Indicators for Sustainable Consumption and Production in the SDGs

June 2015

Nicholas Schoon
Emily Auckland
Sue Riddlestone

Bioregional

Bioregional is an international charity championing a better, more sustainable way to live. We work with partners around the world on sustainable consumption and production in the communities in which we live and through products and services. We call our approach One Planet Living.

Bioregional is:

- **Focal Point** for Sustainable Consumption and Production for Beyond 2015,
- **Global NGO Focal Point** for UNEP's 10 Year Framework of Programmes and a member of the Sustainable Building & Construction Programme MAC.

Contact:

Emily Auckland – emily.auckland@bioregional.com;
Sue Riddlestone – sr@bioregional.com;
Nicholas Schoon – nicholas.schoon@bioregional.com

We are grateful for the support of the Federal Office for the Environment, Government of Switzerland in the production of this briefing.

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Office for the Environment FOEN

Indicators for Sustainable Consumption and Production (SCP)

Progress in implementing the new Sustainable Development Goals (SDGs) and their accompanying targets will depend on having sound, achievable and global indicators available to measure that progress. Such indicators are critical, because when responsible individuals and organisations have to report against them, this drives action to maintain progress towards the goals year on year.

In this briefing we set out proposals for indicators required to monitor progress in moving towards **sustainable consumption and production (SCP)**. We also compare our findings with those of the only other proposals we are aware of for SCP-specific indicators for the SDGs; a UNEP discussion paper published in March 2015[1]. Given SCP's leading role in a global transition to sustainable development, the indicators required for global monitoring require a stronger focus and more attention from all stakeholders.

How can we choose indicators for SCP related to the proposed Sustainable Development Goals?

In July 2014 UN member states participating in an Open Working Group agreed on 17 Sustainable Development Goals and 169 accompanying targets for 2030. A final agreement on these goals and targets is due to be reached at the UN General Assembly meeting in September 2015. They can then replace the Millennium Development Goals (MDGs) which are due to expire in 2015. Like the MDGs, the SDGs address global poverty but they have a wider remit and apply to all countries, however wealthy or poor. They also aim high – for the necessary global transition to sustainable development.

Sustainable consumption and production has emerged as an important part of the SDGs, with one of the 17 goals, Goal 12, devoted to SCP ("Ensure sustainable consumption and production patterns"). Given that a shift to SCP is at the core of sustainable development, this is both welcome and essential.

Our process for proposing indicators for SCP is to:

1) First, identify the SDG targets that are most closely linked to SCP
2) Then identify one or more indicators that best track progress towards this target.

Our premise for adopting this approach is that national representatives have spent a great deal of time on selecting a set of targets, so these should now be taken as a given – rather than advocating refinements which might offer better coverage of SCP.

[1] International Institute for Sustainable Development, Commonwealth Scientific and Industrial Research Organisation, UNEP, 2015. *Sustainable consumption and production indicators for the future SDGs*. UNEP; Nairobi.

It is possible to identify some indicators which apply to more than one SDG target, and we have done so. But in the main it seems likely that each target will require its own identified indicator. Thus our approach is to try to identify the best possible indicator for each SCP-linked target, together forming an indicator set covering the full spectrum of SCP within the overall SDG process.

Identifying those targets linked to SCP

Almost all of the 169 SDG targets has some plausible linkage to SCP, reflecting its core role in the transition to sustainable development. We identified a subset of 34 targets that have a clear and direct link to at least one of the following:

- sustainable consumption (SC);
- sustainable production (SP); or
- serious and chronic under-consumption for large segments of national populations (UC).

To repeat the point made above, in a world producing enough food and wealth for everyone to have sufficient, a lack of life's most basic physical necessities – safe drinking water, sanitation, adequate food, shelter - is incompatible with sustainable development. SCP requires us to have sustainable production, and the distribution and poverty alleviation systems which combine to ensure that everyone has access to these basic necessities.

In the table below we set out our identified SCP-linked targets and show which of these three criteria was met.

One indicator per target = too many indicators?

We propose one indicator for most of the 34

Why sustainable consumption and production?

SCP means a global economy which delivers sustainable development and ends extreme poverty, all within the capacities of our one planet whilst meeting the needs of future generations.

