# CDP-project: Development Agenda Beyond 2015

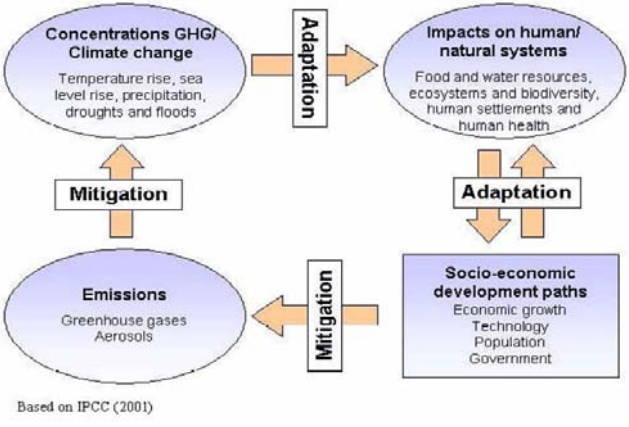
climate/sustainable development

Hans Opschoor

opschoor@iss.nl

# Development Agenda Beyond 2015: Climate/sustainable development

An integrated framework of climate change



# Regional impacts

| | Africa | Asia | Latin Am. | A & NZ | Europe | North Am. | Polar reg. | Small Is. |
|---|---|---|---|---|---|---|---|---|
| Water resources | 9.4.1 | 10.4.2 | 13.4.2<br>13.4.3 | 11.4.1 | 12.4.1 | F3.7<br>F14.1a | 15.4.1 | F3.7 |
| Marine ecosystems | 4.4.9<br>5.4.6 | 4.4.9<br>5.4.6 | 4.4.9<br>5.4.6 | 4.4.9<br>5.4.6 | 4.4.9<br>5.4.6 | 4.4.9<br>5.4.6 | 4.4.9<br>5.4.6 | 4.4.9<br>5.4.6 |
| Forest ecosystems | 4.4.5 | T4.2<br>10.4.4 | 13.4.1 | T11.4 | 12.4.4. | 14.4.2 | 4.4.5 | 16.4.4<br>B16.1 |
| Grassland ecosystems | 4.4.3 | 10.4.4 | T4.2 | T11.4 | 12.4.4 | 4.4.3 | 4.4.6 | |
| Lakes, rivers and wetlands | 4.4.8 | 10.4.3 | | T11.4 | 12.4.5 | 14.4.1 | 15.4.1 | |
| Coastal ecosystems | 9.4.6 | 10.4.3 | T13.5 | T11.4<br>T4.2 | 12.4.2 | 14.4.3 | 4.4.6<br>15.4.7 | 16.4.2 |
| Birds, amphibians and terrestrial mammals | T4.2<br>4.4.3 | | | T11.1 | 12.4.6 | 14.4.2 | 4.4.6<br>B4.4 | B16.1 |
| Commercial agriculture | 9.4.4 | 10.4.1 | 13.ES<br>13.4.2 | 11.4.3 | 12.4.7 | 14.4.4 | 15.4.2 | 16.4.3 |
| Subsistence agriculture | 9.4.4 | 10.4.1 | | | | | 15.4.2 | 16.4.3 |
| Livestock | F5.6<br>9.4.4 | 10.4.1 | 13.4.2 | 11.4.3 | T12.7 | 5.4.3 | | |
| Forestry | F5.6 | F5.6 | F5.6 | 11.4.4 | F5.6 | 14.4.4 | 15.4.2 | |
| Coastal settlements | 9.4.6 | 10.4.3 | 13.4.4<br>T13.5 | 11.4.5 | 12.4.2 | 14.4.3 | 15.4.7<br>15.7.1 | 16.4.2 |
| Urban areas and megacities | T9.2<br>9.4.8 | 10.4.3 | 13.4.5 | 11.4.7 | T12.7 | 14.4.5<br>14.4.6 | 15.7.1 | 16.4.5 |
| Human health: heat stress | T9.2 | 10.4.5 | 13.4.5 | 11.4.11 | 12.4.11 | 14.4.5 | | 16.4.5 |
| Human health:<br>Vector-borne diseases | 9.4.3 | 10.4.5 | 13.4.5 | 11.4.11 | 12.4.11 | 14.4.5 | 15.4.6 | 16.4.5 |
| Energy demand:<br>Increased demand shown -ive | T9.2 | 10.4.6 | 13.4.5 | 11.4.10 | 12.4.8 | 14.4.8 | 15.ES | |
| Transport | T9.2 | 10.4.6 | | 11.ES | 12.4.8 | 14.4.8 | 15.ES<br>15.7.1 | 16.4.7 |
| Construction industry | T9.2 | | | | | 14.4.8 | 15.7.1 | |
| Tourism | 9.4.7 | 10.5.6 | 13.ES | 11.4.9<br>11.5 | 12.4.9 | 14.4.7 | | 16.4.6 |

