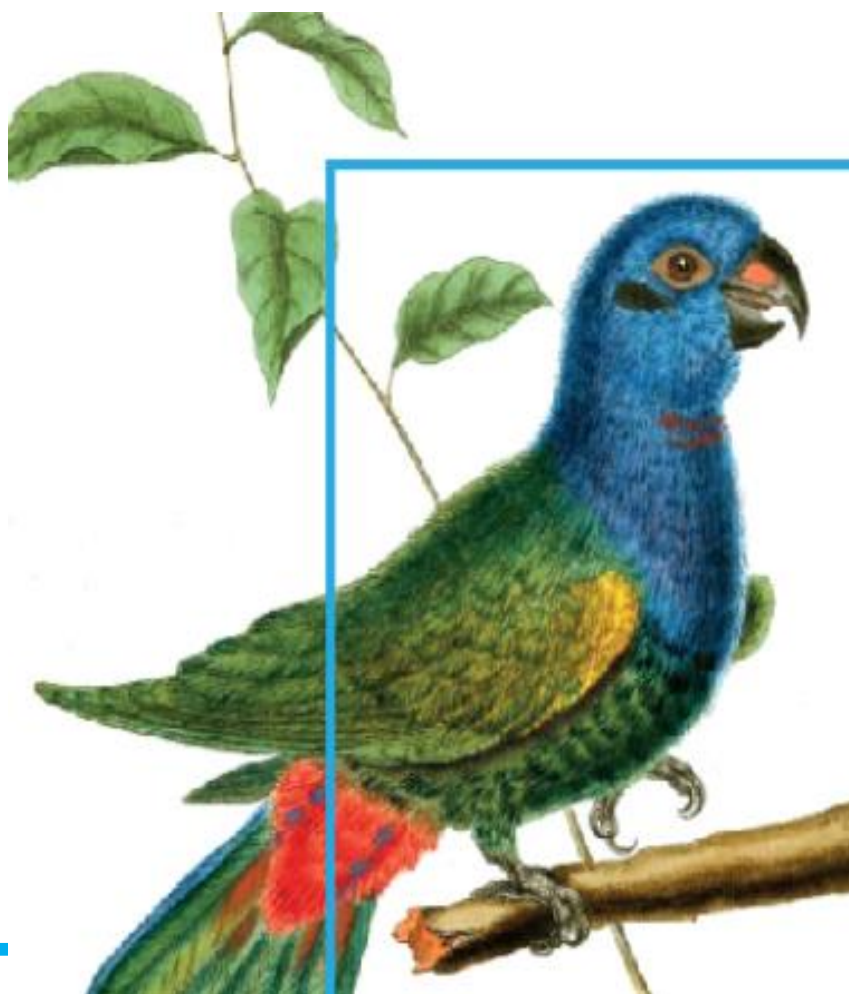


**Towards a Pollution-Free
Planet:
#BeatPollution Voluntary
Commitments**

**Evaluation & Proposal for a
Monitoring, Reporting &
Evaluation Framework**

December 2017



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#BeatPollution Voluntary
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**Evaluation and Proposal for a
Monitoring, Reporting &
Evaluation Framework**

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December 2017

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Executive Summary

405 Voluntary Commitments were submitted by the end of December 2017 from governments, civil society and business as part of UN Environment's #BeatPollution. (see Table ES1 and Table 1 in report) In total, 69 governments, 97 civil society organizations and 23 businesses provided details of their current and future actions for tackling pollution. Encouragingly, nearly all cite a clean and healthy environment as a key driver for sustainable development. The majority of government commitments include policies and actions for directly controlling pollution at source, building resource efficient, circular economies and raising public awareness. Civil society commitments are largely focused on public campaigns and clean-up projects. Business commitments cover a wide range of actions including investment in research and development, reduction of carbon footprint and avoiding pollution throughout their supply chains.

More than 2.4 million pledges were made to support #BeatPollution and over 109,000 individuals committed to make changes in their consumption patterns and use of natural resources.

Tackling pollution is addressed across all environmental areas. Air pollution, chemicals and waste represent nearly 60 percent of the commitments; 17 percent are about tackling marine and coastal pollution, especially marine litter and plastics; 8 percent target freshwater pollution and 7 percent land and soil. The majority of commitments explicitly recognise the urgency of tackling pollution, plus the need for continued efforts and financing over the longer-term. (see Table ES1: Table 1 in report)

Commitments to education, research and development, monitoring and information are also seen as a key approach to tackling pollution. Eleven percent of the commitments focus on the development of innovative technologies and chemicals that are less harmful to human and ecosystem health. Others focus on improved monitoring and reporting. Many of these commitments are focused on longer-term impacts.

The severity of pollution locally and nationally and the impact on human health are the most cited drivers of action. The most widely addressed sources of pollution were household and electronic waste, poor air quality, contaminated water and coastal ecosystems, and degraded land.

