVI DATABASE		STATUS
Information Required	Spills of oil and hazardous materials, five years data	
Country Source	Information provided for this indicator	
International Source	ITOPF 2002 International Tanker Owners Federation - Refers to oil spills at sea only, SPILLS 2000 www.etcentre.org/spills . The source of the spill must be a vessel, generally a tanker or barge on which a petroleum product was cargo, and must involve at least 1000 barrels (42,000 gallons), CRED 2000 The OFDA/CRED International disaster database: data source derived from LLOYDS CAS	
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments	Information on oil spills provided for 1995 - 1999. Data are complete and relevant for the time frame required. Data are also based on best guesses. Information is provided by the Environmental Quality Protection Board. Further information required to update indicator to 2002.	
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score	1	
Comments	Country data used to test this indicator.	
EVI INDICATOR TESTING STATUS		
Testing Status	Preliminary testing carried out. Further testing may be required	
Demonstration EVI	This indicator was analysed using partial global data and relevant environmental vulnerability scores established based on data for just 150 countries	
Alternative Proxy	No	
Comments:	Data for a larger number of countries is needed, but this should not affect the EVI scaling.	

Actions Needed to Complete Indicator Requirements

- International data requirements for the indicator have been met. However further global data needs to be identified to reinforce proposed EVI scaling.
- Compilation of information on the number of oil spills > 1000 litres (oil and hazardous material) needed to update indicator from 2000 – 2002.

EVI Indicator 34 - Toxic Industries

Indicator Details

Number of nuclear, chemical and other major industrial facilities (e.g. oil rigs) that could cause significant environmental damage per square kilometre land area

* Toxic Industries include: Nuclear installations and all industrial complexes that employ >200 workers, such as chemical factories, pharmaceutical factories, oil rigs, oil refineries, metal refineries, smelters, steel works, power stations.

Data Review

EVI DATABASE		STATUS
Information Required	All nuclear facilities regardless of size (do not include hospitals, universities or research centres). All chemical and other industrial facilities which employ greater than 200 workers	
Country Source	Information provided for this indicator	
International Source	World Nuclear Association, WRI	
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments	Information on toxic industries provided. Data characteristics of age of data needs to be specified. Data are provided from other means. Data are based on incomplete information and/or are completed through statistical projections (interpolation or extrapolation). Information is provided by the Environmental Quality Protection Board.	
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score	No EVI Score	
Comments	Insufficient global data to establish scale for environmental vulnerability mapping. Relevant country data is yet to be used to test this indicator.	
EVI INDICATOR TESTING STATUS		
Testing Status	Preliminary testing carried out. Further testing may be required	
Demonstration EVI	As global data on toxic industries was unavailable a proxy measure was used. To obtain a proxy measure of the potential impact of toxic industries on the environment the number of industries in conjunction with the amount of energy consumed by industry was analysed. This indicator was then analysed using partial global data and relevant environmental vulnerability scores established based on data for just 117 countries	
Alternative Proxy	Yes - Analyse # industries, as well as total energy consumption by all industries as a proxy for industrial activity in the country	
Comments:		

Actions Needed to Complete Indicator Requirements

- International data requirements for the proxy indicator have been met.
- Information has been provided for this indicator, although, clarification is needed on the age of data provided and if needed recent data on the number of major industrial facilities that employ more than 200 workers that could cause significant environmental damage to 2002 is required. Also data is required for the proxy measure of the total energy consumption by all industries.

EVI Indicator 35 - Vehicles

Indicator Details

Number of vehicles per square kilometre of land area

Data Review

EVI DATABASE		STATUS
Information Required	Total number of vehicles now	
Country Source	Information provided for this indicator.	
International Source	WRI 2000-2001, OECD 1999, WRI 1998-1999	
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments	Vehicle information provided for 2000. Data are complete and relevant for the time frame required and is well supported by publications, records and other documents. Data provided by the Department of Motor Vehicles/ Ministry of Justice. Further information is needed to update this indicator to 2002.	
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score	5	
Comments	Country data used to test this indicator. Indicator still needs to be updated.	
EVI INDICATOR TESTING STATUS		
Testing Status	Preliminary testing carried out. Further testing may be required	
Demonstration EVI	This indicator was analysed using global data and relevant environmental vulnerability scores established based on data for 156 countries. Further testing may still be required to finalise this indicator	
Alternative Proxy	No	
Comments:		

Actions Needed to Complete Indicator Requirements

- International data requirements for this indicator have been met.
- Compilation of data on the total number of vehicles needs to be updated to 2002

EVI Indicator 36 - SO₂**Indicator Details****Maximum 24 hour SO₂ concentration (micro g/m³) (average over last five years)****Data Review**