It means an end to the chronic and widespread under-consumption of life's basic necessities which leaves more than a billion people with too little for dignity, decency, comfort and safety – a situation which is incompatible with sustainable development.

It also means an end to careless over-consumption of resources which, mediated through increasingly long and complex global supply chains, are changing the climate, polluting and drying out river catchments, mining groundwater, fouling the air, soil, sea and freshwater, and destroying forests and other ecosystems we all depend on. If people everywhere, and future generations, are to have the chance of a good quality of life we need to consume with more care and less waste.

As well as changing patterns of consumption, SCP requires equally large changes in the way we produce goods and services. We need more circular and resource efficient economies which cut waste, boost reuse and recycling, switch to low and zero carbon energy sources and radically improve the efficiency with which we use energy, water and natural resources from the land and sea. At the same time, we need to leave sufficient space for biodiversity and wilderness. We can do this while creating jobs and growing economies.

SCP-linked targets. One implication of this is that every one of the 169 proposed SDG targets should have its own indicator, unless one is prepared to argue that SCP-linked targets have some special status which makes them more deserving of having their own indicator than other SDG targets. We are not making that argument.

Criteria for choosing indicators

We propose that the chosen indicators for these targets meet the following criteria. Similar criteria have been proposed by others.

- **Outcome-focussed.** In general, the indicators should measure whether desired outcomes are achieved rather than on whether policies, regulations and processes are put in place. This is because almost all of SCP-linked targets we have identified are themselves outcome focussed. Nations and organisations should be free to choose their own ways of making progress towards the targets, so long as they do not compromise other SDG targets in doing so.
- **Already established**. Ideally, the indicators need to already be established and understood, and in use in several nations – even if not yet used by many national statistical offices[2]. If a chosen indicator is relatively new and not yet widely in use, the data which underpins it must already be being collected in some countries. The data needs to be independently verifiable, and able to be generated at a reasonable cost. However, there may be a need for a limited number of new indicators if progress cannot be measured by existing indicators. The aiming point should be for most of the chosen indicators to already be in use in most of the UN member states.
- **Tightly linked to the target and policy relevant.** Indicators have to give governments and stakeholders the most useful information about progress towards a target; information can be used to guide policy and action.
- **Multi-level.** The indicators need to apply primarily at the national/state level, given that member state governments have lead responsibility in implementing the post-2015 agenda, goals and targets. However, governments will not be able to meet these on their own – they will need the support of business, civil society and citizens. So there must also be maximum scope for disaggregated and aggregated indicators, so that higher and lower levels can use these indicators to report their own progress, from regional groups of nations through to individual enterprises, local and regional governments and individual people and households.
- **Capable of being regularly and widely reported on.** Nations should be able to commit to reporting on the indicators annually without time lags of many years, although biennial and triennial reporting may be appropriate for some indicators. That means committing sufficient resources to gather and analyse the data, with support to build the data gathering and analysis capabilities especially in least developed countries.
- **Universal.** They should be universal – every chosen core SDG indicator should be meaningful and viable for every member state. Supplementary country, region and sector-

[2] Such as data held by UNEP which is widely available but not widely used http://uneplive.unep.org/, http://www.unep.org/geo/, http://www.grid.unep.ch/index.php?lang=en

specific indicators can be developed and adopted if stakeholders find them useful in pursuing sustainable development. In the case of a few indicators which measure under-consumption, most developed nations reached one end of the scale decades ago. For example, everyone in these nations has access to sanitation and no one lives on less than $1.25 a day. Yet they should still be considered as universal indicators and included in the set.

Choosing the best indicator for each SCP-linked target

For each SCP-linked target, we chose one indicator which we judged most closely matched all of our criteria above. Our main sources for this candidate list are 1) the proposals for SDG indicators put forward by the Sustainable Development Solutions Network in February 2015[3] and 2) the list of proposed preliminary SDG indicators put forward by the specialised agencies and entities of the United Nations in February 2015[4] and May 2015[5]. For some of the targets we have advocated indicators not proposed on either of these lists. In a very small number of cases, for example Targets 12.1 and 17.19, we propose novel indicators.

The table below sets out these 34 targets and indicators. It shows which other SDG goals have links to each of these indicators. It also summarises why the indicator was selected, where more information about it can be found, and whether further development work and data collection is required.