The Voluntary Commitments include 45 of the 50 near-term thematic interventions, as set out in the UN Environment background report "Towards a Pollution Free Planet" (Annex 1)

Commitments fall into four broad categories: A. Expanding existing pollution reduction and control activities and policies; B. Removing barriers to depolluting activities; C. Increasing awareness through education and targeted, public awareness campaigns; D. Investing in research and development. (see Table ES2: Table 3 in Report; Annexes 2-4)

The types of organisations supporting the Voluntary Commitments are highly diverse. They include individuals, local organisations, cities, local, regional and national governments, intergovernmental bodies, small scale enterprises, global multinational corporations, trade associations, public-private partnerships and international alliances. (see Annexes 2-4)

The scale and timeframes of the Voluntary Commitments are wide ranging. They include one-off events targeting neighbourhood pollution, short-term implementation of national abatement guidelines, and longer-term activities out to 2040, such as setting more ambitious targets within existing international environmental agreements, greening global supply chains and reducing the resource footprint of countries and global corporations. (see Table ES2: Table 3 in Report; Annexes 2-4)

Table ES1: Distribution of Voluntary Commitments across Thematic Areas

POLLUTION	GOVERNMENT	CIVIL SOCIETY	BUSINESS	OVERALL
Air Pollution	91	14	9	114 (28%)
Land and Soil Pollution	11	12	5	28 (7%)
Freshwater Pollution	24	5	1	30 (8%)
Marine and Coastal Pollution	59	8	3	70 (17%)
Chemicals and Waste	70	35	12	117 (29%)
Cross-cutting	14	30	2	46 (11%)
Total	269	104	32	405 (100%)

Table ES2: Examples of Voluntary Commitments in different Thematic Areas

air pollution	- adopting World Health Organization air quality guidelines as a minimum - setting ambitious targets for reductions in fluorinated greenhouse gases - providing effective and affordable public transport - providing off-grid solar energy to women in rural areas via blockchain technology and biometric microcredit systems - reducing carbon footprint by half in a global corporation
land and soil pollution	- optimising fertilizer use in agriculture and enhance nutrient management and plant uptake efficiency to reduce excess nutrient run-off - controlling use of antimicrobials in the livestock sector to avoid releases into the environment - a global Food and Land Use Coalition to transform food and land use systems - supporting improvements in pollutant inventory systems, for mining
freshwater pollution	- providing clean drinking water and sanitation for improved health - reducing the amount of untreated wastewater that is discharged into freshwater bodies - establishing adequate water quality monitoring - protecting and restoring wetlands and other natural systems contributing to water purification
marine and coastal pollution	- cleaning-up coastal areas and beaches - raising awareness on marine litter and ocean literacy - Green Deals for Healthy Seas - developing a national Ocean Health Index - diplomacy to phase out 'dirty diesel' - Clean Loop Oceans to finance solutions to ocean plastics
chemicals and waste	- extending product lifespans through sustainable design, - becoming a zero waste nation - removal of lead in paints - providing reliable information along the product life cycle to raise consumer awareness of hazards and risks - diplomatic efforts to phase out mercury in world-wide gold mining
cross-cutting	- reawakening the ecological consciousness of the community - Environmental Rule of Law to Combat Pollution - engendering Ownership of the Environment - Copernicus satellite information systems for pollution monitoring

Figure ES1: Voluntary Commitments across the Sustainable Development Goals



Voluntary Commitments address all seventeen Sustainable Development Goals. The most cited are Goal 12 Sustainable Consumption and Production (13%); Goal 3 Good Health and Well-being (10%); Goal 11 Sustainable Cities and Communities (9%); Goal 13 Climate Change (9%); and Goal 14 Life Below Water (9%) (see Figure ES1: Figure 2 in the report)

29 Voluntary Commitments explicitly target one or more of the international or regional environmental agreements. These include the chemicals conventions, biological diversity, long range transport of air pollutants and climate change. (see Table ES3: Table 4 in report)

Synergies between the indicators for the Sustainable Development Goals and the major international environmental agreements have been mapped and underline the significant potential for the #BeatPollution Voluntary Commitments to support existing commitments. (see Figure 3 in the report)

A preliminary analysis of the efficacy of all the Voluntary Commitments indicates that those tackling air pollution have the highest potential to make a difference in tackling pollution. (see Table ES4: Table 6 in the report)

An initial set of Headline Indicators shows that if delivered, the Voluntary Commitments have the potential by 2030 to improve air quality for nearly 1.5 billion people, clean-up one third of the world's coastlines, eliminate lead from fuels and paints, develop food systems worldwide that are less dependent on chemical inputs, improve access to sanitation and wastewater treatment for 1 in 7 people and invest 18.6 billion USD in research and innovation. (see Table ES5: Table 7 in the report)

93 percent of government commitments make reference to national and regional monitoring and reporting arrangements. Commitments from business and civil society rely heavily on public information and social media. Voluntary Commitments under the #CleanSeas (32) and #BreatheLife (18) campaigns have a variety of arrangements.

A #BeatPollution Monitoring, Reporting and Evaluation Framework has been designed to support the design, implementation, reporting and communications. It includes methods and tools to evaluate the efficacy of Voluntary Commitments and to enable clear and transparent attribution of outcomes and impacts. Guidelines, underpinning knowledge management requirements and a schema for the Framework are set out. (see Figure ES2, Section 5.4 and 5.5; Figure 11 in the Report)

The Framework stresses the need to identify potential synergies with national policies and international and multilateral environmental agreements, and the Sustainable Development Goals, so as to unleash the full potential of the Voluntary Commitments.