EVI DATABASE	STATUS
Information Required	SO ₂ concentrations in the most populated or industrialised city over last 5 years as maxima recorded over each 24 hour period and averaged across days in each year. *Units are micrograms per cubic metre
Country Source	Information provided for this indicator..
International Source	GEO3 EDGAR, WRI, WDI, OECD, HDR 1999

COUNTRY DATA CHARACTERISTICS AND QUALITY

Comments	Information on SO ₂ concentrations provided for 1998. Partial data are available for some regions and/or some years. Data are based on incomplete information and/or are completed through statistical projections (interpolation or extrapolation). Information is provided by the Army Department. Further information is still required to update this indicator to 2002.
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DEMONSTRATION EVI INDICATOR SCORE

Demonstration EVI Score	1
Comments	Country data used in the testing of this indicator.

EVI INDICATOR TESTING STATUS

Testing Status	Preliminary testing carried out. Further testing may be required
Demonstration EVI	As global data was unavailable for the maximum 24 hour concentration of SO ₂ a proxy measure using the total amount of SO ₂ generated by a country was used. The proxy indicator was then analysed using global data and relevant environmental vulnerability scores established based on data for 223 countries.
Alternative Proxy	Yes
Comments:	

Actions Needed to Complete Indicator Requirements

- International data requirements for the proxy indicator have been met
- Compilation of any relevant information on the amount of SO₂ emissions is needed to update this indicator to 2002 including estimates from greenhouse gas emission statistics.

EVI Indicator 37 - Fertilisers

Indicator Details

Tonnes of nitrogen (N), phosphorus (P) and potassium (K) fertilizers used per square kilometre of agricultural land / year (average last five years)

Data Review

EVI DATABASE		STATUS
Information Required	Tonnage of total NPK used (locally manufactured and imported), five years data	
Country Source	Information provided for this indicator.	
International Source	WRI 2000-2001, OECD 1999	
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments	Information on fertilisers is provided for 1998 – 1999. Partial data are available for some regions and / or some years. Data are also based on best guesses. Information is provided by the Division of Agriculture and Mineral Resources. Further information is still required to update this indicator to 2002.	
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score	2	
Comments	Country data used to test this indicator.	
EVI INDICATOR TESTING STATUS		
Testing Status	Preliminary testing carried out. Further testing may be required	
Demonstration EVI	This indicator was analysed using global data and relevant environmental vulnerability scores established based on data for 164 countries. Further testing may still be required to finalise this indicator	
Alternative Proxy	No	
Comments:		

Actions Needed to Complete Indicator Requirements

- International data requirements for this indicator have been met
- Compilation of current information on the number of tonnes of N,P,K fertilisers used is needed to update this indicator from 2000 - 2002

EVI Indicator 38 - Pesticides

Indicator Details

Tonnes of pesticides used per square kilometre of agricultural land / year (average last five years)

Data Review

EVI DATABASE		STATUS
Information Required	Tonnage of all pesticides used (locally manufactured and imported), five years data	
Country Source	Information provided for this indicator.	
International Source	WRI 2000-2001, OECD 1999	
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments	Information on pesticides provided for 1998. Partial data are available for some regions and / or some years. Data are also based on best guesses. Information is provided by the Environmental Quality Protection Board. Further information is still required to update this indicator to 2002.	
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score	2	
Comments	Country data is yet to be used to test this indicator.	
EVI INDICATOR TESTING STATUS		
Testing Status	Preliminary testing carried out. Further testing may be required	
Demonstration EVI	This indicator was analysed using global data and relevant environmental vulnerability scores established based on data for 105 countries. The indicator was modified slightly to better capture the potential impact of pesticides on the environment, country land area data was used instead of agricultural land area. Further testing may still be required to finalise this indicator	
Alternative Proxy	No	
Comments:		

Actions Needed to Complete Indicator Requirements

- International data requirements for the proxy indicator have been met
- Compilation of information on the tonnage of pesticides used is needed to further update this indicator from 1999 - 2002

EVI Indicator 39 - Fisheries Stocks

Indicator Details

Number of new fisheries stocks or expanded fisheries efforts (greater than 20% increase in catches) added to the country over the last five years (within territory)

