FACT SHEET: Tweaking of Selected UN OWG Targets

This paper provides evidence-based recommendations for tweaking selected post-2015 targets proposed by the United Nations Open Working Group on Sustainable Development Goals (OWG).[1] The purpose of this paper is to ensure that the targets can be monitored according to their aspiration, without harming the balance of the proposed Sustainable Development Goals (SDGs). They should be "specific, measurable, achievable" (UN SG).[2] Therefore, this fact sheet provides quantifiable proposals for issues similar to those presented in the papers, "Targets in the proposed SDGs framework" and "Revised Targets Document", by the Co-facilitators of the UN negotiations.[3]

The criteria for selecting targets in this fact sheet are the following:

- the proposed target includes an "x%" to be specified
- the proposed target falls behind an existing internationally agreed-upon target
- the proposed target is not clearly quantifiable, or would not trigger the intended improvement due to lack of clarity
- the proposed target is not very controversial in the negotiations.

Furthermore, the paper only considers targets for topics that arise due to limited access to vital resources, such as food, clean water or health care. In other words, they are important for human development. Among these targets, only those were included that have the biggest impacts in terms of mortality or economic losses and refer to such data, or to figures on resources or energy use.[4] In light of these specifications, this fact sheet does not cover all targets that need an "x%" to be specified or other issues to be addressed.

All data stems from the latest and credible sources, such as the WHO Global Health Estimates 2014, the Global Burden of Disease (GBD) study 2015 and other UN and academic sources.[5]

This paper suggests minimal changes to the proposed targets. A more detailed quantification can be found in our other fact sheets or our latest proposal and can be calculated using the method explained therein, or can also be obtained upon request.[6]

No.	OWG Proposed Target	Proposed Revision (*Changes in Blue*)	Explanatory Rational for the Proposed Change
3.2	By 2030, end preventable deaths of new-borns and children under 5 years of age	By 2030, end preventable deaths of new-borns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 deaths per 1000 live births, resulting in an global average of 9, as well as under-5 mortality to at least as low as 25 per 1000 live births	Neonatal mortality: Goal 1 of the UNICEF and WHO "Every Newborn" action plan to end preventable new-born deaths states: "By 2030, all countries will reach 12 or less newborn deaths per 1000 live births resulting in an average global NMR [neonatal mortality rate] of 9 deaths per 1000 live births"[7] (same target agreed upon by the World Health Assembly).[8] Including the global average target can encourage countries that are already at or below the target level to increase their efforts in reducing neonatal mortality even further, since even a marginal reduction will affect the global average and their progress will contribute to the global target achievement.[9] Under-five mortality: UNICEF proposed, based on the target of the "A Promise Renewed" initiative: "By 2030, end preventable child deaths by reducing, in all countries, the under-five mortality rate to 25 or less deaths per 1000 live births".[10]

No.	OWG Proposed Target	Proposed Revision (Changes in Blue)	Explanatory Rational for the Proposed Change
3.3	By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases	By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and substantially improve trends in the number of deaths from hepatitis, water-borne diseases and other communicable diseases	The OWG proposed target is quantifiable for AIDS, TB, malaria and neglected tropical diseases, but not for the other diseases mentioned, which cause similar numbers of death (WHO, GBD).[11] For these other diseases, UNICEF recommends making target 3.3 a quantifiable objective.[12] For all major diseases mentioned, trends are improving, except for hepatitis, which will become the biggest epidemic of the post-2015 era if current trends continue (GBD).[13]
3.9	By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination	By 2030, substantially improve trends in the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination	Progress towards the target cannot be clearly measured, or expressed as target achievement levels, since trends are already improving for indoor air pollution and diarrhoeal diseases (largely related to unsafe water). If these trends continue into 2030, they would lead to reductions of approximately 16.2% or 33.1%, respectively (GBD).[14] Since it is not defined whether "substantially reduce" requires more than that, the target may trigger no change at all for these topics. Referring to improving trends, instead of an absolute reduction, will ensure that the intention remains aspirational in any case.