Table ES3: International Environmental Agreements explicitly targeted by Voluntary Commitments

air pollution	• Vienna Convention for the Protection of the Ozone Layer (1985) and the Montreal Protocol on Substances that Deplete the Ozone Layer (1987) and the Kigali Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer (2016) • Geneva Convention on Long-range Transboundary Air Pollution have been amended during the past years: the 1998 Aarhus Protocol on Heavy Metals (amended in 2012), the 1998 Aarhus Protocol on Persistent Organic Pollutants (POPs) (amended in 2009), and the 1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone (amended in 2012). • United Nations Framework Convention on Climate Change (1992) and the Kyoto Protocol for Climate Change (1997) • Paris Agreement (2015)
land and soil pollution	• Convention on Biological Diversity (1992) and Strategic Plan for Biodiversity 2011-2020 Aichi Biodiversity Targets
freshwater pollution	• Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat (1971)
marine and coastal pollution	• International Convention for the Prevention of Pollution from Ships (MARPOL) (1973) • Convention On the Prevention of Marine Pollution from Land-Based Sources (1974) • Barcelona Convention for the Protection of the Mediterranean Sea against Pollution (1976) and the Protocol on Integrated Coastal Zone Management in the Mediterranean (2008) • Convention on the Conservation of Migratory Species of Wild Animals (1983) and the Agreement on Conservation of Cetaceans in the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (1996)
chemicals and waste	• Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (1989) • Rotterdam Convention on Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (1998) • Stockholm Convention on Persistent Organic Pollutants (2001) • Strategic Approach to International Chemicals Management (2006) • Minamata Convention on Mercury (2017)

Table ES4. Preliminary Analysis of the Potential Efficacy of the #BeatPollution Voluntary Commitments

POLLUTION	GOVERNMENT	CIVIL SOCIETY	BUSINESS	OVERALL RANKING
Air Pollution	High	High	High	1
Land and Soil Pollution	High	Medium	High	2
Freshwater Pollution	High	Medium	Medium	3
Marine and Coastal Pollution	High	Medium	Medium	3
Chemicals and Waste	High	Medium	High	2
Cross-cutting	High	Low	Medium	4

The #BeatPollution Monitoring, Reporting and Evaluation Framework supports four performance measures: i) Headline Indicators of the collective impacts of the #BeatPollution campaign; ii) Efficacy of the Voluntary Commitments, iii) Alignment of the Voluntary Commitments with Multilateral Environment Agreements and the Sustainable Development Goals; and iv) Attribution of the Voluntary Commitments to delivering reductions in global pollution.

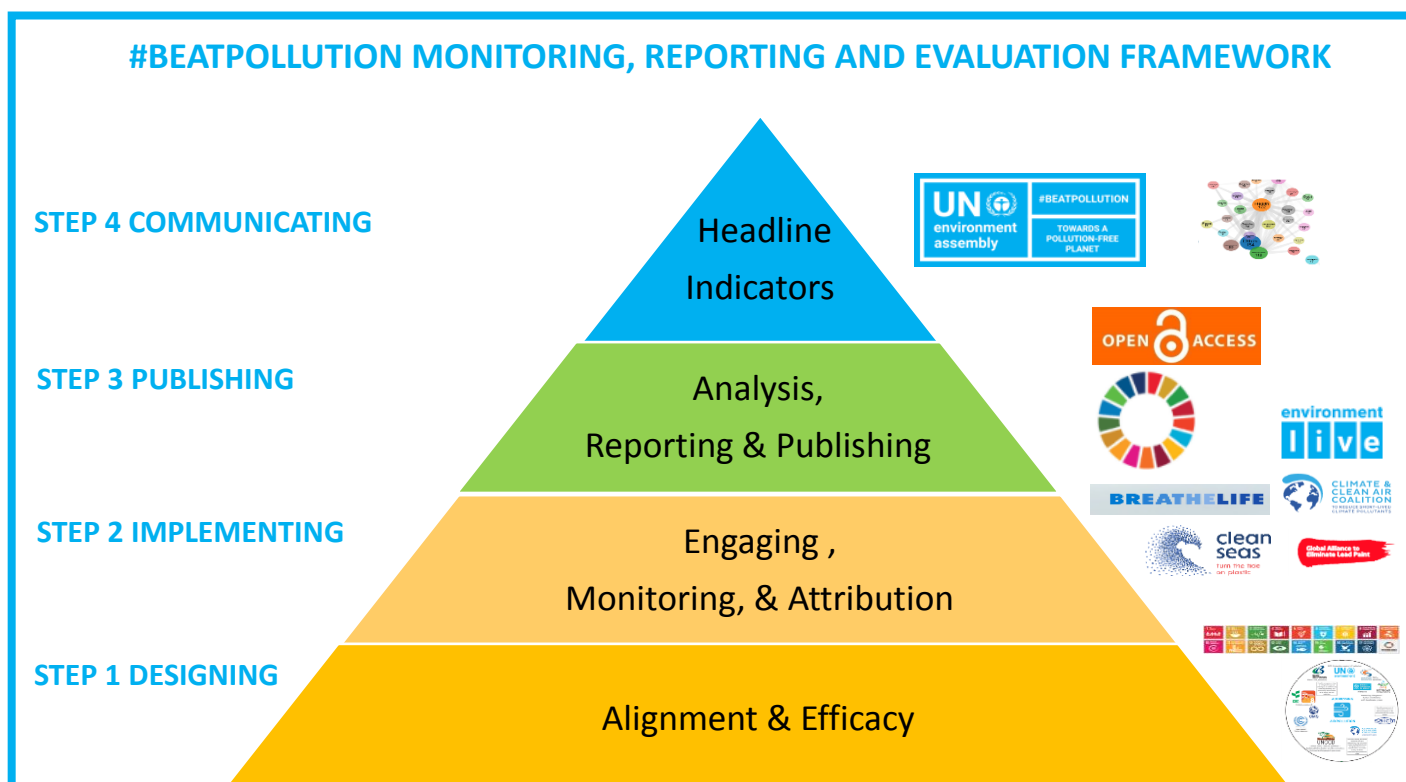
A preliminary set of 6 Headline indicators, based on the Voluntary Commitments with the highest potential efficacy, is presented. (see Table ES5)