Data Review

EVI DATABASE		STATUS
Information Required		New stocks of fish species commercialised, last five years records
Country Source		Information provided for this indicator
International Source		WRI 2000-2001
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments		Information on new fisheries stocks provided for 1994 – 1998. Partial data are available for some regions and/or some years and is based on best guesses. Information is provided by the Division of Marine Resources. Further information is still required to update this indicator to 2002.
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score		No EVI Score
Comments		International data used to test this indicator. Country data is yet to be used in the testing of this indicator.
EVI INDICATOR TESTING STATUS		
Testing Status		Testing for this proxy indicator complete.
Demonstration EVI		This indicator has been revised to better capture the fishing pressure in a country. Capturing changes in catch per unit of effort (CPUE) over time, say percent change over 5 years, would be ideal for this indicator, but this proxy has been used because we were unable to find appropriate data to detect changes in CPUE. Data on number of fishers from WRI 2000-2001 is available but only incompletely covers years 1994-1996 (i.e. some years missing for most countries). Numbers of fishers are available for landlocked countries, where the length of coastline is sometimes recorded as zero (see Indicator 11). In the future, lengths of lake coastlines need to be added where this has been omitted for some countries, to allow for the calculation of values for this indicator. This indicator was analysed using global data for this proxy measure and relevant environmental vulnerability scores established based on data for just 97 countries.
Alternative Proxy		Yes – as data was unavailable on expanded fishing effort a proxy measure using the mean number of fishers was analysed. New modified indicator text - Fisheries effort as mean number of fishers per km coastline over last 5 years.
Comments:		

Actions Needed to Complete Indicator Requirements

- International data requirements for the proxy indicator have been met
- Compilation of information on the number of new fisheries stocks or expanded fisheries efforts is needed to update this indicator for 1999 - 2002. Also data is now required for the alternative proxy on the number of fishers for the past 5 years to 2002.

EVI Indicator 40 - Degradation

Indicator Details

Percent of land area degraded (salinisation, desertification, damaged by dams etc)

Data Review

EVI DATABASE		STATUS
Information Required	Area of land degraded through removal of all cover vegetation, excessive erosion, salinisation etc, Area of land	
Country Source	Information provided for this indicator.	
International Source	FAO / AGL	
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments	Information on land area degradation is provided and is less than two years old. Capacity exists, but collection and collation of data does not occur. Data are based on best guesses. Information is provided by the Environmental Quality Protection Board.	
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score	No EVI Score.	
Comments	International data used to test this indicator. Country data is yet to be used in the testing of this indicator.	
EVI INDICATOR TESTING STATUS		
Testing Status	Preliminary testing carried out. Further testing may be required	
Demonstration EVI	The indicator was then analysed using global data and relevant environmental vulnerability scores established based on data for 165 countries.	
Alternative Proxy	No	
Comments:		

Actions Needed to Complete Indicator Requirements

- International data requirements for this indicator have been met
- No further information is required for this indicator.

EVI Indicator 41 - Water

Indicator Details

Mean percentage of water usage per year met from renewable and non-declining sources

Data Review

EVI DATABASE		STATUS
Information Required	Annual water usage for the state; values separated for renewable and declining sources	
Country Source	Information provided for this indicator.	
International Source	WRI 2000-2001, Worldwater.org 2000	
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments	Information provided on water resources and is for between 1995 - 1999. . Partial data are available for some regions and/or some years. Data are based on incomplete information and/or are completed through statistical projections (interpolation or extrapolation). Information is provided by the Office of Environmental Response and Coordination. Further information is still required to update this indicator to 2002.	
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score	No EVI Score	
Comments	International data used to test this indicator. Country data is yet to be used in the testing of this indicator.	
EVI INDICATOR TESTING STATUS		
Testing Status	Preliminary testing carried out. Further testing may be required	
Demonstration EVI	As global databases did not provide the required data a proxy composite indicator was calculated using two sources. Total withdrawals may exceed 100% due to groundwater drawdowns, withdrawal from river inflows, and the operation of desalinisation plants. The proxy indicator was then analysed using global data and relevant environmental vulnerability scores established based on data for 145 countries.	
Alternative Proxy	Yes	
Comments:		

Actions Needed to Complete Indicator Requirements

- International data requirements for the proxy indicator have been met
- Information on the mean percentage of water usage per year met from renewable and non-declining sources needs to be updated to 2002.

EVI Indicator 42 - Deep Mining

Indicator Details

Tonnes of mining material (ore + tailings) extracted per square kilometre per land area per year average last five years

* Include all metals, oil, coal and any other non-renewables extracted through sub-surface mining

Data Review

EVI DATABASE		STATUS
Information Required	Ore and tailings extracted through mining activities	
Country Source	No country information provided for this indicator.	
International Source	World Nuclear Association 2003, Diamond Registry 2002, USGS 1996-2000	
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments	NA	
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score	1	
Comments	International data used to test this indicator.	
EVI INDICATOR TESTING STATUS		
Testing Status	Preliminary testing carried out. Further testing may be required	
Demonstration EVI	Global data on mining material (ore + tailings) was unavailable. A proxy measure using mining production figures was analysed.	
Alternative Proxy	Yes – mining production figures were used instead of mining material	
Comments:	Data on mining material needs to be compiled for a more accurate assessment of environmental vulnerability to mining. Also due to the difficulties with the identification of relevant data some consideration has been given to the merging of this indicator with Indicator 43.	