Estimated impact of climate change:

Negative: Strongly negative ↑ Weakly negative

Positive: Strongly positive ↑ Weakly positive

Neutral

N/A or no information

**Table 24. Total annual costs of adaptation for all sectors, by region, 2010–50 ($ billions at 2005 prices, no discounting)**

| Cost aggregation type | East Asia and Pacific | Europe and Central Asia | Latin America and Caribbean | Middle East and North Africa | South Asia | Sub-Saharan Africa | Total |
|---|---|---|---|---|---|---|---|
| **National Centre for Atmospheric Research (NCAR), wettest scenario** | | | | | | | |
| Gross sum | 28.7 !!!! | 10.5 | 22.5!!! | 4.1 | 17.1 ! | 18.9!! | 101.8 |
| X-sum | 25.0 | 9.4 | 21.5 | 3.0 | 12.6 | 18.1 | 89.6 |
| Net sum | 25.0 | 9.3 | 21.5 | 3.0 | 12.6 | 18.1 | 89.5 |
| **Commonwealth Scientific and Industrial Research Organization (CSIRO), driest scenario** | | | | | | | |
| Gross sum | 21.8 !!!! | 6.5 | 18.8 !! | 3.7 | 19.4 !!! | 18.1! | 88.3 |
| X-sum | 19.6 | 5.6 | 16.9 | 3.0 | 15.6 | 16.9 | 77.6 |
| Net sum | 19.5 | 5.2 | 16.8 | 2.9 | 15.5 | 16.9 | 76.8 |

Note: Gross sum is the aggregate cost for all positive costs incurred by countries for a particular sector, ignoring all country and sector combinations resulting in negative costs. Net sum includes both positive and negative costs. X-sum sets all costs for a given country at zero if the net sum for the country is negative.

Source: Economics of Adaptation to Climate Change study team.

# Development Agenda Beyond 2015: climate/sustainable development

## Two most SD-relevant MDGs

| | |
|---|---|
| **Goal 7:** | **Ensure environmental sustainability** |
| ***target 9:*** | ***integrate principles of SD into country policies; reverse loss of environmental resources*** |
| ***target 10:*** | ***halve by 2015 the proportion of people without sustainable access to safe drinking water*** |
| ***target 11:*** | ***a significant improvement in lives of >100 M slum dwellers*** |
| **Goal 8:** | **Develop global partnership for dev't** |
| ***target 12:*** | ***develop open, rule-based, predictable, non-discriminatory trading and financial system*** |

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## Indicators related to Goal 7:

25. Proportion of land area covered by forest

26. Ratio of area protected for biodiversity to surface area

27. Energy use (kg oil equivalent) per $1 GDP (PPP)

28. Carbon dioxide emissions per capita and consumption of ozone-depleting CFCs

29. Proportion of population using solid fuel

30-31. Proportion of population with sustainable access to an improved water source, and to improved sanitation

32. Proportion of households with access to secure tenure

## Development Agenda Beyond 2015: climate/sustainable development

**APPROACH:**

**Climate issue one of several problems on development-biosphere interface**

**Development-climate/environment issues require new perspectives and strategies at all levels (global down to local)**

**These issues best addressed in a framework of coherence, sustainable development and contextuality**

**Process-related issues as well as structural ones (‘enabling environments, governance architectures)**

**SUSTAINABLE DEVELOPMENT**:

a process of change in which:

- the exploitation of resources,
- the direction of investments,
- the orientation of technological development, and
- institutional change

are all compatible ("in harmony") and enhance both current and future potential to meet human needs and aspirations.