Some of the selected indicators fail to meet our criteria of being 'already established' and 'capable of being regularly and widely reported on'. Instead, they require considerable development work and there are major challenges in establishing widespread, regular and verifiable reporting on them. That reflects inherent challenges set by these targets. It is not possible to propose any outcome-based indicator which does not require a major new international effort in benchmarking today's level of achievement and measuring ongoing progress. SCP is a relatively new area for global monitoring, so we cannot expect all of the indicators to meet all of these criteria.

For most of the 34 targets we have proposed only one indicator. But in the case of seven targets, we propose two or more options (the maximum number for any one target is five indicators). These seven targets were so wide-ranging and multi-purpose in nature that no single indicator could emerge as the lead contender.

Four of our proposed indicators are used for more than one target

Eight of our indicators are existing MDG indicators, while a further **six** can be regarded as well-established and widely used by developed and developing nations and the international community. A further **five** are widely used, and data has been collected for many countries. The remainder are all in need of development, especially in developing countries.

[3] Sustainable Development Solutions Network, 2015. *Indicators and a monitoring framework for the Sustainable Development Goals*, SDSN: New York. http://unsdsn.org/resources/publications/indicators/
[4] UN specialised agencies and entities, 2015. List of proposed preliminary indicators.
5 https://docs.google.com/file/d/0B8n3WhOaTbGVZ3JIbUQ4QlFWYjQ/view?pli=1

Proposed Indicators for Sustainable Consumption and Production

In **green** we identify whether the targets address sustainable consumption (SC), sustainable production (SP) or unsustainable under-consumption (UC). We also identify where our proposals reflect those of the UN Statistical Division.

Proposed goal and target	Area	Proposed indicator	Other goals linked to this indicator	Why was this indicator chosen - does it meet our criteria? What further development does it require?
Goal 1: End poverty in all its forms, everywhere				
Target 1.1: By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than $1.25 a day.	**UC**	% of population below $1.25 (purchasing power parity) per day *Also proposed by UN Statistical Division*	8, 10, 12	This is a well-established MDG indicator, extensively reported on and referenced. It is also widely understood as an indicator for being unable to access the most basic necessities for comfort, dignity and security. It meets all of the selection criteria. See mdgs.un.org/unsd/mi/wiki/1-1-Proportion-of-population-below-1-PPP-per-day.ashx?From=Indicator-1-1-Proportion-of-population-below-1-PPP-per-day
Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture				
Target 2.1: By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round	**UC**	Proportion of population below minimum level of dietary energy consumption/ prevalence of undernourishment *Also proposed by UN Statistical Division*	3, 12	Another well-established MDG indicator which meets all of the selection criteria. See mdgs.un.org/unsd/mi/wiki/1-9-Proportion-of-population-below-minimum-level-of-dietary-energy-consumption.ashx
Target 2.4: By 2030, ensure sustainable food production systems and implement resilient agricultural practise that	**SP**	i) Nitrogen use efficiency in food systems (the tonnage of nitrogen in harvested crops divided by the tonnage of nitrogen in fertiliser	12, 13, 14, 15	This is a very wide-ranging target, and multiple indicators are required to cover the breadth of unsustainability of food production systems – including freshwater over-abstraction and pollution, soil erosion, biodiversity loss and

increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality		used to grow those crops) ii) Nitrogen balance in food systems (the amount of input nitrogen minus the amount of output nitrogen)		habitat destruction and declining genetic diversity in agriculture. We propose these two indicators because over use and careless use of nitrogen fertilisers is damaging soils, water courses, groundwater and coastal waters, posing risk to human health and contributing to air pollution while adding to greenhouse gas emissions. Together they give useful information on how efficiently nitrogen is being used and how much surplus nitrogen is being released into the environment by agriculture. These indicators require development, but many developed nations are already collecting the necessary data and estimates could readily be made for many nations through a sampling approach. See stats.oecd.org/ and www.eea.europa.eu/data-and-maps/indicators/agriculture-nitrogen-balance/agriculture-nitrogen-balance-assessment-published
Goal 3: Ensure healthy lives and promote well-being for all at all ages				
Target 3.9: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination	**SP**	Ambient air pollution deaths per 100,000 capita attributable to outdoor air pollution AND/OR water, sanitation and hygiene attributable deaths per 100,000 children under five years	7, 9, 11, 12, 13, 15	This target covers a wide range of threats to human health and several indicators could be appropriate. We propose indicators involving air and water pollution because of the heavy mortality and morbidity burdens of both, the latter being especially dangerous for infants and young children. Both indicators require further development. WHO already publishes estimates at country level, but not annually. See www.who.int/gho/database/en/