Actions Needed to Complete Indicator Requirements

- International data requirements for the proxy indicator have been met
- Compilation of information on the tonnes of ore mining material including all metals, oil, coal and any other non-renewables as well as tailings is needed for 1998 - 2002

EVI Indicator 43 - Surface Mining

Indicator Details

Percentage of land, rivers and coastal zone affected by mining and quarrying

* Include land, rivers, lakes, coastal zone (lagoons, harbours, reef areas), any areas of the continental shelf

Data Review

EVI DATABASE		STATUS
Information Required		Land and sea area affected now
Country Source		Information provided for this indicator
International Source		No international database identified
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments		Surface Mining information provided. Data currency needs to be specified. Data are complete and relevant for the time frame required. Data are based on incomplete information and/or are completed through statistical projections (interpolation or extrapolation). Information is provided by the Environmental Quality Protection Board.
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score		No EVI Score
Comments		Insufficient global data to establish scale for environmental vulnerability mapping. Country information is yet to be used in the testing of this indicator.
EVI INDICATOR TESTING STATUS		
Testing Status		Indicator still to be tested
Demonstration EVI		This indicator was not included in the Demonstration EVI. This was due to insufficient availability of global data needed to establish environmental vulnerability scores. This difficulty in identification of data has led to the consideration of merging this indicator with Indicator 42.
Alternative Proxy		-
Comments:		Further analysis and consideration of the merging of indicators 42 and 43 is still needed.

Actions Needed to Complete Indicator Requirements

- Global database on mining and areas affected needs to be identified. Alternatively more global country data areas affected by mining must be compiled for this indicator.
- Information provided for this indicator, although, data currency for the data provided needs to be specified.

EVI Indicator 44 - Terrestrial Reserves

Indicator Details

Percent of terrestrial zone set aside as reserves

Data Review

EVI DATABASE		STATUS
Information Required	Land area managed as no-take reserves	
Country Source	Information provided for this indicator	
International Source	WRI 2000-2001	
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments	Information on the percentage of terrestrial zone set aside for reserves is provided and is less older than 1995. Partial data are available for some regions and/or some years and is based on best guesses. Information provided by the Palau Conservation Society. Further information is still needed to update this indicator to 2002.	
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score	3	
Comments	Country information used to test this indicator.	
EVI INDICATOR TESTING STATUS		
Testing Status	Preliminary testing carried out. Further testing may be required	
Demonstration EVI	This indicator was analysed using global data and relevant environmental vulnerability scores established based on data for 161 countries. Further testing may still be required to finalise this indicator	
Alternative Proxy	No	
Comments:		

Actions Needed to Complete Indicator Requirements

- International data requirements for this indicator have been met
- Compilation of information on the percent of terrestrial zone set aside as reserves needs to be updated to 2002.

EVI Indicator 45 - Marine Reserves

Indicator Details

Percent of marine zone set aside as reserves (mean high tide to continent shelf)

Data Review

EVI DATABASE	STATUS
Information Required	Marine area managed as no-take reserves
Country Source	Information provided for this indicator
International Source	WCMC, WRI 2000 – 2001
COUNTRY DATA CHARACTERISTICS AND QUALITY	
Comments	Information on marine reserves provided for between 1995 – 1999. Partial data are available for some regions and/or some years. Data are well supported by publications, records or other documentation. Information provided by the Palau Conservation Society.
DEMONSTRATION EVI INDICATOR SCORE	
Demonstration EVI Score	No EVI Score
Comments	Country data yet to be used to test indicator
EVI INDICATOR TESTING STATUS	
Testing Status	Preliminary testing carried out. Further testing may be required
Demonstration EVI	This indicator was analysed using global data and relevant environmental vulnerability scores established based on data for 161 countries. Further testing may still be required to finalise this indicator
Alternative Proxy	No
Comments:	

Actions Needed to Complete Indicator Requirements

- International data requirements for this indicator have been met
- Compilation of information on the percent of marine zone set aside as reserves needs to be updated to 2002.

EVI Indicator 46 - War**Indicator Details****Number of war or civil strife years over the last 50 years within the territory****Data Review**

EVI DATABASE		STATUS
Information Required	Number of wars, riots, other forms of civil strife carried out during the last 50 years. Do not include one-off acts	
Country Source	No country information provided for this indicator.	
International Source	EM-DAT	
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments	NA	
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score	1	
Comments	International data used to test this indicator.	
EVI INDICATOR TESTING STATUS		
Testing Status	Preliminary testing carried out. Further testing may be required	
Demonstration EVI	This indicator was analysed using global data and relevant environmental vulnerability scores established based on data for 233 countries. Further testing may still be required to finalise this indicator	
Alternative Proxy	No	
Comments:		

Actions Needed to Complete Indicator Requirements

- International data requirements for this indicator have been met
- Confirmation required that no wars or civil strife has occurred in the country over the last 50 years to 2002 is needed.