(after) WCED 1987:46

## Development Agenda Beyond 2015: climate/sustainable development

**Structure of the chapter:**

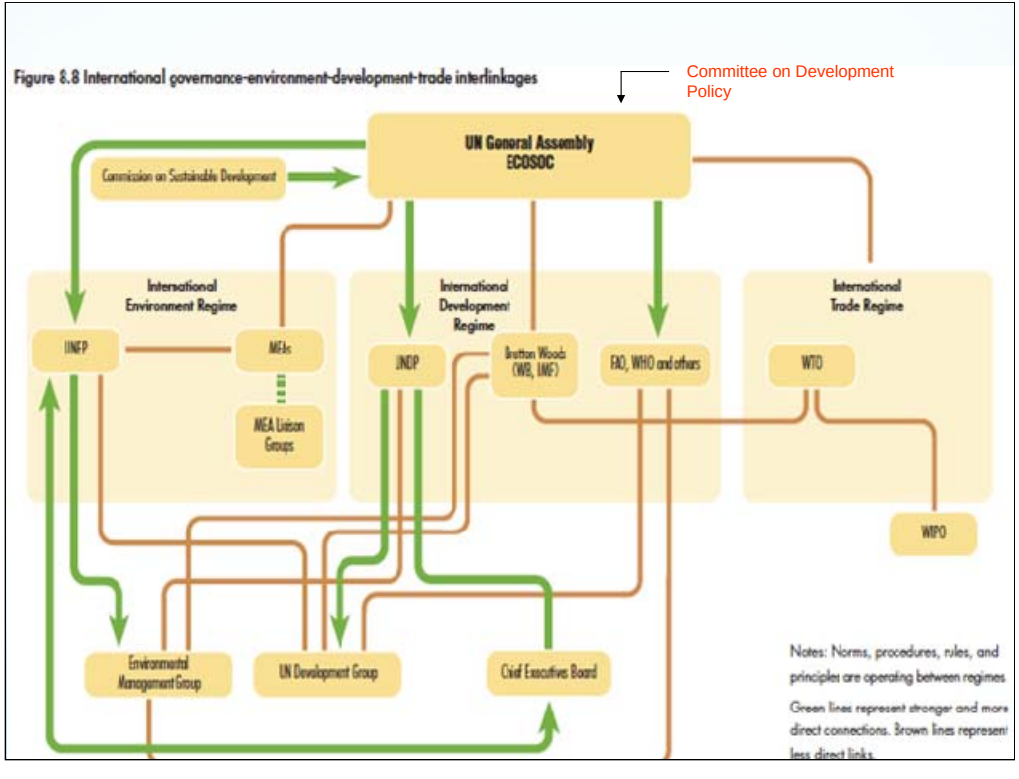
1) **General aspects (embedding CC in coherent SD)**
2) **climate-development linkages at the international level**
3) **New development objectives and strategies at national level (differentiation for different categories of developing countries)**
4) **“Local level” considerations (incl: role of CSOs, private sector, etc).**

## Development Agenda Beyond 2015: climate/sustainable development

**Special features/foci:**

- **Economic and financial considerations**
- **Agriculture/land use (change) *and* energy**
- **“Institutions” and institional change as well as technological innovation**
- **Link with recent attention for employment/work, urbanisation and migration**

Figure 8.8 International governance-environment-development-trade interlinkages



# CDP EGM reviewing criteria for the identification of LDCs, 2-3 Feb 2011

***Beyond the environmental space***

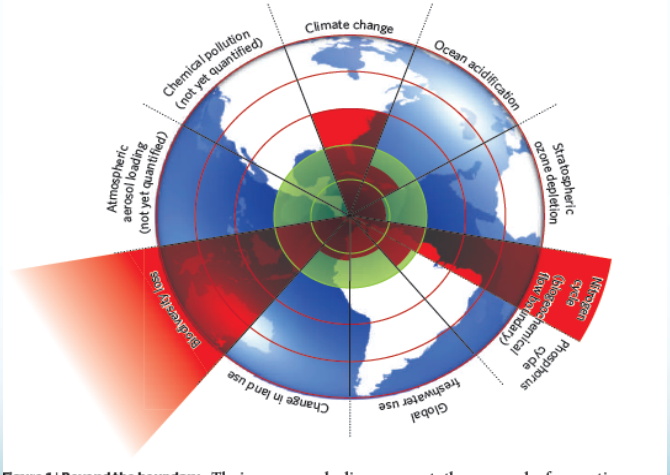



**Figure 1 | Beyond the boundary.** The inner green shading represents the proposed safe operating space for nine planetary systems. The red wedges represent an estimate of the current position for each variable. The boundaries in three systems (rate of biodiversity loss, climate change and human interference with the nitrogen cycle), have already been exceeded.