No.	OWG Proposed Target	Proposed Revision (Changes in Blue)	Explanatory Rational for the Proposed Change
7.2	By 2030, increase substantially the share of renewable energy in the global energy mix	By 2030, increase substantially the share of renewable energy in the global energy mix by continuously increasing the rate of progress	The share of renewable energy has already been increasing by approximately 8.9% over the past 40 years, and is projected to continue increasing due to current policies by 17% from 2010 to 2030 (IEA; IRENA).[15] Therefore, the target may not change ongoing business. Accelerating the increasing trend continuously would preserve the intended aspiration.
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 on sustainable consumption and production, with developed countries taking the lead	Improve progressively, through 2030, the trends of global resource efficiency in consumption and production and of decoupling economic growth from environmental degradation, in accordance with the 10-year framework of programmes on sustainable consumption and production, with developed countries taking the lead	The target may not be more ambitious than ongoing trends, as global resource efficiency had already increased by approximately 13.1% in the 15 years from 1993 to 2008 (Krausmann et al.).[16] The global discrepancy between real GDP growth and many environmental indicators is slightly increasing, indicating a gradual decoupling (with regard to CO_2 emissions, energy consumption, freshwater withdrawals and reductions in species abundance).[17]

No.	OWG Proposed Target	Proposed Revision (Changes in Blue)	Explanatory Rational for the Proposed Change
8.8	Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment	Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment, and, by 2030, substantially improve the trends in the number of deaths from occupational diseases and accidents.	The target is not quantifiable and not time-bound. In order to address the 852 000 to 2.33 million annual deaths from occupational diseases and accidents (GBD; ILO; TUT et al.),[18] the target should aim to improve on the current relatively constant trends.
11.5	By 2030, significantly reduce the number of deaths and the number of people affected and decrease by [x] per cent the economic losses relative to gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations	By 2030, significantly improve trends in the number of deaths, the number of people affected and the economic losses relative to gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations	In the general trend between 1990 and 2013, the number of reported deaths from disasters decreased by 24%,[19] while the number of people affected only showed a small change (−5.1%),[20] along with the direct economic losses as a share of GDP (+4.4%) (EM-DAT; WB).[21] In order to be aspirational and surpass ongoing trends, the target should refer to improving on the trends (at least for mortality).

No.	OWG Proposed Target	Proposed Revision (Changes in Blue)	Explanatory Rational for the Proposed Change
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] per cent globally	By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore at least 15% of degraded forests by 2020, and improve substantially the trend in afforestation and reforestation globally	Restoration of degraded forests: Aichi Biodiversity Target 15 states: "By 2020, … including restoration of at least 15% of degraded ecosystems" (CBD).[22] Afforestation and reforestation: The area of planted forests has been expanded by approximately 48.1% between 1990 and 2010, mainly through afforestation (FAO).[23] In order to be aspirational, the target should strive to improve on the current trend.

Annotations

For numeric names the short scale is used: 1 billion = one thousand million = 10^9 = 1 000 000 000.

All numbers are shown to three significant digits, if available (no matter if and where the decimal point may appear). This keeps the rounding error below ±0.5%. Nevertheless, all calculations are based on unrounded numbers.

1 OWG 2014, pp. 7–23 (for full references, see the sources list at the end of this paper).

2 UN SG 2014, § 137.

3 UN Co-facilitators 2015 and 2015a.

4 See topics, diagrams and data in our proposal Global2015 2015, 10–11.

5 WHO 2014; GBD 2015, 2014, 2012.

6 See Global2015 2015 and www.Global2015.net/factsheets.

7 WHO/UNICEF 2014, 18 (interim target for 2030).
The global figure of 9 deaths per 1000 live births is the interim target of the "Every Newborn" action plan for 2030, which strives to end preventable newborn deaths by 2035. If the post-2015 development agenda aspires to bring forward this objective to be met by 2030, the according global figure would be 7 deaths per 1000 live births on global average and 10 or less nationally (WHO/UNICEF 2014, 18).
The figures of the "Every Newborn" action plan are based on the research by Lawn et al. 2014.

8 In May 2014, the World Health Assembly approved (WHO 2014a, 184) resolution WHA67.10 "Newborn health action plan" (WHO 2014b, 19–20 [§§ 1, 2 (1)]), which includes the target as follows: "By 2030, all countries will reach the rate of 12 or fewer newborn deaths per 1000 live births, resulting in an average global neonatal mortality rate of 9 deaths per 1000 live births" (WHO 2014 b, 123 [§ 42]).

9 The inclusion of the global average target is the only difference to the new proposal by the UN Co-facilitators, which stated: "By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births" (2015a, 2).