EVI Indicator 47 - Legislation

Indicator Details

Environmentally related legislation with regulations

Data Review

EVI DATABASE		STATUS
Information Required	The effective legislation of a country	
Country Source	Information provided for this indicator.	
International Source	SEDAC / CIESIN 2003	
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments	Information provided for environmentally related legislation with regulations. Currency of data needs to be specified. Data is available from other means. Data are also based on best guesses. Information is provided by the Environmental Quality Protection Board.	
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score	7	
Comments	Country data used to test this indicator.	
EVI INDICATOR TESTING STATUS		
Testing Status	Preliminary testing carried out on proxy indicator. Further testing may be required	
Demonstration EVI	As global data on environmental legislation in countries was unavailable a proxy measure using the number of global environmental treaties in force in the country was used. The proxy indicator was then analysed using global data and relevant environmental vulnerability scores established based on data for 196 countries.	
Alternative Proxy	Yes	
Comments:		

Actions Needed to Complete Indicator Requirements

- International data requirements for the proxy indicator have been met
- Information provided for this indicator, although, currency of data needs to be specified. Also data is required for the proxy indicator used in the Demonstration EVI on the number of global environmental treaties that have been ratified and implemented in the country.

EVI Indicator 48 - Sanitation

Indicator Details

Percentage of population with access to safe sanitation

* Safe sanitation as defined by WHO

Data Review

EVI DATABASE		STATUS
Information Required	Number of people with access to safe sanitation	
Country Source	Information provided for this indicator	
International Source	WRI 2000-2001	
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments	Information on sanitation is provided for 2000. Partial data are available for some regions and/or some years. Data are well supported by publications, records or other documentation. Information is provided by the Office of Planning & Statistics. Further information is still needed to update this indicator to 2002.	
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score	4	
Comments	Country data used to test this indicator.	
EVI INDICATOR TESTING STATUS		
Testing Status	Preliminary testing carried out. Further testing may be required	
Demonstration EVI	This indicator was analysed using global data and relevant environmental vulnerability scores established based on data for 108 countries. Further testing may still be required to finalise this indicator	
Alternative Proxy	Yes	
Comments:		

Actions Needed to Complete Indicator Requirements

- International data requirements for the proxy indicator have been met
- Compilation of recent information on the percentage of population with access to safe sanitation is needed to update this indicator to 2002.

EVI Indicator 49 - GMOs

Indicator Details

Area of land engaged in the agriculture or field testing of any genetically modified organisms

Data Review

EVI DATABASE		STATUS
Information Required	Area of land being used to raise genetically modified crops or animals	
Country Source	No country data provided for this indicator.	
International Source	OECD 2000, ISAAA, BINAS, BIOTECH 1991-1999, Information Systems for Biotechnology	
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments	NA	
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score	No EVI Score	
Comments	Insufficient global data to establish scale for environmental vulnerability mapping. Relevant country data urgently needs to be identified to contribute to the overall testing of this indicator and establishment of relevant environmental vulnerability scale.	
EVI INDICATOR TESTING STATUS		
Testing Status	Testing carried out on this proxy indicator complete.	
Demonstration EVI	As global data on the area of agriculture under GMO was unavailable the cumulative number of field trials of GMOs conducted was analysed. The proxy indicator was then analysed using global data and relevant environmental vulnerability scores established based on data for 48 countries.	
Alternative Proxy Comments:	Yes	

Actions Needed to Complete Indicator Requirements

- International data requirements for the proxy indicator have been met
- Confirmation required that no land area has been used for Genetically Modified crops or animals to 2002. Also as an alternative proxy was used in the Demonstration EVI further data on the number of trials carried out on GMOs in country is needed.

EVI Indicator 50 - Shared Borders

Indicator Details

Number of land and sea borders shared with other countries

* Include 'High Seas' as a country

Data Review

EVI DATABASE		STATUS
Information Required	Number of countries with which the country shares borders. These may be wet or dry borders	
Country Source	No country data provided for this indicator.	
International Source	EVI Team using CIA 2000, Encarta 1999, 2000 and other sources	
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments	NA.	
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score	2	
Comments	International data used to test this indicator.	
EVI INDICATOR TESTING STATUS		
Testing Status	Preliminary testing carried out. Further testing may be required	
Demonstration EVI	This indicator was analysed using global data and relevant environmental vulnerability scores established based on data for 232 countries. Further testing may still be required to finalise this indicator.	
Alternative Proxy	No	
Comments:		

Actions Needed to Complete Indicator Requirements

- International data requirements for the indicator have been met
- Country information on the number of land and sea borders shared with other countries was compiled by the EVI team using CIA 2000, Encarta 1999, 2000 and other sources. It is therefore expected that no further data will be needed from country sources other than confirmation of the accuracy of data used.