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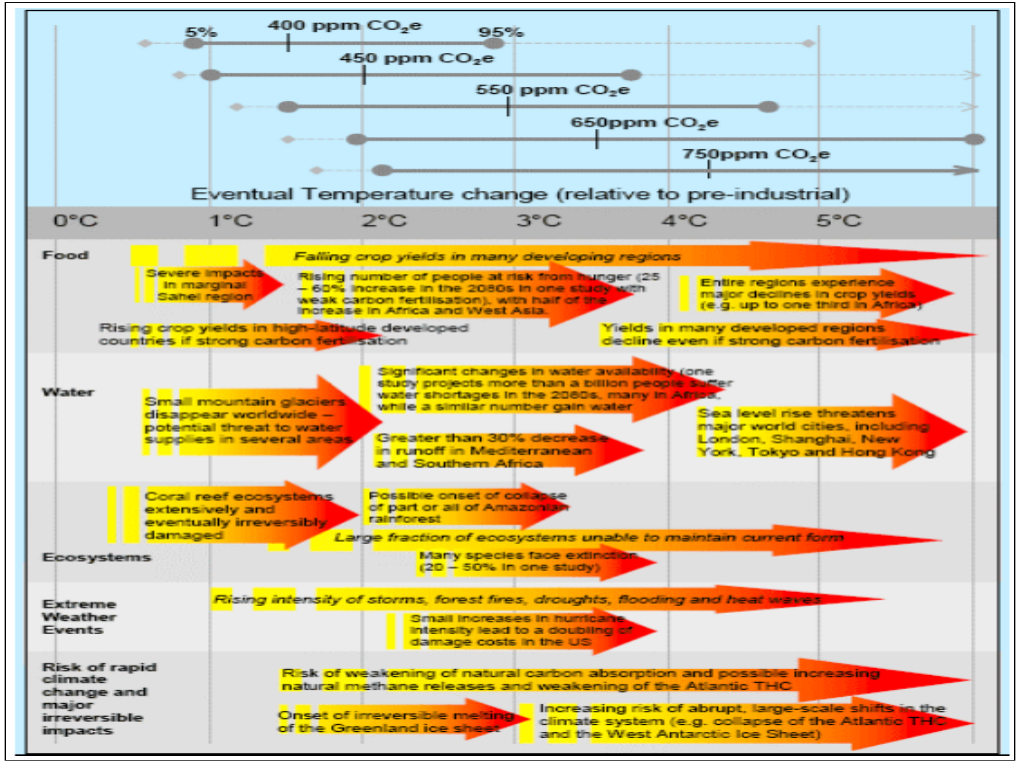
5%
400 ppm $CO_2e$
95%
450 ppm $CO_2e$
550 ppm $CO_2e$
650ppm $CO_2e$
750ppm $CO_2e$
Eventual Temperature change (relative to pre-industrial)
0°C
1°C
2°C
3°C
4°C
5°C
Food
Falling crop yields in many developing regions
Severe impacts in marginal Sahel region
Rising number of people at risk from hunger (25 – 60% increase in the 2080s in one study with weak carbon fertilisation), with half of the increase in Africa and West Asia
Entire regions experience major declines in crop yields (e.g. up to one third in Africa)
Rising crop yields in high-latitude developed countries if strong carbon fertilisation
Yields in many developed regions decline even if strong carbon fertilisation
Water
Significant changes in water availability (one study projects more than a billion people suffer water shortages in the 2080s, many in Africa, while a similar number gain water
Small mountain glaciers disappear worldwide – potential threat to water supplies in several areas
Sea level rise threatens major world cities, including London, Shanghai, New York, Tokyo and Hong Kong
Greater than 30% decrease in runoff in Mediterranean and Southern Africa
Ecosystems
Coral reef ecosystems extensively and eventually irreversibly damaged
Possible onset of collapse of part or all of Amazonian rainforest
Large fraction of ecosystems unable to maintain current form
Many species face extinction (20 – 50% in one study)
Extreme Weather Events
Rising intensity of storms, forest fires, droughts, flooding and heat waves
Small increases in hurricane intensity lead to a doubling of damage costs in the US
Risk of rapid climate change and major irreversible impacts
Risk of weakening of natural carbon absorption and possible increasing natural methane releases and weakening of the Atlantic THC
Onset of irreversible melting of the Greenland ice sheet
Increasing risk of abrupt, large-scale shifts in the climate system (e.g. collapse of the Atlantic THC and the West Antarctic Ice Sheet)