10 UNICEF 2014, 2. The 2030 target is derived from the *2035* target that countries should reduce under-five deaths to no more than *20* per 1000 live births, promoted by the "A Promise Renewed" initiative (UNICEF 2014a, 2). This target would result in a "global average under-5 mortality rate of 15 in 2035" (WHO/UNICEF 2014, 18 [fig. 4]; Lawn et al. 2014, 193 [fig. 3, A]).
The 2035 target is substantiated by research and recommendations by Liu et al. (2015, 430) and Glass et al. (2012, 141) . Achievability for the 2035 target was demonstrated by the Lancet Commission on Investigation on Health, which showed that enhanced investment would result in an under-five mortality rate of 23 deaths per 1000 live births for the group of low-income countries and 11 for the lower-middle income group (2013, 1922 [table 8, "Enhanced investment scenario with R&D 2035", "Under-5 mortality rate"], 1920 [table 6], 1923).
A reduction in mortality to 20 child deaths per 1000 live births was even proposed for 2030: The UN High-Level Panel on the Post-2015 Development Agenda suggested it as an upper threshold for all income quintiles of the population (HLP 2013, 38 [target 4a]), while the UN-initiated Sustainable Development Solutions Network proposed it as a national maximum for 2030 (SDSN 2014, 29 [target 5b], 28 [2030]). Research by Norheim et al. (2014, 249) confirmed that an appropriate allocation of resources could reduce under-five mortality to this target level by 2030.

11 WHO 2014, sheet "Global2012"; GBD 2015, 131–135; for a diagram, see Global2015 2015a, 1.

12 UNICEF 2014, 2, attached the following note to target 3.3, as well as to two other heath-related targets proposed by the OWG: "To maximise the effectiveness and contribution of the targets in the Post-2015 Development Agenda, UNICEF supports the OWG targets related to health for children, but recommends the inclusion of timelines and measurable numerical targets where these are lacking."

13 IHME [GBD] 2013, search term: "by year Global Deaths Hepatitis Cirrhosis-HepB Cirrhosis-HepC Liver-HepB Liver-HepC" ("Hepatitis" stands for acute hepatitis A–E).
For other major contagious diseases, see trend data in IHME [GBD] 2013 (on 1990, 1995, 2000, 2005 and 2010) and GBD 2015, 131 (table 2), "All ages deaths (thousands)", "Median % change" (between 1990 and 2013), in WHO 2014, sheets "Global2000" and "Global2012", and in our previous proposal and fact sheet (Global2015 2015, 3, and 2015a).

14 Deaths from indoor air pollution decreased from 3.69 million in 2005 to 3.48 million in 2010; this extrapolated over the target period 2015–2030 results a total reduction by 16.2%.
IHME [GBD] 2013, search term: "by year Global Deaths Household air pollution"; annual exponential rate of change (review's calculation): $(3.479 \text{ million} / 3.690 \text{ million})^{(1/5)} - 1 = -1.17\%$.
This average annual trend (-1.17%) exponentially extrapolated for 15 years: $(1 + (-0.0117))^{15} - 1 = -0.162 = -16.2\%$.
Deaths from diarrhoeal diseases decreased from 1.65 million in 2005 to 1.45 million in 2010; this extrapolated over the target period 2015–2030 results a total reduction by 33.1%.
IHME [GBD] 2013, search term: "by year Global Deaths diarrheal diseases"; annual exponential rate of change (review's calculation): $(1.446 \text{ million} / 1.653 \text{ million})^{(1/5)} - 1 = -2.64\%$.
This average annual trend (-2.64%) exponentially extrapolated for 15 years: $(1 + (-0.0264))^{15} - 1 = -33.1\%$.

15 The share of renewable energy sources of total primary energy supply (TPES) increased from 12.4% in 1973 to 13.5% in 2012, or by 8.87% relatively (IEA 2014, 6: in 1973: 10.5% biofuels and waste, 1.8% hydro energy and 0.1% "other", which "includes geothermal, solar, wind, heat, etc." [assuming all to be renewable]; in 2012: 10.0% biofuels and waste, 2.4% hydro energy and 1.1% "other", which "includes geothermal, solar, wind, heat, etc." [assuming all to be renewable]; sums and relative percentage $[(13.5\% / 12.4\%) - 1 = 0.0887 = 8.87\%]$: review's calculations).

Figures are higher if referring to total final energy consumption (TFEC). Policies in place and under consideration will take the global renewable energy share from 18% in 2010 to 21% by 2030, or raise it by 16.7% relatively (IRENA 2014, 18, table 3.1 [p. 19]: "RE share in TFEC (incl. traditional biomass)") (share of renewable energy [including traditional biomass] of the total final energy consumption [TFEC]; relative percentage [(21% / 18%) − 1 = 0.167 = 16.7%]: review's calculation). However, current policies may not determine the most likely outcome, as policies are changing over time.