EVI Indicator 51 - Fragmentation of Vegetation

Indicator Details

Percent of natural vegetation cover in fragments of less than or equal to 1000 ha, excluding those that occupy entire islands

Data Review

EVI DATABASE		STATUS
Information Required	Cumulative area of all fragments of natural cover greater than 1,000 ha in the country as a percent of total land area	
Country Source	No country data provided for this indicator	
International Source	World bank Development Indicators – http://www.worldbank.org/data/wdi2001/cdrom.htm	
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments	NA	
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score	No EVI Score	
Comments	International data used to test this indicator. Relevant country data urgently needs to be identified to contribute to the overall testing of this indicator and establishment of relevant environmental vulnerability scale.	
EVI INDICATOR TESTING STATUS		
Testing Status	Testing on proxy indicator complete.	
Demonstration EVI	Global data on for this indicator was unavailable. To provide a proxy measure to capture the increasing fragmentation of natural cover the total length of roads was analysed. The proxy indicator was then analysed using global data and relevant environmental vulnerability scores established based on data for 169 countries.	
Alternative Proxy	Yes	
Comments:		

Actions Needed to Complete Indicator Requirements

- International data requirements for the proxy indicator have been met
- Compilation of information on the area of land under natural cover in fragments > 1000 ha to 2002. As an alternative proxy was used in the Demonstration EVI further data is required on the total length of roads.

EVI Indicator 52 - Migratory Species

Indicator Details

Number of known species which migrate outside the territorial area at any time during their life spans (including marine species)

Data Review

EVI DATABASE		STATUS
Information Required	Number of known species that spend any part of their life cycle outside of the country's territory or EEZ, whichever is the larger	
Country Source	No country data provided for this indicator.	
International Source	GROMS	
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments	NA	
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score	4	
Comments	International data used to test this indicator. Country data still to be compiled.	
EVI INDICATOR TESTING STATUS		
Testing Status	Preliminary testing carried out. Further testing may be required	
Demonstration EVI	This indicator was analysed using global data and relevant environmental vulnerability scores established based on data for 229 countries. Further testing may still be required to finalise this indicator.	
Alternative Proxy	No	
Comments:		

Actions Needed to Complete Indicator Requirements

- International data requirements for the indicator have been met
- Compilation of information on the number of known migratory species that spend time outside the countries territory during their life spans

EVI Indicator 53 – Ice

Indicator Details

Mean percent annual change of area of ice (glaciers, permafrost, icesheets) (average over last 5 years)

Permafrost: is defined solely by temperature. Any rock or soil remaining at or below 0° C for 2 or more years is permafrost. It can contain >30% ice, or practically no ice at all. The land may be overlain by snow, or not. Land under glaciers, rivers and streams is often free of permafrost, despite freezing air temperatures. (<http://www.nsidc.com/sotc/permafrost.html>).

Data Review

EVI DATABASE		STATUS
Information Required		Increase or decrease in area occupied by ice in the country over past 5 years
Country Source		No country data provided for this indicator.
International Source		No international database identified
COUNTRY DATA CHARACTERISTICS AND QUALITY		
Comments		NA
DEMONSTRATION EVI INDICATOR SCORE		
Demonstration EVI Score		No EVI Score
Comments		Insufficient global data to establish scale for environmental vulnerability mapping. Relevant country data urgently needs to be identified to contribute to the overall testing of this indicator and establishment of relevant environmental vulnerability scale.
EVI INDICATOR TESTING STATUS		
Testing Status		Indicator still to be tested
Demonstration EVI		This indicator was not included in the Demonstration EVI. This was due to insufficient availability of global data needed to establish environmental vulnerability scores
Alternative Proxy		-
Comments:		Further work still required to identify relevant global data to capture indicator measure and establish environmental vulnerability mapping scores

Actions Needed to Complete Indicator Requirements

- Investigative work still required to identify global data on the annual change of area of ice - glaciers, permafrost and ice sheets.
- Confirmation required that no glaciers, permafrost or icesheets exist in the country

EVI Indicator 54 - Slides

Indicator Details

Number of slides (include landslides, mudslides, avalanches) lasting more than 30 seconds recorded over the past 5 years, divided by area of mountainous* lands

* Mountainous lands are any over 1000m above sea level.