Finally, from the perspective of the UN Environment Assembly, the Framework can help to provide answers to two key questions: Is there evidence to show that the #BeatPollution Voluntary Commitments are meeting their aims? and to what extent is #BeatPollution making a difference in moving the world towards a pollution free Planet?

Table ES5: Headline Indicators for the #BeatPollution Voluntary Commitments

HEADLINE INDICATORS: If all commitments are met by 2030:	
Air Pollution	More than 1.47 billion people will breath cleaner air
Land and Soil Pollution	Food systems will be less dependent on chemical inputs
Freshwater Pollution	1 in 7 people worldwide will experience improved access to sanitation and wastewater treatment
Marine and Coastal Pollution	30% of the world's coastlines will be cleaned up
Chemicals and Waste	Lead in paint and fuels will be eliminated
Cross-cutting	18.6b USD will have been invested in research and innovation

Figure ES2 Schema for the #BeatPollution Monitoring, Reporting and Evaluation Framework



1. Thematic Framework for Analysis of Voluntary Commitments

1.1 Thematic Framework for the Analysis of Voluntary Commitments

The UN Environment report “Towards a Pollution Free Planet”¹, provides a thematic framework for Voluntary Commitments by Governments, Civil Society and Business to help “#BeatPollution”.

The overarching objectives of the framework are to help build a global movement towards achieving a pollution-free Planet and unlock economies and societies from polluting pathways, harmful to human and ecosystem health.

The framework is built around five considerations:

(i) everyone in society is responsible for achieving a pollution-free planet; (ii) access to environmental information and data, education and public participation and enhanced access to justice in environmental matters are key to effective actions; (iii) multiple risks to human health and well-being, especially to women, children and vulnerable groups, and to ecosystem health require a preventative approach; (iv) innovation and leadership are central to tackling pollution in an effective and impactful manner; and (v) multiple benefits of action on pollution are highlighted, whilst policy uncertainty is reduced.

There is a dual track of actions based on:

i) Targeted interventions to address hard hitting pollutants and focus national action on five key areas: air pollution, land and soil pollution, freshwater pollution, marine and coastal pollution, and chemicals and waste. Targeted interventions are where international risk reduction actions have been agreed and implementation needs to be scaled up; where scientific evidence and/or global agreement exists to reduce risks, and policy actions are needed; and where emerging scientific evidence concerning human health and the environment warrants a greater understanding of the nature and magnitude of risks. Some interventions target specific forms of pollution for immediate national actions where commitments from different stakeholders are needed to fast track pollution prevention and reduction. (Annex 1)

ii) System-wide actions for the medium and longer term to shift the economy to greener, more circular, and cleaner development paths. (Annex 1)

Finally, there are societal enablers to help secure behavioural changes and societal transformation. These include setting clear targets, adopting science-based standards and monitoring; facilitating evidence-based decision-making; enhancing the effectiveness of pollution-related governance; applying economic instruments to shift consumer and producer behaviour towards cleaner pathways; investing in education for change; and strengthening cooperation and partnerships on knowledge, technology, finance and investment.

¹ UN Environment 2017 Towards a Pollution-Free Planet. A Background Report.
http://wedocs.unep.org/bitstream/handle/20.500.11822/21800/UNEA_towardspollution_long%20version_Web.pdf?sequence=1&isAllowed=y

2. Analysis of #BeatPollution Voluntary Commitments

2.1 Voluntary Commitments: Statistics

From August to December 2017, governments, civil society organisations and businesses submitted Voluntary Commitments and made individual pledges and commitments as part of the #BeatPollution campaign.

By the end of the UN Environment Assembly (6th December 2017), governments had made 215 submission containing 333 Voluntary Commitments, civil society organisations had made 95 commitments; and business had made 22. The #BeatPollution campaign had gathered 2.407 million individual pledges including 88,479 individual commitments across the 12 actions.

On 31 December 2017, a total of 405 Voluntary Commitments had been made from governments, business and civil society, including 269 from 69 different governments, 32 from business and 104 from civil society. (see Figure 1, Table 1 and Annexes 2-4). At the same time, the #BeatPollution campaign collected 2.407 million pledges and 109,786 individual commitments covering all areas of action. (see Table 2)

Voluntary Commitments were classified by thematic area - air, land and soil, freshwater, marine and coast, and chemicals and waste, plus cross-cutting actions such as education, research and development as these are linked to multiple thematic areas, and sustainable development through synergies amongst goals (see Figure 1 and Table 1)

Voluntary Commitments relating to climate change mitigation, emissions reductions, transport and energy were assigned to tackling air pollution. Those relating to sustainable production and consumption were linked to all five areas; those to the circular economy and resource efficiency were assigned to waste unless emissions were explicitly targeted.

