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The Importance of a Core Set of Environment Statistics

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Context

Imagine you need to construct a riksha, and a friend wants to help you out with Volume I of the "Manual for the Design of Hybrid Vehicles"...

The United Nations count over 200 Member States differing wildly in many aspects. For example, their average life expectancy differs by a factor 2, from around 40 to more than 80 years. Their average income differs by two orders of magnitude, from under 700 to over 70,000 PPP dollars.

Their capacity to produce environment statistics differs, too. It is thus a formidable challenge to provide the UN Member States with **one** Framework for the Development of Environment Statistics, or even, at a more modest level of ambition, **one** recommendation for a **core set of environment statistics**. Strategic decisions are needed to ensure that the new FDES will be useful and acceptable to a great majority of UN Member States.

One of these decisions might be to accept that not the highest possible standard is the goal, but rather **a standard that gives the poorer countries a chance to participate**. A first step might be to recognize our own bias: The current UN Expert Group counts 15 members from OECD but only 10 from non-OECD states (plus an equally biased selection from inside the UN system). This bias is not particular surprising, since poorer countries often cannot afford to send their best statisticians to New York.

Common sense suggests that whatever compromise comes out of this group, it will be widely ignored by OECD statistical offices, simply because they do not want to lower their standard to a 'weak global compromise'. Bad news for the 'agenda shaping power' of the United Nations, but at the same time, dropping the ambition to provide OECD with 'advice' opens up to a solution that is closer to the needs of poor countries.

That leaves the 'OECD fraction' of the Expert Group with the difficult task to deny their own origin, and to put themselves in the position of a statistician in a very poor country - comparable to an engineer who used to construct hybrid vehicles but now finds himself in a poor village with the task to construct a riksha, using only the locally available means.

The riksha metaphor should not be overstressed. In practical terms, we might define *satisfactory* a future situation in which:

- the richest quarter of the UN Member States (OECD, BRIC, ...) consider the FDES and the core set **not ambitious enough**, and basically **ignore** it for their own environment statistics while acknowledging its value for less advanced countries;

- one quarter consider the FDES **not ambitious enough**, but **adopt** the 'core' while pursuing in parallel their advanced activities;

- one quarter consider the FDES **ambitious**, and are willing to **adopt** it and to invest substantial efforts to **upgrade** their statistics;

- the poorest quarter consider the FDES far **too ambitious**, but are willing to **upgrade** their statistics to the core set, **provided they get adequate help**.

The typical target country of the FDES and the core set would thus be where the lower end of quarter #2 meets the upper end of quarter #3, or, in other words: the 'median' UN country. In case that the reader thinks this is not ambitious enough: Concrete suggestions how to provide over 50 states in quarter #4 with adequate help (financing, capacity-building, ...) are most welcome, but please refrain from 'push the button' solutions that rely on permanent aid by external experts.

Rules for the establishment of a core set

Governments, Civil Society, international organizations, scientists, the media and others need a statistical basis to judge progress or lack of progress, to assess needs, to anticipate problems and potential for conflict, to design major projects, etc.

As the success of the Millennium Development Goals indicators shows, the availability of an easily accessible, internationally comparable database has a great added value for societal decision-making. The old rule "you cannot manage what you cannot measure" holds true: By measuring 'development' based on a broad set of indicators, political actors are enabled to identify problems, set priorities, discuss them on the basis of concrete figures, and eventually take **informed** decisions.

And certainly, environmental issues play an important role in the overall 'development' of countries, and therefore we need a decent set of environmental statistics and indicators. Given that especially poorer countries do not have the resources to go for a **comprehensive set**, we need to identify a much shorter **core set** that strikes a balance between user needs and available resources.

A scientifically sound approach would be to organise a survey among a large, representative panel of environmental experts aimed at identifying the most important indicators, and then to cut off the ranking at an 'economically feasible' number. The author has led such an exercise for fifteen European countries in the 1990ies, involving a panel of 2,400 experts[1]. The resulting list of 60 environmental pressure indicators looked convincing, and was used for an official Eurostat publication, but the project took three years, and even for EU standards it was pretty expensive - extending the survey concept to 200 very diverse and on average much poorer UN Member States would be insane. We need a cheaper and faster shortcut solution.

Given that a recommendation for a 'core set' coming from the UN headquarters is likely to bind substantial resources in countries' statistical services, resources that will not be available for other projects, one should develop this core set with great care, building on available statistics and scientific knowledge, taking global negotiation processes into account, and avoiding choices that could quickly become obsolete.

Expert groups tend to ask for a theoretical framework to perform this task, because having a theory may accelerate the selection process. Search engines may help to identify what is today the most widely agreed framework. Here are results using Google with the initial keywords **environment statistics** combined with a phrase search for **"xxx framework"** and **"xxx approach"**, where xxx refers to the keywords listed below.

Google searches for *environment statistics "xxx framework"* and *environment statistics "xxx approach"*

Weighted score *)	.. framework	.. approach	Keyword
81133	53300	267000	Statistical
31414	17400	125000	Integrated
19023	5250	111000	Decision-Making
12440	4330	66600	Systems

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[1] http://esl.jrc.it/envind/theory/handb_06.htm

12186	2750	75200	Holistic
10601	8400	25300	Flexible
8091	8800	3360	Accounting
6721	3070	31100	Interdisciplinary
4151	26	31700	Critical Loads
2933	2540	5560	Capital
2728	1280	12400	Ecosystem
1138	1210	658	DPSIR
878	743	1780	Geographical
261	39	1740	Stress-Response

* Score=(HitsFramework*SumApproach+HitsApproach*SumFramework)/(SumFramework+SumApproach)

It is certainly comforting, from the viewpoint of a UNSTAT expert group, that *statistical* framework and *statistical* approach lead the ranking - the Web has more confidence in statistics than commonly thought.