Goal 6: Ensure availability and sustainable management of water and sanitation for all				
Target 6.1: By 2030, achieve universal and equitable access to safe and affordable drinking water for all	**SP, SC, UC**	Proportion of population using safely managed drinking water *Also proposed by UN Statistical Division*	3, 11, 12	This could be developed from the existing MDG indicator 'proportion of population using an improved drinking water source'. See mdgs.un.org/unsd/mi/wiki/7-8-Proportion-of-population-using-an-improved-drinking-water-source.ashx It meets all of our selection criteria.
Target 6.2: By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations	**SP, SC, UC**	Proportion of population using safely managed sanitation services *Also proposed by UN Statistical Division*	3. 11, 12	This could be developed from the existing MDG indicator 'proportion of population using an improved sanitation facility'. See mdgs.un.org/unsd/mi/wiki/7-9-Proportion-of-population-using-an-improved-sanitation-facility.ashx It meets all of our selection criteria
Target 6.3: By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and increasing recycling and safe reuse by [x] per cent globally	**SP, SC**	Percentage of wastewater treated *Also proposed by UN Statistical Division*	3, 11, 12	This is another wide ranging target. We propose this indicator because the target refers to quantities and proportions of treated and untreated wastewater. The indicator requires development, but an estimate has been made for most of the world's nations using available data – see Malik, O. (2013). Global database of National Wastewater Treatment. New Haven, CT: Yale Center for Environmental Law & Policy and epi.yale.edu/.
Target 6.4: By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity	**SP, SC, UC**	Proportion of total water resources used	2, 11, 12, 15	This is an existing MDG indicator and it meets all of our selection criteria. See mdgs.un.org/unsd/mi/wiki/7-5-Proportion-of-total-water-resources-used.ashx

Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all				
Target 7.1: By 2030, ensure universal access to affordable, reliable and modern energy services.	**UC**	Proportion of the population with electricity access *Also proposed by UN Statistical Division*	9, 12, 13	This is an established indicator with data available for the great majority of nations. It meets all of our selection criteria. See data.worldbank.org/indicator/EG.ELC.ACCS.ZS/countrie
Target 7.2: By 2030, increase substantially the share of renewable energy in the global energy mix	**SP**	Renewable energy's share in total energy consumption *Also proposed by UN Statistical Division*	9, 12, 13	Established indicator with the data available for the majority of nations, meeting all of our selection criteria. See, for example, data.worldbank.org/indicator/EG.USE.COMM.CL.ZS
Target 7.3: By 2030, double the global rate of improvement in energy efficiency	**SP, SC**	Energy intensity (primary energy consumption divided by GDP) AND the rate of change in energy intensity	9, 12, 13	Established indicator with the data available for the majority of countries, meeting all of our selection criteria. See, for example, www.oecd-ilibrary.org/sites/9789264185715-en/02/01/index.html?itemId=/content/chapter/9789264185715-18-en&mimeType=text/html
Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all				
Target 8.4: Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-year Framework of Programmes for Sustainable Consumption and Production, with developed countries taking the lead.	**SP, SC**	Level of gross national expenditure on environmental defence and protection and natural resource base conservation, compared to GDP, compatible with SEEA accounting framework	2, 6, 7, 9, 12, 13	This is a wide-ranging target. Several indicators could be proposed to track it, including some we have proposed for other targets – such as the Raw Materials Footprint indicator. To make progress on this target, governments and the private sector must devote adequate investment to environmental protection and natural resource conservation. The indicator we propose is intended to illustrate this. This proposed indicator requires development, but many developed nations are collecting the necessary data and reporting. See, for example, stats.oecd.org/Index.aspx?DataSetCode=EPER. It would