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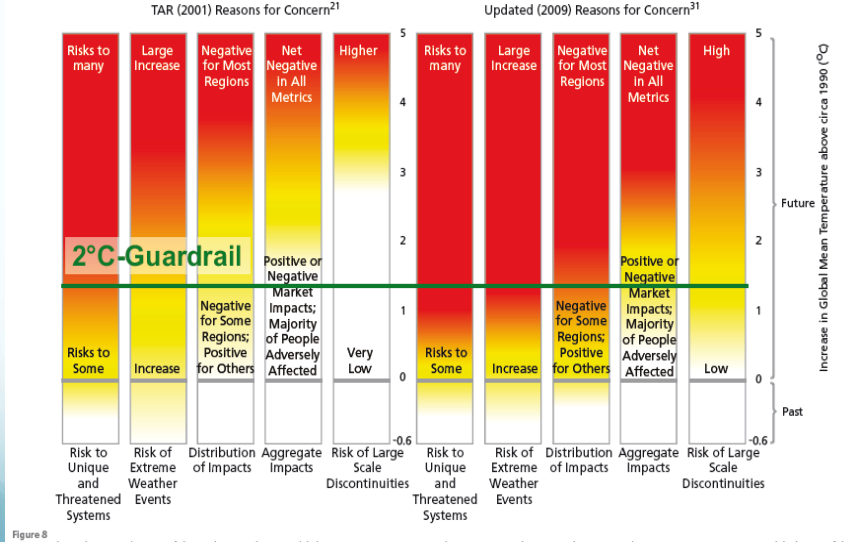


Figure 8
*Diagram relating the potential impacts of climate change to the rise in global average temperature. Zero on the temperature scale corresponds approximately to 1990 average temperature, and the bottom of the temperature scale to pre-industrial average temperature. The level of risk or severity of potential impacts increases with the intensity of red colour. The 2°C guardrail is shown for reference.*

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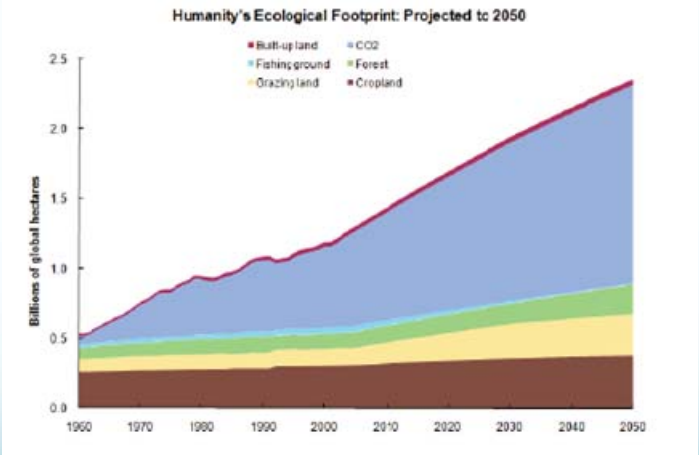


*Figure 17.* Estimated ecological overshoot in 2050 based on IPCC A1B and other projections (see text)