Data Review

EVI DATABASE	STATUS
Information Required	Number of slides of any kind with a duration of longer than 30 seconds, area of mountainous lands
Country Source	No country information provided for this indicator.
International Source	EVI Team calculated area of mountainous lands from Encarta 2000 Maps. Area was estimated using a point intercept method on electronic maps at a scale 1:7.4million. EMDAT: OFDA/CRED Int. Disaster Database 2001

COUNTRY DATA CHARACTERISTICS AND QUALITY

Comments NA

DEMONSTRATION EVI INDICATOR SCORE

Demonstration EVI Score No EVI Score
Comments International data used to test this indicator. Relevant country data urgently needs to be updated to contribute to the overall testing of this indicator and establishment of relevant environmental vulnerability scale

EVI INDICATOR TESTING STATUS

Testing Status Testing on proxy indicator complete.
Demonstration EVI This indicator was analysed using global data and relevant environmental vulnerability scores established based on data for 132 countries.
Alternative Proxy Yes– as data was unavailable for duration of slides a proxy measure using information on the number of recorded slides impacting upon human systems was used.
Comments: EM-DAT disaster databases contain essential data on the occurrence and effects of mass disasters in the world from 1900 to the present. The following definition for disaster has been used: "A disaster is a situation or event which overwhelms local capacity, necessitating a request to national or international level for external assistance."

Actions Needed to Complete Indicator Requirements

- International data requirements for the proxy indicator have been met
- Information required on the number of slides (include landslides, mudslides, avalanches) lasting more than 30 seconds from 1998 – 2002. Although, data still needs to be compiled for the proxy used which should include if possible slides lasting more than 30 seconds or slides that have resulted in disaster as defined in the Demonstration EVI.

Conclusion

To ensure completion of the EVI for consideration by international processes such as Commission on Sustainable Development (CSD) and Barbados+10 in 2004 it is critical that all data compilation activities be completed as soon as possible. It is envisaged that with a concerted effort by all key partners including the EVI team, collaborators, organisations and other parties the compilation of all remaining global EVI indicator data and 100% completion of all collaborating country EVI data profiles can be achieved by the end of 2003.

The Palau country profile has been compiled from both international and country sources. It is now approximately 54% complete. Following a comprehensive review of the data holdings and requirements for the EVI, the current status of the profile is as follows:

No. of Indicators	Status	Indicators List	Legend
9 indicators	Data urgently needed	5, 6, 42, 46, 49, 51 - 54	
34 indicators	Confirmation and update of data required	1 – 4, 16 – 30, 32 – 39, 41, 43 – 45, 47, 48, 50	
11 indicators	Data requirements completed	7 – 15, 31, 40	

The target of 100% completion of the Palau EVI data profile by the end of 2003 is practicable and the key actions necessary to ensure this target is met are outlined:

No	Indicator	Actions Required to Complete Indicator Data Requirements
1	Sea Temperature	Compilation of all relevant country information on sea surface temperature is needed to further update this indicator to 2002.
2	High winds	Compilation of country wind data is needed to update this indicator from 1998 – 2002 for all climate stations and the 30-year meteorological average wind speed for each month. (From this data the number of days where gusts of > 3 seconds exceeded this average maximum wind for that month will be extracted).
3	Dry periods	Further information is required to update this indicator for 2000 – 2002.
4	Wet periods	Further information is required to update this indicator for 2000 – 2002.
5	Heat spells	Compilation of information on the number of days over the last five years in which the maximum temperature was greater than 5°C higher than the mean monthly maximum (reference mean is from the 30 year average for each month) (Accumulated over all reference stations/ number of climate stations)
6	Cold spells	Compilation of information on the number of days over the last five years in which the minimum temperature was greater than 5°C lower than the mean monthly minimum (reference mean from the 30 year average for each month) (Accumulated over all reference stations/ number of climate stations)
7	Volcanoes	No further data will be needed from country sources.
8	Earthquakes	No further data will be needed from country sources.
9	Tsunamis	No further data will be needed from country sources.
10	Land area	No further information required.
11	Fragmentation	No further information required for this indicator.
12	Isolation	No further information required for this indicator.
13	Relief	No further information is required, although currency of data needs to be specified.
14	Lowlands	No further information required for this indicator.
15	Coastal vulnerability	No further information required for this indicator.
16	Endemics	Compilation of information on the number of known endemic species is needed to update this