				also require nations to implement and use the UN System of Environmental-Economic Accounting (SEAA), which has also been proposed as an indicator for this goal by UN agencies.
Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation				
Target 9.4: By 2030 upgrade infrastructure and retrofit industries to make them sustainable, with increased resource use efficiency and greater adaptation of clean and environmentally sound technologies and industrial processes, all countries taking action in accordance with their respective capabilities	**SP**	Scope 1, 2 and 3 greenhouse gas emissions or CO_2 emissions (GHG Protocol of WBCSD, WRI) per unit of output and per unit of final sales in key manufacturing and service sectors	2, 6 ,7, 12, 13	Greenhouse gas emissions or CO_2 emissions per unit of product and per unit of sales correlate with overall resource use efficiency and represent a critical environmental impact – climate change due to fossil fuel combustion. GHG/CO_2 footprinting for individual companies and for industrial and commercial sectors is more advanced than other types of resource exploitation/impact footprinting. The necessary data is being collected in many developed nations, with major corporations already reporting their Scope 1, 2 and 3 emissions – see www.ghgprotocol.org/about-ghgp/users However, uptake of this indicator in the developing world, particularly among least developed countries, faces major capacity and resource obstacles.
Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable				
Target 11.1. By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums	**UC**	Percentage of urban population living in slums or informal settlements *Also proposed by UN Statistical Division*	3, 12	This is an existing MDG indicator with data available for the great majority of nations and it meets all of our selection criteria. See mdgs.un.org/unsd/mi/wiki/7-10-Proportion-of-urban-population-living-in-slums.ashx It meets all our selection criteria, although the latest reported data is for 2009.
Target 11.2: By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all,	**SP, SC**	Proportion of daily passenger journeys by sustainable or more sustainable forms of transport (public transport, bicycle, walking)	12, 13	This indicator requires development in both developed and developing nations in order to meet all of our selection criteria. Transport modal split statistics are well established in developed nations but fail to give adequate coverage of

improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons				walking and cycling– see, for example, ec.europa.eu/eurostat/tgm/refreshTableAction.do?tab=table&plugin=1&pcode=tsdtr210&language=en An alternative proposed indicator is the % of people within 0.5km of public transit running at least every 20 minutes. However this ignores two of the most sustainable transport methods, walking and cycling.
Goal 12: Ensure sustainable consumption and production patterns				
Target 12.1: Implement the 10-Year Framework of Programmes on sustainable consumption and production (10YFP), all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries.	**SP, SC**	Number of countries with significant engagement with the 10YFP	2, 6, 7, 13, 14, 15	This indicator requires development. This would begin with nations agreeing on robust criteria setting a threshold for 'significant engagement' with the UN 10YFP on SCP, reflecting the different circumstances of developed and developing countries. This should include national commitments to progress towards SCP - having a national SCP plan, government prioritisation and leadership of SCP with inter-departmental coordination, stakeholder engagement, implementation, monitoring and evaluation arrangements.
Target 12.2: By 2030, achieve the sustainable management and efficient use of natural resources	**SP, SC**	i) FSC and PEFC-certified timber consumption and production, at national level, as a % of total national consumption and production of timber (by volume). ii) Area of forest under sustainable forest management as a percent of forest area iii) Red List Index- number of threatened animal and plant species in each country iv) National consumption based carbon footprints v) National raw material	6, 7, 14, 15	The breadth of this target represents a particular challenge; no one indicator could adequately cover it. We propose five – each of these can also be deployed for another SCP-linked SDG target. i) This indicator requires development – FSC and PEFC certification (the two largest umbrella certification schemes for forest products) are both well-established internationally. Some estimates have been made for some nations and blocs - see, for example, www.forestry.gov.uk/pdf/Timber_Certification_Report2008.pdf/$FILE/Timber_Certification_Report2008.pdf and page 6 of www.ettf.info/sites/default/files/ettf_2011-statistics_eu-totals.pdf ii) This indicator requires development. A pilot exercise was