Encouragingly, the Voluntary Commitments are all based on the premise that a clean and healthy environment is a driver for future sustainable economic growth. Nearly all government commitments included policies and actions to i) directly control pollution at source, ii) to build resource efficient, sustainable materials and circular economies and iii) raise awareness of the risks and hazards of pollution.

Overall the Voluntary Commitments fell into four broad categories:

A. Expanding existing pollution reduction and control activities and policies:

cleaning-up specific forms of pollution such as persistent organic pollutants; marine plastics

B. Removing barriers to depolluting activities:

Behavioural and technology-related: improving consumer access to information; increasing public awareness and participation; improving understanding of upfront benefits and lifetime savings on health and ecosystem services rather than just costs; increasing availability of innovative pollution monitoring and reduction technologies

Policy-related: improving policy and legal frameworks by recognising the inherent value of services provided by nature, shifting towards a circular economy, reducing risks and catalysing innovation; increasing policy support, capacity and expertise

Economics: ensuring pollution tariffs reflect the costs of externalities; raising collection rates; introducing reforms to support developers and manufacturers; improving clarity of pricing signals; accelerating pace of industrial restructuring

C. Increasing awareness of pollution and the urgency to act through education and targeted, public awareness campaigns

D. Investing in research and development: public and private investment linked to human and ecosystem health and innovative technologies.

The 109,786 individual commitments from the #BeatPollution campaign were clustered under four main themes: Sustainable consumption and recycling; Clean and sustainable use of water; Sustainable land use; and Reducing personal carbon emissions. (see Table 2)

Table 1: Distribution of Voluntary Commitments across Thematic Areas (31.12.2017)

POLLUTION	GOVERNMENT	CIVIL SOCIETY	BUSINESS	OVERALL
Air Pollution	91	14	9	114 (28%)
Land and Soil Pollution	11	12	5	28 (7%)
Freshwater Pollution	24	5	1	30 (8%)
Marine and Coastal Pollution	59	8	3	70 (17%)
Chemicals and Waste	70	35	12	117 (29%)
Cross-cutting	14	30	2	46 (11%)
Total	269	104	32	405 (100%)

Table 2: Distribution of Individual Commitments (109,786) across the twelve action areas of the #BeatPollution campaign (31.12.2017)

INDIVIDUAL COMMITMENTS	%
Sustainable consumption and recycling Stop using disposable shopping bags and other single-use plastic Let my electronics live longer, then dispose of them properly or resell them Compost and recycle Refuse to buy cosmetic with microbeads Chose natural cleaning products & lead-free paint	43
Clean and sustainable use of water Never throw rubbish, chemicals or solvents into storm drains or sewers Collect and use rainwater	17
Sustainable land use Eat less meat and more organic and unpackaged foods Use pesticides and fertilizers efficiently and choose natural alternatives when I can	15
Reducing personal carbon emissions Never burn waste and minimize the burning of wood Use public transport, carpool, cycle or walk Use clean technologies to light and power my home	25

2.2 Voluntary Commitments in the Thematic Areas

114 Voluntary Commitments aim to tackle air pollution. Many involve reducing emissions from transport and energy, adopting ambitious air quality standards beyond the World Health Organisation limit guidelines. There are also ambitious policies for reductions of fluorinated greenhouse gases well beyond the objectives of the 2016 Kigali Amendment of the Montreal Protocol and the elimination of coal-fired power plants. Eighteen government commitments are from cities linked to the [#BreatheLife](#) campaign. These include actions on sustainable transport, waste management, near-zero energy buildings, renewable energy supplies and improved emissions inventories and air quality monitoring. Several business commitments were highly innovative. Examples include delivery off-grid solar energy to 1 million rural households using block chain technology and the Internet of Things to support biometric based microcredit solutions for women; production of new efficient fuel cells; and halving the global

carbon footprint of a Fortune 500 company. Civil society commitments included a wide range of awareness raising activities, especially targeting the most vulnerable and poorest communities. (see Figure 1, Tables 1 and 3, and Annexes 2-4)

28 Voluntary Commitments aim to tackle land and soil pollution. Highlights include forest carbon farms, an urban agenda based on sustainable land use, reforestation of degraded land, city greening, global achievement of the Convention on Biological Diversity targets, improved fertilizer use and nutrient management, control of antimicrobials in the livestock sector, a new global Food and Land Use Coalition to transform food and land use systems to protect natural resources, healthily feed the planet and improve farmer prosperity, improved pollutant inventories for mining, and rural urban initiatives to reduce soil erosion. (see Figure 1, Tables 1 and 3, and Annexes 2-4)

30 Voluntary Commitments aim to tackle freshwater pollution. Highlights include providing clean drinking water and sanitation for improved health, reducing the amount of untreated wastewater discharged into freshwater bodies, improved water quality monitoring, protecting and restoring wetlands and other natural systems contributing to water purification. Innovative commitments from business, include a water retainer that can absorb up to 500 times its weight of fresh water, to which nutrients and natural fertilizers are added, and which is changing the need for irrigation of food crops. (see Figure1, Tables 1 and 3, and Annexes 2-4)