Rank 2 for *integrated* reminds us of the need to see environment as an integrated part of a *holistic* (#5) *system* (#4) - for example, as Goal 7 of the MDGs (indeed, a search for *environment statistics "Millennium development goals"* yields 185,000 hits).

Rank 3 for *Decision-Making* points to the primary user group of environment statistics - decision-makers in national governments and other institutions that have a say on environmental issues. Their needs count more than anything else.

Finally, the last item scoring over 10,000, *flexible*, should be read together with the low score for some of our pet frameworks and approaches: We do not need a 'capital', 'critical loads', 'DPSIR' or whatever approach to calculate, for example, the *share of the population with access to safe water and sanitation*.

What we do need is *flexible* guidelines for producing the most important figures on the environment with reasonable accuracy while not using too many resources.

Without doubt, some of the frameworks/approaches mentioned above may be helpful to obtain sound figures on a particular series - for example, biodiversity and water resources statistics might profit from applying the ecosystem approach; but no single framework should bias the choice of the core set statistics at the expense of those that do not fit into the framework[2].

Starting points and criteria for establishing a core set

One obvious starting point is the environmental subset of the MDG indicator base:

- Forested land area
- Carbon dioxide emissions
- Consumption of all Ozone-Depleting Substances
- Proportion of total water resources used
- Protected area ratio to surface area

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[2] One might argue that 'getting the best value for money' is in itself an 'approach' within an 'economic framework'. In fact, most if not all statistical offices pursue this goal: Get the most useful statistics respecting the budgetary constraints

- Proportion of the population using improved drinking water sources, total
- Proportion of the population using improved sanitation facilities, total
- Slum population as percentage of urban (secure tenure index)

Given the political support for the MDGs, and given the very good availability of these indicators, one could include them 'by acclamation' into the core set. Environmental experts will inevitably remark that the list is insufficient, but so will nutrition, health, disease and gender experts for their respective subsets.

Which raises the question of how many indicators a 'core set' should count. For example, a 'core set' of **106** indicators was drafted in the 2007 UNSD/UNEP/ECA Workshop on Environment Statistics in Addis Ababa[3]. These are clearly too many - most of them have no chance to ever become as available as the MDG indicators.

Instead of organising more workshops that will just add more indicators to this wishlist of 'core indicators', a reflection on processes and criteria is needed. The UN FDES Expert Group cannot decide on a 'core list', but they might be the right forum to establish the rules of the game.

A practical mechanism to establish a core set of environmental indicators

A 'cookbook' approach to create a core set might look as follows:

- start with the MDG list of eight environmental indicators, and declare them '**Core set, level A'**

- propose **one or two but not more** important themes that are missing in the list of eight. Preferably, a few criteria should be established beforehand. For example, issues that...
  - integrate with data collection for other **non-MDG UN processes** (UNFCCC, CBD, UNCCD, ...)
  - increase the **risk of conflict** (overuse of shared water resources, desertification, ...),
  - increase **dependency** (food and oil imports, ...)
  - deplete and/or damage the domestic **resource base** (forests, soils, subsoil assets, ...)
  ... might be among the criteria used to justify an extension of the MDG list *for the purpose of the core set only*;

- flesh up the list of ten 'level A' issues with 1-3 **'level B'** indicators each, thus arriving at about 10 'A'+20 'B'=30 indicators. Especially the biodiversity part merits a better coverage, while energy security and dependency are missing altogether;

- declare the Addis Ababa list of 106 a **'level C pool'** of candidate series for level B, thus acknowledging the invested efforts, and facilitating further selections;

- establish a **high level** mechanism that allows UN Member States once every two years to replace **one level A issue** with another, upcoming issue (for example, *Ozone* might become less important, and could be replaced by *Resource Depletion*)

- establish a similar mechanism at **expert level** allowing to move a limited number of items between **levels B and C;**

- provide methodology sheets for levels A and B, and organise specific support for the poorest quarter of UN Member States.

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[3] http://www.uneca.org/statcom/docs/Reoprt%20on%20Environment%20Stattistics.pdf - note the typos are required to download the document

The basic idea is that a core set must be short, affordable, and have strong political roots (i.e. MDGs) in order to create confidence with those Member States who have limited capacities. At the same time, the core set must be bound to slowly change and/or grow over time, building on the initial confidence and reacting to changing priorities. For example, if a group of Member States asked explicitly to add *access to electricity* to the *safe water & sanitation* category, the proposal should be granted; if instead another group came up with a long wishlist of indicators, the 'core set mechanism' should gently block the request. Evolution, not revolution should be the guiding principle for the core set, thus acknowledging the intertia and high costs of the statistical data collection.

Conclusions

A concise core set of environment statistics and indicators, integrated with mainstream efforts, and in particular the MDG indicator database, may help especially the poorer half of UN Member States to build up solid environmental information. Care should be taken to anticipate the needs of users, and to concentrate efforts on problems that may threaten a nation's capacity to *develop*, in the wide sense promoted by the Millennium Development Goals; the risk of conflict over scarce domestic as well as imported resources deserves particular attention. While in some cases the ecosystem approach may help to identify and describe such risks, as a general rule statistical services should not let their choices be determined by approaches and frameworks that come and go. Instead, a flexible, holistic and integrative process aiming at capacity-building and consensual, gradual adaption to changing user needs should be designed.