		consumption footprints – abiotic and biotic materials. *Indicator V is also proposed by UN Statistical Division*		carried out for the UN FAO Forest Resources Assessment 2010 with more than 100 nations providing data for this indicator. See Global Forest Resources Assessment 2010, FAO, http://www.fao.org/docrep/013/i1757e/i1757e.pdf iii) This is an established database and indicator which meets all of our selection criteria – see Tables 5, 6a and 6b at http://www.iucnredlist.org/about/summary-statistics#Tables_5_6. There has been one preliminary attempt to allocate threats to species to individual countries on the basis of their imports of commodities which threaten wildlife and habitats, a so-called biodiversity footprint – see http://www.nature.com/nature/journal/v486/n7401/abs/nature11145.html iv) These are total, global CO2 emissions associated with a nation's consumption (including emissions occurring outside its borders but attributable to its imports, but excluding those emissions from within its borders attributable to exports). Some developed nations already report on this – see, for example, www.gov.uk/government/statistics/uks-carbon-footprint Given the importance of climate change, this is a key SCP indicator but it requires further development. v) This indicator requires development, with one preliminary estimate having been attempted – see http://www.pnas.org/content/112/20/6271.full. The raw material consumption footprint estimates the total tonnage of raw materials extracted and abstracted globally to meet a nation's final consumption of goods and services in a year, whether those raw materials come from within or outside of its borders. It excludes those raw materials associated with exports to other nations.
Target 12.3: By 2030, halve per capita global food waste at	**SP, SC**	Global Food Loss Indicator	2	This indicator requires development. The UN FAO is developing a Global Food Loss Index which will measure

the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses		*Also proposed by UN Statistical Division*		quantitative food losses. It is based on a model which uses observed variables that conceivably influence food losses (e.g. road density, weather, pests) to estimate quantitative loss ratios for specific commodities and specific countries over time. Data on these variables are readily available from several sources. See www.fao.org/fileadmin/user_upload/post-2015/Targets_and_indicators_RBA_joint_proposal.pdf
Target 12.4: By 2030, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order minimize their adverse impacts on human health and the environment	**SP, SC**	i) Average annual concentrations in water, soil and agricultural products of selected toxic chemicals resulting from human activities. These could include some persistent and bioaccumulative chemicals, with a focus on those posing the greatest threats to humans and wildlife. ii) Ambient air pollution deaths per 100,000 capita attributable to outdoor air pollution	3, 6, 7, 14, 15	i) This indicator requires development and additional data collection and analysis. Because sources of such chemicals may be diffuse, historic and uncertain, an indicator which focuses on ambient levels of chemicals of most concern is preferable to an indicator based on releases. ii) This indicator requires development. WHO already publishes estimates at country level, but not annually. See www.who.int/gho/database/en/
Target 12.5: By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse	**SP, SC**	Proportions of solid waste generated that are landfilled, incinerated (with and without energy recovery) and recycled *Also proposed by UN Statistical Division*	9, 11	This indicator requires development. Many developed and some developing nations collect the necessary data and use this kind of indicator, with an emphasis on municipal waste and waste streams that are most readily recyclable, such as paper/board and glass. See ec.europa.eu/eurostat/data/database
Target 12.6: Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information in to their reporting cycle	**SP**	Proportion of companies with either >10,000 employees, or market capitalization of > $1 billion, or sales > $1 billion that integrate significant sustainability information into their reporting cycles	8, 9	Many major corporations already report on sustainability. Initiatives and organisations such as the Global Reporting Initiative, the UN Global Compact, The International Integrated Reporting Council and the World Business Council on Sustainable Development are doing useful work in this area. However, this indicator requires development, with wide agreement needed on a robust, credible standard for “significant sustainability information” in company

		This indicator is similar to the proposals made by UN Statistical Division but we believe ours is stronger.		reports. This would then be the "gold standard" for sustainability The more major corporations met this standard, the more scope there is for meaningfully comparing and contrasting their sustainability performance. The size thresholds we propose for this indicator ($1 bn sales or market cap., 10,000 employees) would capture many thousands of companies with global operations; smaller companies could be encouraged to meet the same reporting standard.
Target 12.7: Promote public procurement practices that are sustainable, in accordance with national policies and priorities	**SC**	Proportion of sustainable public procurement in total public procurement for key product areas (eg timber, energy, food)	9	This indicator requires development. We are not aware of any nation which has published an estimate. But given the importance of public procurement, estimated at 145-25% of GDP – see www.un.org/en/sustainablefuture/pdf/Sustainable-Public-Procurement-PR-20-June-2012.pdf) – there is a need for an outcome-based indicator to measure progress in a few key sustainability areas.
Target 12.8 By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature	**SP, SC**	i) Results of standardised surveys which test public knowledge and understanding of key sustainability issues and lifestyle impacts	2,6,7,14,15	This indicator requires development. There are big challenges in devising one set of survey questions which could be run in all countries of the world and generate answers which allowed comparisons between nations. But individual developed nations and the EU already run such surveys – see ec.europa.eu/environment/pdf/EB_summary_EB752.pdf
Target 12.a: Support developing countries to strengthen their scientific and technological capacity to move towards sustainable patterns of consumption and production	**SP, SC, UC**	i) Proportion of children of secondary school age gaining secondary education and proportion of youth gaining further and higher education in developing countries ii) R & D expenditure in developing countries linked to SCP. iii) Number of science/social science journal papers linked to	8, 9	i) This indicator is well established and widely report on internationally – see unesdoc.unesco.org/images/0023/002322/232205e.pdf. It does not meet one of our criteria – being 'tightly linked to the target'. However, higher levels of secondary, further and higher education are essential for helping developing countries to strengthen their scientific and technological capacity, and that can in turn help them to move towards SCP. ii) This indicator requires development, starting with an