70 Voluntary Commitments aim to tackle marine and coastal pollution. Many commitments are focussed on cleaning up coastal environments and raising awareness about marine plastics. Thirty-two government commitments are from the #CleanSeas campaign focussing on tackling marine plastics. An ambitious and innovative commitment from business, is the Closed Loop Oceans, a market-based investment strategy designed to fund waste management and recycling solutions in Southeast Asia, with a focus on investments to improve collection, sorting and recycling markets that prevent plastics from entering the environment. From government, commitments included Green Deals for healthy seas, policies on segregation of plastic waste from ships, marine accident preparedness, ecosystem based management, development of a national Ocean Health Index, cross-border cooperation to pursue marine polluters and diplomatic efforts to phase out 'dirty diesel' in West Africa. (see Figure1, Tables 1 and 3, and Annexes 2-4)

117 Voluntary Commitments aim to tackle chemicals and waste. Many target sound chemicals management, extending product lifespans through sustainable design, providing reliable information along the product life cycle, minimisation of waste and use of plastics, elimination of lead in fuels and paints and strengthening commitments to the international chemicals

Figure 1: Major Pollution Issues Covered in the #Beat Pollution Voluntary Commitments



<https://uneplive.unep.org>

conventions. Ambitious commitments include becoming a zero waste nation, building a circular economy and diplomatic efforts to phase out mercury in world-wide gold mining. Investment in innovations, sustainable chemistry and health research also feature in a number of commitments from business and government. (see Figure1, Tables 1 and 3, and Annexes 2-4)

46 Voluntary Commitments were cross-cutting. They include awareness campaigns, creating knowledge on the effects of pollution and developing new solutions. (see Figure1, Tables 1 and 3, and Annexes 2-4)

45 of the 50 example interventions cited in the UN Environment Report “Towards a Pollution Free Planet” are reflected in the #BeatPollution Voluntary Commitments. Those which were not included: work on tailing dams, long-term monitoring following industrial closure, increasing publically available information on hotspots, leakage of radioactive waste into oceans and phasing out the production and use of asbestos.

Table 3: Examples of Voluntary Commitments in Thematic Areas

air pollution	- adopting World Health Organization air quality guidelines as a minimum - setting ambitious targets for reductions in fluorinated greenhouse gases - providing effective and affordable public transport - providing off-grid solar energy to women in rural areas via blockchain technology and biometric microcredit systems - reducing carbon footprint by half in a global corporation
land and soil pollution	- optimising fertilizer use in agriculture and enhance nutrient management and plant uptake efficiency to reduce excess nutrient run-off - controlling use of antimicrobials in the livestock sector to avoid releases into the environment - a global Food and Land Use Coalition to transform food and land use systems - supporting improvements in pollutant inventory systems, for mining
freshwater pollution	- providing clean drinking water and sanitation for improved health - reducing the amount of untreated wastewater that is discharged into freshwater bodies - establishing adequate water quality monitoring - protecting and restoring wetlands and other natural systems contributing to water purification
marine and coastal pollution	- cleaning-up coastal areas and beaches - raising awareness on marine litter and ocean literacy - Green Deals for Healthy Seas - developing a national Ocean Health Index - diplomacy to phase out ‘dirty diesel’ - Closed Loop Oceans to finance solution for ocean plastics
chemicals and waste	- extending product lifespans through sustainable design, - becoming a zero waste nation - removing lead in paints - providing reliable information along the product life cycle to raise consumer awareness of hazards and risks - diplomatic efforts to phase out mercury in world-wide gold mining
cross-cutting	- reawakening the ecological consciousness of the community - Environmental Rule of Law to Combat Pollution - engendering Ownership of the Environment - Copernicus satellite information systems for pollution monitoring

3. ALIGNMENT OF VOLUNTARY COMMITMENTS WITH THE SUSTAINABLE DEVELOPMENT GOALS & INTERNATIONAL ENVIRONMENTAL AGREEMENTS

3.1 Alignment with Sustainable Development Goals

All 17 Sustainable Development Goals are addressed by the Voluntary Commitments. The most cited are Goal 12 Sustainable Consumption and Production (13%); Goal 3 Good Health and Well-being (10%); Goal 11 Sustainable Cities and Communities (9%); Goal 13 Climate Change (9%); and Goal 14 Life Below Water (9%). (see Figure 2)

Synergies between the different Sustainable Development Goals mean that policy-related commitments in one area will help to achieve goals in other areas. (International Council for Science 2017) (see uneplive.unep.org) This will enable the #BeatPollution Voluntary Commitments to reach their full potential). For example, access to housing and clean energy, such as through permanent housing for the homeless, providing access to insulation, clean cook-stoves, ventilation, heating or cooling systems (Goal 11) will help improve good health and well-being and reduce exposure to hazardous substances currently present such as polluted air and lead (Goal 3). Commitments targeting renewable energy and energy efficiency (Goal 7), will reinforce improvements in water management and health through lower exposure to hazardous chemicals (Goal 6).

