



Prototype Global Sustainable Development Report

Brief 5 Measuring progress

Measuring progress against internationally agreed goals

The first approach to measuring progress toward sustainable development uses indicators and official data to measure progress against a number of internationally agreed commitments. Hence, whether a trend is being considered good progress depends primarily on the level of ambition in the original goal/target setting which is not necessarily rooted in scientific or objective criteria. MDG progress reports follow this approach.

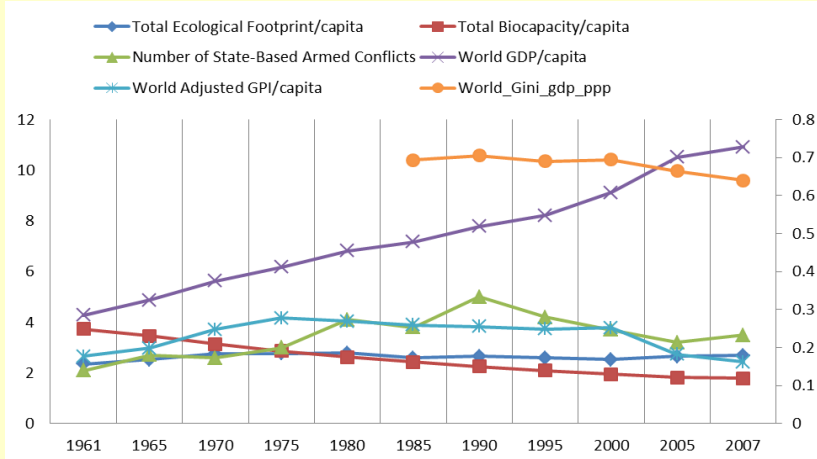
Aggregated indicators of sustainable development progress

The second approach is based on aggregate indicators of sustainable development progress that have been suggested by analysts and scientists. This approach is also primarily based on official data. The aggregate indicators differ in terms of their focus, reflecting the different perspectives and values of the individual analysts that created them. One such progress index is the Genuine Progress Index (GPI) that is an adjustment to GDP and a measure of economic welfare (see figure). Globally, economic welfare per capita has not increased since 1978 around the time when the ecological footprint surpassed bio-capacity. GDP per capita continued to

increase, but its increase has been due to crime, accidents, health issues, resource exploitation, family breakdown, marketization of previously non-marketed (volunteer) work, and other areas which do not increase economic welfare. However, world adjusted net savings have been similar to non-adjusted net savings, since the world's public expenditures in education was similar to the value of resource depletion and environmental damage (see figure).

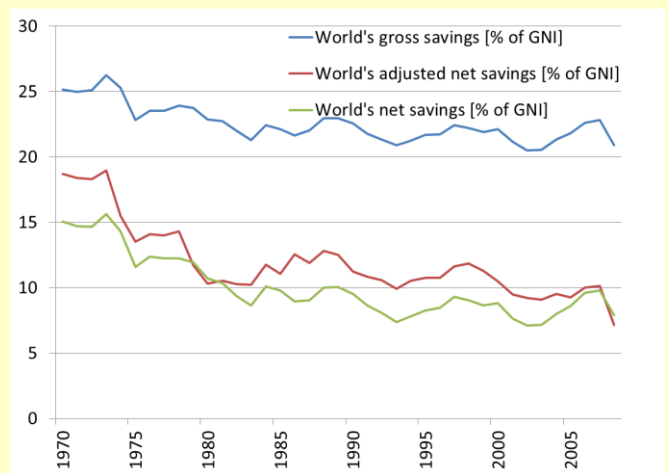
Other important indicator initiatives that aim to complement GDP include, for example, the European Union's beyond GDP initiative; World Bank's wealth estimates and adjusted net savings; UN Commission for Sustainable Development (CSD) - Indicators of sustainable development; UN Statistical Commission - the System of Environmental-Economic Accounting project (SEEA); Joint UNECE/OECD/Eurostat Working Group on statistics for sustainable development - Task Force on measuring sustainable development; OECD Better Life Initiative: Measuring well-being and progress; UN Development Programme: Human Development Index (HDI) and Human Sustainable Development Index (HSDI).

Global trends in GPI and other aggregate metrics of progress, 1961-2007



Source: Kubiszewski et al. (2013)¹; Human Security Report (2012); Footprint Network; World Gini by Branko Milanovic, World Bank

Global gross savings vs. adjusted net savings, 1970 – 2008.



Data Source: the World Bank.

Monitoring sustainable development from space

The third approach is complementary to the first and the second approaches. It complements official data from surveys with highly spatially disaggregated non-official data from a variety of sources such as remote sensing, mobile telecommunication devices, road traffic, and user-based

crowdsourcing. The third approach is potentially cheaper as it uses data already available and can more easily and more quickly fill data gaps in the poorest regions, but it is technically most demanding. It can provide snapshots of the well-being of the population or of our planet's features at high-frequency and at fine geographical resolutions, thus providing an

opportunity to gain real-time insights on sustainable development.

The estimation of GDP is still challenging in some developing countries, inter alia, due to lacking statistical capacity and a large informal economy. Combining night-time light data with MODIS land cover data and with sparse official GDP data economic growth of agriculture vs. non-agriculture can be estimated for administrative areas of any shape or size in the world. This is demonstrated in the prototype report for Thailand, Myanmar, Cambodia, Lao PDR and Vietnam.