		SCP, resource efficiency and decoupling authored by someone from a developing country		agreed definition about what R & D activity and expenditure is linked to SCP. iii) This indicator requires development. Here, too, there are challenges in defining what papers are linked to SCP, but data collection should be easier than for ii).
Target 12.b: Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products	**SP, SC**	A small number of impact per visitor night key indicators that can be widely and easily used by tourism facilities and destinations in developed and developing nations	13, 14, 15	These indicators require further development. The tourism industry and the European Union have been developing such indicators. See ec.europa.eu/enterprise/sectors/tourism/sustainable-tourism/indicators/documents_indicators/eu_toolkit_indicators_en.pdf and sdt.unwto.org/content/indicators-sustainability-tourism-destinations. CO_2 emissions (including those from visitor travel to the destination) and freshwater use should be covered.
Target 12.c: Rationalise inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions in accordance with national circumstances, including by restructuring taxation and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimizing the possible adverse impacts on their development in a manner that protects the poor and the affected communities	**SP, SC**	Fossil fuel subsidies expressed as a proportion of total national expenditure on fossil fuels *Also proposed by UN Statistical Division*	3, 6, 7, 9, 13	Data for most nations is already being collected and reported on –see www.iea.org/subsidy/index.html and www.oecd.org/site/tadffss/.

Goal 13: Take urgent action to combat climate change and its impacts				
Target 13.2 Integrate climate change measures into national policies, strategies and planning	**SP, SC**	Scope 1, 2 and 3 national consumption based carbon footprints National carbon footprints for key sectors, including industry and commerce, transport, public services and housing.	12	These are total, global CO2 emissions associated with a nation's consumption (including emissions occurring outside its borders but attributable to its imports, but excluding those emissions from within its borders attributable to exports). Some developed nations already report on this – see, for example, www.gov.uk/government/statistics/uks-carbon-footprint
Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development				
Target 14.4: By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated (IUU) fishing and destructive fishing practices and implement science-based management plans, to restore fish stocks in the shortest time feasible at least to levels that can produce maximum sustainable yield as determined by their biological characteristics	**SP**	Proportion of fish stocks within biologically sustainable limits *Also proposed by UN Statistical Division*	12	This is an established MDG indicator with data being gathered and reported by the majority of maritime nations. It meets all of our selection criteria. See mdgs.un.org/unsd/mi/wiki/7-4-Proportion-of-fish-stocks-within-safe-biological-limits.ashx
Target 14.6: By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, and eliminate subsidies that contribute to IUU fishing, and refrain from introducing new such subsidies, recognizing that	**SP**	Value of fisheries subsidies, as a proportion of revenue from fisheries	12	This indicator requires development, but some data is already being collected and reported on. The OECD reports on government financial transfers to fisheries, but its database only covers 19 nations – see http://stats.oecd.org/Index.aspx?DataSetCode=FISH_NLD. See also www.europarl.europa.eu/RegData/etudes/note/join/2013/513978/IPOL-PECH_NT%282013%29513978_EN.pdf

appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the WTO fisheries subsidies negotiation.		*This indicator is similar to the proposals made by UN Statistical Division.*		
Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and halt and reverse land degradation and halt biodiversity loss				
Target 15.1: By 2020, ensure conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements	**SP, SC**	Proportion of land covered by forest area and annual change *Also proposed by UN Statistical Division*		This is an established MDG indicator which meets all of our selection criteria. See http://mdgs.un.org/unsd/mi/wiki/7-1-Proportion-of-land-area-covered-by-forest.ashx
Target 15.2: By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and increase afforestation and reforestation by x% globally	**SP, SC**	i) Area of forest under sustainable forest management as a percentage of forest area ii) Proportion of land covered by forest and annual change *Indicator 'i' is also proposed by UN Statistical Division*	12	i) This indicator requires development. A pilot exercise was carried out for the UN FAO Forest Resources Assessment 2010 with more than 100 nations providing data for this indicator. See Global Forest Resources Assessment 2010, FAO, http://www.fao.org/docrep/013/i1757e/i1757e.pdf ii) This is an established MDG indicator which meets all of our selection criteria. See http://mdgs.un.org/unsd/mi/wiki/7-1-Proportion-of-land-area-covered-by-forest.ashxIndicator already established by FAO
Target 15.5: Take urgent and significant action to reduce degradation of natural habitat, halt the loss of biodiversity, and	**SP, SC**	i) Red List Index ii) Living Planet Index i) Area of forest under sustainable forest management as a	12	i) The Red List index, based on the established IUCN Red List database for threatened species, shows changes in the overall extinction risk of groups of species over time, measuring the overall rate at which species move through

by 2020 protect and prevent the extinction of threatened species		percentage of forest area *Indicator 'i' is also proposed by UN Statistical Division*		Red List categories towards or away from extinction. See www.iucnredlist.org/about/publication/red-list-index ii) The WWF/Zoological Society of London Living Planet Index is another database measuring population trends for thousands of vertebrate species. See wwf.panda.org/about_our_earth/all_publications/living_planet_report/living_planet_index2/ iii) This indicator requires development. A pilot exercise was carried out for the UN FAO Forest Resources Assessment 2010 with more than 100 nations providing data for this indicator. See Global Forest Resources Assessment 2010, FAO, http://www.fao.org/docrep/013/i1757e/i1757e.pdf
Target 15.7: Take urgent action to end poaching and trafficking of protected species of flora and fauna, and address both demand and supply of illegal wildlife products	**SP, SC**	Red List data linked to information on trade flows associated with threat to species. *This indicator is similar to the proposals made by UN Statistical Division but ours is more specific.*	12	The Red List is an established database and indicator which meets all of our selection criteria – see Tables 5, 6a and 6b at http://www.iucnredlist.org/about/summary-statistics#Tables_5_6. There has been one preliminary attempt to allocate threats to species to individual countries on the basis of their imports of commodities which threaten wildlife and habitats, a so-called biodiversity footprint – see http://www.nature.com/nature/journal/v486/n7401/abs/nature11145.html

Goal 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development				
Target 17.19: By 2030, build on existing initiatives to develop measurements of progress on sustainable development that complement GDP, and support statistical capacity building in developing countries	**SP, SC**	i) Number of nations (and proportion of UN member states) that report regularly (at least once every three years) on the full suite of chosen SDG indicators. ii) Number of nations (and proportion of UN member states) that report on > 66% of the chosen indicators.	12, 13	All of the proposed SCP indicators complement GDP and, taken together, measure progress towards sustainable development. The two indicators proposed for this target will shed light on whether nations are increasing their statistical capacity to measure and report on progress.

Annex – UNEP's proposals for SCP-linked indicators.

The UNEP discussion paper, Sustainable consumption and production indicators for the future SDGs, identified 24 of the proposed SDG targets as linked to SCP – as opposed to the 34 targets we saw as being SCP-linked. Furthermore, six of the targets that UNEP identified as being SCP-linked were not selected as such in our own effort. These two different attempts to propose SCP-linked indicators for the Sustainable Development Goals have ended up proposing some 17 indicators in common.

One of the main points of difference from the approach advocated here is that the UNEP paper does not view those SDG targets primarily addressing chronic and severe under-consumption as being strongly SCP-linked.

The UNEP paper was also based on a different methodology to our exercise, with a strong emphasis on identifying a limited number of indicators which could each support several SCP-linked targets.

www.bioregional.com
@Bioregional

BedZED Centre, 24 Helios Road, London SM6 7BZ