Figure 2 Voluntary Commitments across the Sustainable Development Goals



3.2 Alignment with International Environmental Agreements

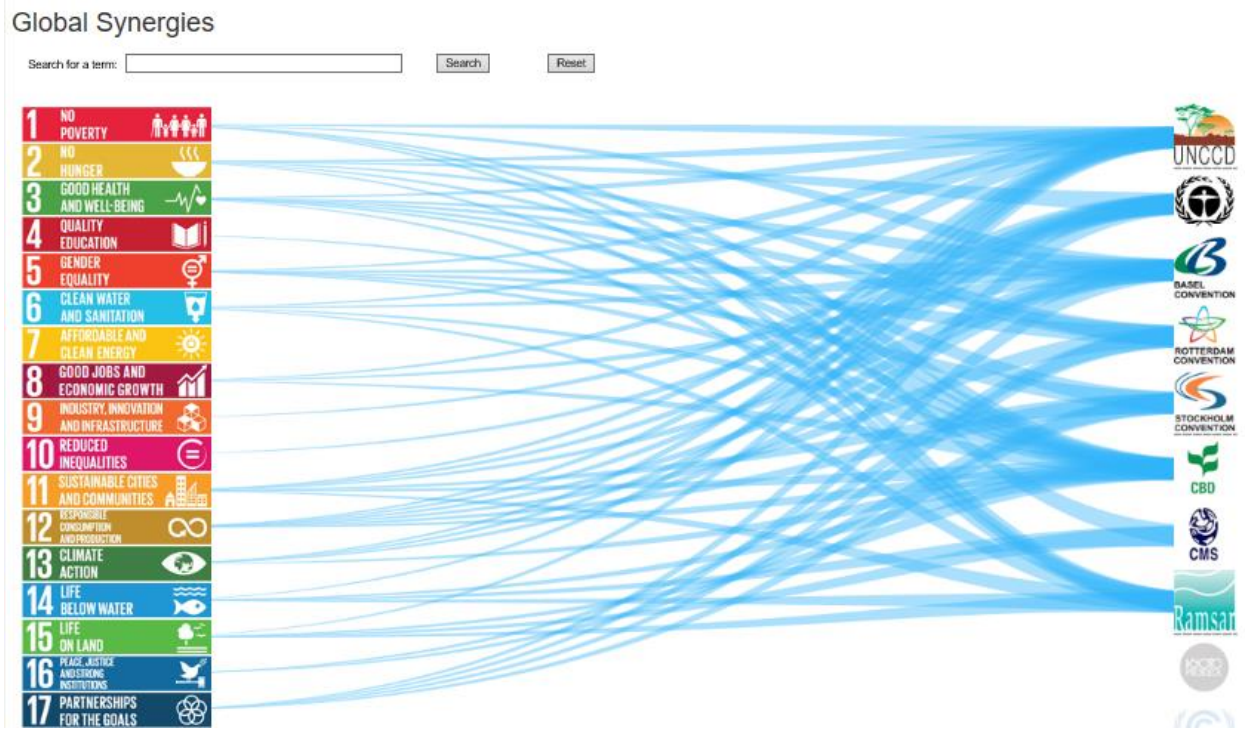
Twenty-nine commitments explicitly target one or more of international or regional environmental agreements. These include the chemicals conventions, biological diversity, long range transport of air pollutants and climate change. (see Table 4)

Further analysis of the mapping between the #BeatPollution Voluntary Commitments and the multilateral environmental agreements and campaigns can be developed, using an indicator approach. An example of this showing the synergies between the indicators for the Sustainable Development Goal and the multilateral environment conventions can be found on Environment Live. (See Figure 3 and <http://uneplive.org/synergies>)

Table 4: International Environmental Agreements explicitly targeted in 29 Voluntary Commitments

air pollution	• Vienna Convention for the Protection of the Ozone Layer (1985) and the Montreal Protocol on Substances that Deplete the Ozone Layer (1987) and the Kigali Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer (2016) • Geneva Convention on Long-range Transboundary Air Pollution have been amended during the past years: the 1998 Aarhus Protocol on Heavy Metals (amended in 2012), the 1998 Aarhus Protocol on Persistent Organic Pollutants (POPs) (amended in 2009), and the 1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone (amended in 2012). • United Nations Framework Convention on Climate Change (1992) and the Kyoto Protocol for Climate Change (1997) and Paris Agreement (2015)
land and soil pollution	• Convention on Biological Diversity (1992) and Strategic Plan for Biodiversity 2011-2020 Aichi Biodiversity Targets
freshwater pollution	• Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat (1971)
marine and coastal pollution	• International Convention for the Prevention of Pollution from Ships (MARPOL) (1973) • Convention on the Prevention of Marine Pollution from Land-Based Sources (1974) • Barcelona Convention for the Protection of the Mediterranean Sea against Pollution (1976) and the Protocol on Integrated Coastal Zone Management in the Mediterranean (2008) • Convention on the Conservation of Migratory Species of Wild Animals (1983) and the Agreement on Conservation of Cetaceans in the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (1996)
chemicals and waste	• Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (1989) • Rotterdam Convention on Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (1998) • Stockholm Convention on Persistent Organic Pollutants (2001) • Strategic Approach to International Chemicals Management (2006) • Minamata Convention on Mercury (2017)

Figure 3: Synergies between the Sustainable Development Goals and Multilateral Environmental Agreements (<http://uneplive.org/synergies>)