		indicator to 2002.
17	Pathogens	Data on the total number of reported (and verified) organism outbreaks needs to be compiled to update indicator for 2000 - 2002
18	Potential for introductions	Compilation of current information on total tonnage of freight imported per year needed for 1999 – 2002. Data is also required for the proxy used in the Demonstration EVI for the value of freight imports over the past 5 years.
19	Introductions	Compilation of information on the number of species introduced is needed to update this indicator to 2002.
20	Endangered species	Compilation of information on the number of endangered and threatened species is needed to further update this indicator to 2002.
21	Extinctions	Compilation of information on the number of species known to have become extinct is needed to update this indicator to 2002.
22	Natural vegetation	Information provided for this indicator, although, data characteristics of age of data and completeness need to specified.
23	Intensive farming	Compilation of current information on tonnage of intensively farmed animal products per year needs to be updated for 1998 - 2002. Alternatively data for the number of head of chickens, ducks, geese, pigs and turkeys produced should be provided as well as the tonnage of aquaculture production. Estimates of the total tonnage of farmed animal products for each year will then be estimated based on average tonnage production for each animal.
24	Fisheries	Alternative information is also required for the proxy used in the Demonstration EVI which includes data on the annual fisheries catches in a country for the past 5 years to 2002.
25	Coastal settlements	Further information required to update density of people living in coastal settlements to 2002.
26	Population density	Compilation of current population census data on the total population of country needed to update this indicator to 2002
27	Population growth	Compilation of current population census data to update indicator on the annual human population growth rate for 2001 - 2002
28	Loss of natural cover	Compilation of data on the area of natural vegetation replanted each year and area of natural vegetation lost each year needs to be updated for 2000 - 2002
29	Tourists	Compilation of current data on the annual number of international tourists arrivals as well as average length of days stayed in the country is needed to update this indicator between 2001 - 2002
30	Wastewater	Information provided, although, currency of data needs to be specified.
31	Production wastes	No further information required for this indicator.
32	Waste treatment	Compilation of information on the mean percent of hazardous, toxic and municipal waste “effectively” managed or treated per year is needed to further update this indicator to 2002.
33	Oil spills	Compilation of information on the number of oil spills > 1000 litres (oil and hazardous material) needed to update indicator from 2000 – 2002.
34	Toxic industries	Information has been provided for this indicator, although, the age of the data needs to be specified. Also, information for the alternative proxy on the number of major industrial facilities that employ more than 200 workers including chemical factories, pharmaceutical factories, oil rigs, oil refineries, metal refineries, smelters, steel works, power stations to 2002 is needed.
35	Vehicles	Compilation of data on the total number of vehicles needs to be updated to 2002
36	SO ₂	Compilation of any relevant information on the amount of SO ₂ emissions id needed to update this indicator to 2002 including estimates- from greenhouse gas emission statistics.
37	Fertilisers	Compilation of current information on the number of tonnes of N,P,K fertilisers used is needed to update this indicator from 2000 - 2002
38	Pesticides	Compilation of information on the tonnage of pesticides used is needed to further update this indicator from 1999 - 2002
39	Fisheries stocks	Compilation of information on the number of new fisheries stocks or expanded fisheries efforts is needed to update this indicator for 1999 - 2002. Also data is now required for the alternative proxy on the number of fishers for the past 5 years to 2002.
40	Degradation	No further information is required for this indicator.
41	Water	Information on the mean percentage of water usage per year met from renewable and non-declining sources needs to be updated to 2002.
42	Deep mining	Compilation of information on the tonnes of ore mining material including all metals, oil, coal and any other non-renewables as well as tailings is needed for 1998 - 2002
43	Surface mining	Information provided for this indicator, although, data currency needs to be specified.
44	Terrestrial reserves	Compilation of information on the percent of terrestrial zone set aside as reserves needs to be updated to 2002.
45	Marine reserves	Compilation of information on the percent of marine zone set aside as reserves needs to be updated to 2002.
46	War	Compilation of information on the number of war or civil strife years over the last 50 years within the territory is needed to 2002.
47	Legislation	Information provided for this indicator, although, currency of data needs to be specified. Also data is also required for the proxy indicator used in the Demonstration EVI on the number of global

		environmental treaties that have been ratified and implemented in the country.
48	Sanitation	Compilation of information on the percentage of population with access to safe sanitation is needed to update this indicator to 2002.
49	Genetically modified organisms	Compilation of data on the area of land used for Genetically Modified crops or animals to 2002. Also as an alternative proxy was used in the Demonstration EVI further data on the number of trials carried out on GMOs in country is needed.
50	Shared borders	No further data will be needed from country sources other than confirmation of the accuracy of data used.
51	Fragmentation of vegetation	Compilation of information on the area of land under natural cover in fragments > 1000 ha to 2002. As an alternative proxy was used in the Demonstration EVI further data is required on the total length of roads.
52	Migratory species	Compilation of information on the number of known migratory species that spend time outside the country's territory during their life spans
53	Ice	Confirmation that no glaciers, permafrost or icesheets exist in the country
54	Slides	Information required on the number of slides (include landslides, mudslides, avalanches) lasting more than 30 seconds from 1998 – 2002. Although, data still needs to be compiled for the proxy used which should include if possible slides lasting more than 30 seconds or slides that have resulted in disaster as defined in the Demonstration EVI.