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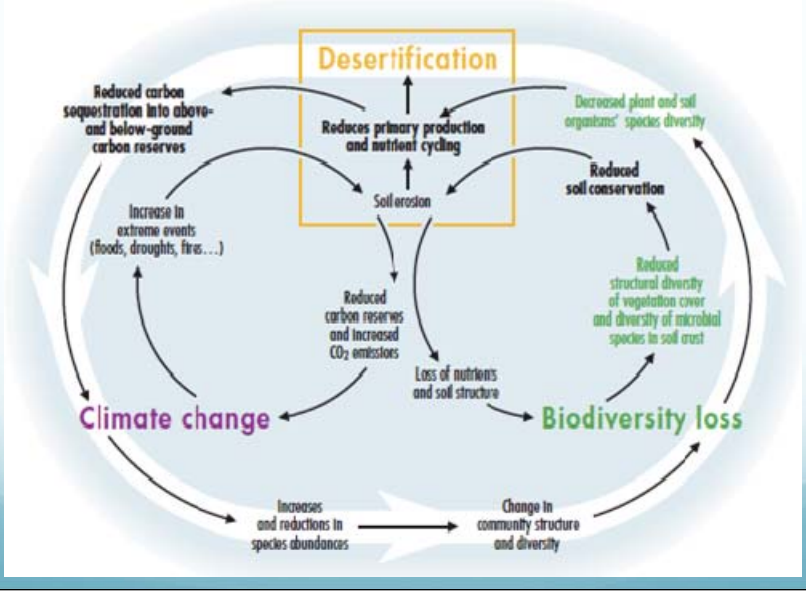

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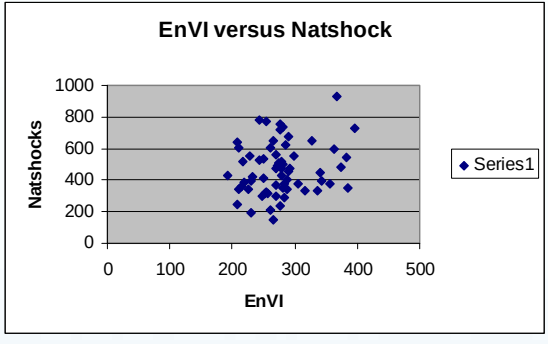


The index for Natural Shocks in EVI versus the Environmental Vulnerability Index (60 LICs): no correlation

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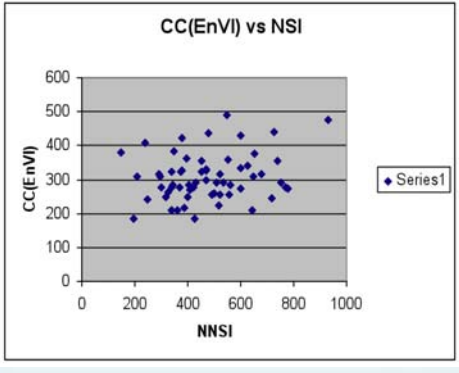


The index for Natural Shocks in EVI versus the Climate Change Component in the Environmental Vulnerability Index: No correlation

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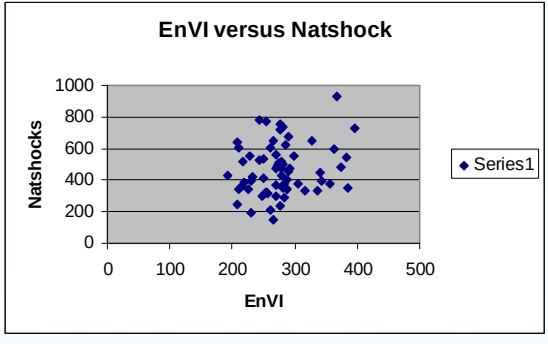


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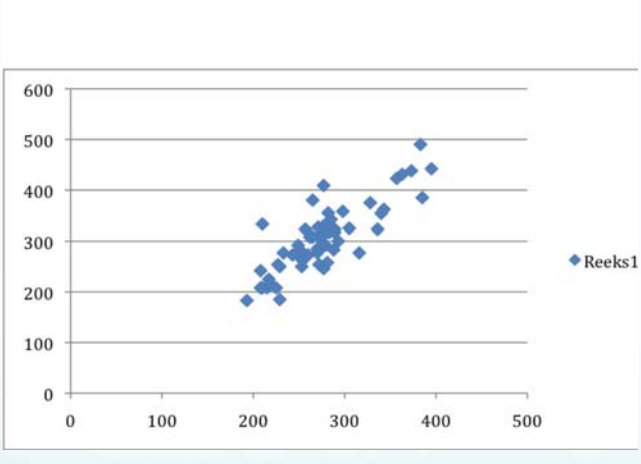


The Environmental Vulnerability Index (horizontal) versus its Climate-component (vertical): a correlation

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