16 Over the 15 years from 1993 to 2008, material intensity (or resource efficiency) had decreased by approximately 13.1% globally from 1.51 to 1.31 kg per $ in real GDP (Krausmann et al. 2011, sheet "Material flow data", 2.c, total [consisting of construction minerals, biomass, fossil energy carriers, metal ores and industrial minerals], in kg per 1990 international Geary-Khamis dollars [adjusted for inflation and international purchasing power]; percentage: review's calculation [based on unrounded numbers]). However, the rate of this decrease slowed down in the latter years assessed (and it had even turned into a small increase in midst of the economic crisis in 2009 [this is the latest available year, but was not used because of the atypical decrease in GDP]).

Resource efficiency is most often understood in the meaning of resource intensity (kg per $), which is the inverse of resource productivity ($ per kg). Resource intensity is the (ecological) efficiency of resource consumption, while resource productivity is the (economical) efficiency of resource production. Sustainable development minimizes resource intensity while maximizing resource productivity.

17 Real GDP grew by 49.5% over 15 years, between 1998 and 2013 (WB [World Bank] 2014, "GDP (constant 2005 US$)", world; already adjusted for inflation); this is more than the increase of environmental impacts:

- CO_2 emissions increased by 43.4% between 1998 and 2013 (Olivier et al. [PBL] 2014, table 2.2 [pp. 22–23], total), which was an increase lower than that of real GDP; however, CO_2 emissions per real GDP only decreased until 2002 (by 5.89%, from 0.6512 kg per constant US dollar in 1998 to 0.6129 in 2002) and increased thereafter (by 5.48%, from 0.6129 kg/$ in 2002 to 0.6465 in 2010) (WB 2014, "CO_2 emissions (kg per 2005 US$ of GDP)", world; already adjusted for inflation; latest available figure is on 2010); the increase only applies if real GDP is measured in constant US$ and not in international dollars, or purchasing power parities (WB 2014, "CO_2 emissions (kg per 2011 PPP $ of GDP)", world).
- Energy consumption increased by 37.9% over 15 years, between 1996 and 2011 (WB 2014, "Energy use, total (kt of oil equivalent)", world).
- Freshwater withdrawals were raised between 1997 and 2011 by 25.3%, from 3.108 to 3.894 trillion cubic metres (WB 2013, "Annual freshwater withdrawals, total (billion cubic meters)", world).
- Over the 40 years between 1970 and 2010, species abundance in vertebrates declined by 52% (95% confidence limits: 43–61%) (WWF 2014, 16, 138; revised data); however, real GDP grew by 236% during the same time frame, from 15.49 trillion to 52.00 trillion constant dollars (WB 2014, "GDP (constant 2005 US$)", world; already adjusted for inflation).

Nevertheless, this shows only a gradual decoupling of economic growth from environmental degradation and not a complete decoupling.

All percentages except for species abundance: review's calculations.

18 Latest estimates:

- Approximately 852 000 deaths in 2010 attributable to occupational risks (95% uncertainty interval 660 000–1.06 million), including 481 000 deaths attributable to injuries, 219 000 to occupational particulate matter, gases and fumes, 118 000 to carcinogens and 33 700 to asthmagens (GBD 2012, 2239–2240)
- 1.98 million fatal work-related diseases in 2011 and 353 000 fatal occupational accidents in 2010 (ILO 2014, 33 [table "Appendix III", fatal, total], 34 [table "Appendix IV", world, total]; sum: review's calculations; based on TUT et al. 2014, 13 [table 5, fatal occupational accidents, 2010, and fatal work-related diseases, 2011] [same figures]).

For the trends, see above-mentioned sources and IHME [GBD] 2013, search term "Deaths global by year Occupational risks".