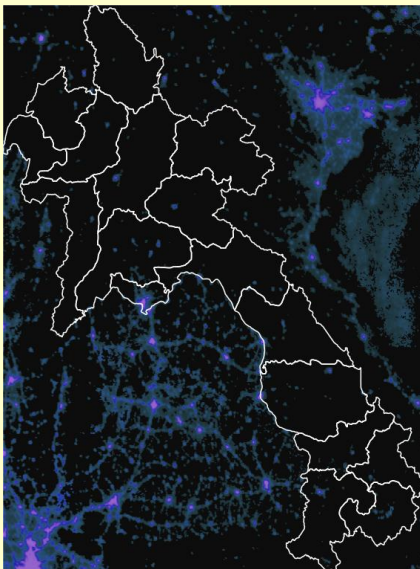
The way forward

Remote sensing and other “big data” approaches have great potential for assessing long-term sustainable development progress and to complement and improve official statistics, thus allowing the estimation of the proposed aggregate sustainable development index at more refined spatial and temporal scales. A toolbox for monitoring progress would be useful.

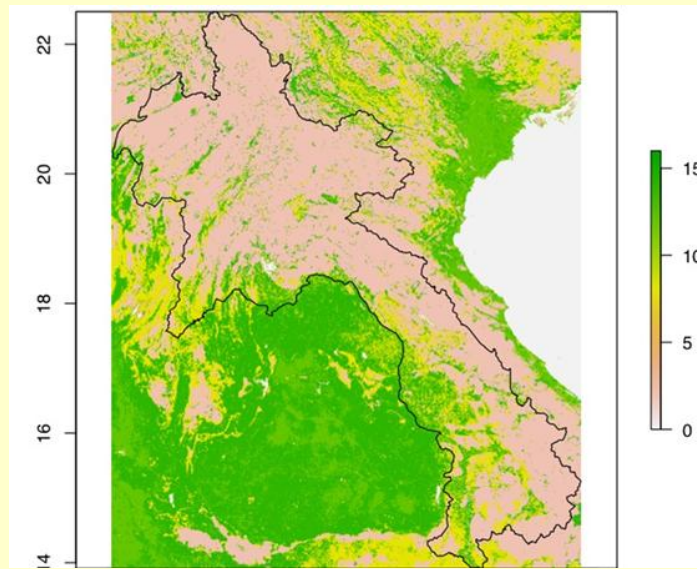
More information

For further information, see the website of the Prototype Global Sustainable Development Report: <http://sustainabledevelopment.un.org/globalsdreport>

Night light density and land cover data for Lao PDR in 2010



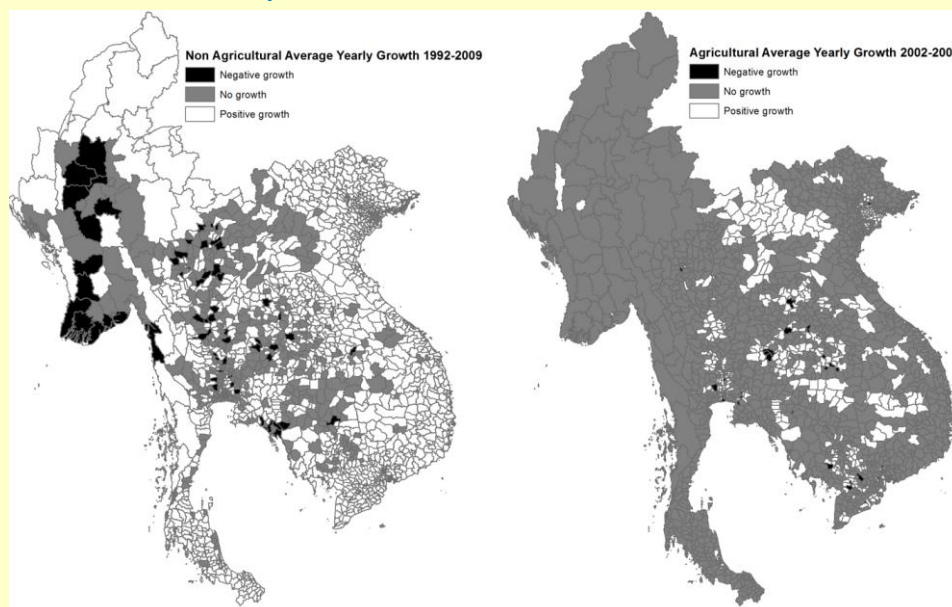
Source: Keola, Andersson and Hall, based on DMSP-OLS and FAO's GAUL.



Scale: 0: Water, 1-5: Forest, 6-7: Shrubland, 8-9: Savannas, 10: Grassland, 11: Wetland, 12: Crop land, 13: Urban area, 14: Cropland/Natural Vegetation Mosaic, 15: Snow and Ice, 16: Barren or sparsely vegetated.

Source: Keola, Andersson and Hall, based on MODIS Land Cover Dataset (MCD12Q1) and FAO's GAUL.

Estimation of economic growth at the sub-national level for agriculture and non-agricultural sectors growth in Thailand, Myanmar, Cambodia, Lao PDR and Vietnam.



Source: Andersson et al., 2010.

ⁱ Kubiszewski, I., et al. (2013). Beyond GDP: Measuring and achieving global genuine progress. *Ecological Economics*, 93, pp 57–68.