19 Between 1990 and 2013, reported deaths from disasters varied from 17 591 to 644 509 per year (including an estimated 610 000 in 1995 from a "complex" disaster/famine); 61 774 people died in 1990 and 28 916 in 2013, but three of the four most fatal years occurred in the last decade (2004, 2008 and 2010) (EM-DAT 2015, Period: 1990 to 2013, Disasters classification: "Complex", "Natural" and "Technological", no other category selected, column "Total deaths"). "Complex disasters" include specific events (famines), which are not directly linked to a natural hazard (EM-DAT 2015a). The mean of all disasters (1990 2013) is 107 516 fatalities per year (review's calculation). In the overall trend, the number of deaths decreased between 1990 and 2013 by *24%*. If the 1995 famine, constituting the only figure for complex disasters, is not taken into account, there is instead an increase by *85.8%*. For these figures, in order to compensate for annual variation in the occurrence of disasters, two linear regressions were conducted (least squares method). The type of regression was chosen because the data showed no exponential or other typical trend, and the number of people affected can be assumed to have grown similarly to the world population, which showed a more linear than exponential trend (growth rates are declining, while the absolute annual increase varied; WB 2014, "Population growth (annual %)" and "Population, total"). The calculations show that for each annum the slope of the first regression was −1304, and the intercept was 122 500. The overall percentage change is comparing the intercept (i.e. the starting level) against the intercept plus 23-times the slope,

((122 500 + (23 × (−1304))) / 122 500) − 1 = (92 500 / 122 500) − 1 = −0.2449 = −24.49%

For the second regression (excluding complex disasters), the slope was 2143, and the intercept was 57 450 (review's calculations).

Available fatality figures for 2014 were not taken into account because they are likely incomplete. Apart from this, any minor changes may be due to constant updating of the EM-DAT database. The data takes into account people reported killed or missing due to complex, natural and technological disasters, but natural disasters are by far the predominant part.

20 From 1990 to 2013, disasters reportedly affected between 70.5 million and 659 million people per year; 84.4 million people were affected in 1990 and 96.4 million in 2013, with a peak in 2002 and a subsequent decrease (EM-DAT 2015, Period: 1990 to 2013, Disasters classification: "Complex", "Natural" and "Technological", no other category selected, column "Total Affected"). The annual mean was 209 million (review's calculation). In the overall trend, the number of affected people decreased between 1990 and 2013 by *5.15%*. For this figure, in order to compensate for annual variation in disasters, a linear regression was conducted (least squares method; the slope of the linear regression was −479 000, and the intercept 214 million; review's calculations; for the reasoning, see note 19 above, as well as for details on the disaster data).

The data takes into account people suffering from physical injuries, trauma or an illness requiring medical treatment as a direct result of a disaster, people whose house is destroyed or heavily damaged and therefore need shelter after an event, and people requiring immediate assistance during a period of emergency, i.e. requiring basic survival needs such as food, water, shelter, sanitation and immediate medical assistance (EM-DAT 2015a).

21 Data by EM-DAT 2015 and WB 2014:
- Between 1990 and 2013, estimated direct losses from disasters increased from $49.1 billion to $120 billion, varying between $27.1 billion and $364 billion (EM-DAT 2015, Period: 1990 to 2013, Disasters classification: "Complex", "Natural" and "Technological", no other category selected, column "Total damage ('000 $)"). The annual mean was $100 billion (review's calculation). Natural disasters cause almost all of the losses. Figures are in current (or nominal) US dollars. Available figures for 2014 were not taken into account because they are likely incomplete. Apart from that, any minor changes may be due to constant updating of the database.
- However, global GDP grew from $22.3 trillion to $74.9 trillion in the same time frame (in terms of nominal dollars) (WB 2014, "GDP (current US$)").
- This resulted in losses per GDP oscillating from 0.220% of GDP in 1990 to 0.160% in 2013, with varying minima and maxima within this time period of between 0.068% and 0.515%. There were more peaks after 2000 than before. Average losses were 0.232% of global GDP (mean and all percentages: review's calculations from above-mentioned data). In the overall trend, the share of losses increased between 1990 and 2013 by *4.43%*. In order to compensate for annual variation in disasters, a linear regression was conducted to calculate this figure (least squares method; review's calculation). The type of regression was chosen because both GDP and disaster losses can be assumed to grow similarly in the long-term (exponentially), but the ratio of the two would then show a linear trend. The slope of the regression was 0.000437, and the intercept 0.227. The observed increase is valid if losses and GDP are both expressed in nominal values, or both in real values (adjusted for inflation).

22 CBD 2010, § 13, target 15: "By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification."

The inclusion of the 15% target level was also proposed by the UN Co-facilitators in March 2015 (referring to Aichi Biodiversity Target 15) (UN Co-facilitators 2015, 4: "restore at least 15% of degraded forests by 2020").

23 An increase from 178.3 million hectares (ha) of planted forest in 1990 to 264.1 million ha in 2010 (FAO 2010, 94 [table 5.5, "Area of planted forest", 1990, 2010, world]); percentage: review's calculation.

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