4. POTENTIAL EFFICACY AND IMPACTS OF #BEATPOLLUTION VOLUNTARY COMMITMENTS

4.1 Potential Efficacy of the Voluntary Commitments

The potential efficacy of the Voluntary Commitments is contingent on a number of factors. In this analysis of the #BeatPollution Voluntary Commitments, a total of 8 factors are used including: the type of entity or organisation undertaking the commitment; the type of intervention; scientific understanding of the problem; the socio-economic and environmental context and geopolitical scale; time horizon; pervasiveness of the pollution to be tackled; level of inclusivity and representativeness; and level of investment. The inclusion of a plan for monitoring, reporting and evaluation, or a commitment to transparency in reviewing progress, such as those found in international environmental agreements, is also important as it can provide a mechanism for incentivising transformation and helping to attribute impacts. (see Annex 6)

The Voluntary Commitments are in the form of descriptions of entities, actions, events, processes and issues. Whilst the intent is often clear, the language used is often qualitative and imprecise. For example, “shaping public attitudes” or “placing more emphasis on lower pollution rates”. The majority of commitments also do not contain a theory of change, linking the actions proposed to expected outcomes. This introduces a degree of uncertainty into the potential efficacy of the Voluntary Commitments. To address this, a Fuzzy Logic approach is proposed for the #BeatPollution Monitoring, Reporting and Evaluation framework (see Annex 6).

Each Voluntary Commitment is evaluated across the 8 factors, using fuzzy sets and a fuzzy logic rule set describing the causal links between different variables and outcomes, plus a conventional set of presence or absence of monitoring and review. (see Annex 6).

The factors, fuzzy sets and rule sets were developed using expert judgement and knowledge from a wide array of science policy organisations and sources. (see Table 5)

Overall, #BeatPollution Voluntary Commitments by Governments show the highest potential efficacy. The Voluntary Commitments in air pollution are ranked highest, followed by chemicals and waste and land and soil pollution; marine and coastal pollution and freshwater pollution; and then cross-cutting issues. (see Table 6)

Several civil society commitments stand out for their potential to effect change: the International POPs Elimination Network, National Forum for Environment and health (Karachi), Greening the Caribbean, Ocean Care, SITRA Finnish Innovation Fund, plus the Fondation Mohammed VI pour la Protection de l'Environnement and the Fondation Prince Albert II de Monaco. The business commitments show ambition and a high efficacy: well-known brands such as Michelin, Pacific Paints, SAP Unilever, sit alongside smaller companies, all aiming to achieve significant pollution reduction. (See Annexes 2-4)

Table 5. Sources of Expertise for the Fuzzy Logic Sets and Rule Base

air pollution	- Scientific Assessment Panel, Technology and Economics Assessment Panel and Environmental Effects Assessment Panel, - The Vienna Convention for the Protection of the Ozone Layer and its Montreal Protocol on Substances that Deplete the Ozone Layer - Working Groups, Task Force on National Greenhouse Gas Inventories and Task Group on Data and Scenario Support for Impact and Climate Analysis, Intergovernmental Panel on Climate Change - Subsidiary Body for Scientific and Technical Advice, United Nations Framework Convention on Climate Change, the Kyoto Protocol for Climate Change and Paris Agreement - Scientific Advisory Panel, Climate and Clean Air Coalition - Cooperative Programme for Monitoring and Evaluation of the Long-range Transboundary Air Pollution in Europe, Geneva Convention on Long-range Transboundary Air Pollution, Aarhus Protocol on Heavy Metals, Aarhus Protocol on Persistent Organic Pollutants (POPs) and Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone
land and soil pollution	- Committee on Science and Technology, Convention to Combat Desertification - Subsidiary Body on Scientific, Technical and Technological Advice and Ad Hoc Technical Expert Groups, Convention on Biological Diversity - Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services - UN-Oceans
freshwater pollution	- Scientific and Technical Review Panel, Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat - UN-Water - World Water Council
marine and coastal pollution	- Scientific Council, Convention on the Conservation of Migratory Species of Wild Animals - Joint Group of Experts on the Scientific Aspects of Marine Environmental Pollution, UN Advisory Body - International Council for the Exploration of the Seas Working Groups - Regional Seas
chemicals and waste	- pen-ended Working Group, Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and their Disposal - Chemicals Review Committee, Rotterdam Convention on Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade - Persistent Organic Pollutants Review Committee, Stockholm Convention on Persistent Organic Pollutants - Global Mercury Partnership, and Zero Mercury Working Group, Convention on Mercury
cross-cutting	- Scientific Advisory Panel, Global Environmental Outlook - Inter-Agency Expert Group on Sustainable Development Goals, UN Division of Economic and Social Affairs - Scientific Technical and Advisory Panel, Global Environment Facility - Foreign Ministries Science and Technology Advisors Network - International Network for Government Scientific Advice

Table 6. Preliminary Analysis of the Potential Efficacy of the #BeatPollution Voluntary Commitments

POLLUTION	GOVERNMENT	CIVIL SOCIETY	BUSINESS	OVERALL RANKING
Air Pollution	High	High	High	1
Land and Soil Pollution	High	Medium	High	2
Freshwater Pollution	High	Medium	Medium	3
Marine and Coastal Pollution	High	Medium	Medium	3
Chemicals and Waste	High	Medium	High	2
Cross-cutting	High	Low	Medium	4

4.2 Impacts of the Voluntary Commitments: Preliminary Headline Indicators

A preliminary set of Headline Indicators for the Voluntary Commitments with the highest potential efficacy is shown. (see Table 7)

Table 7: Headline Indicators for the #BeatPollution Voluntary Commitments

HEADLINE INDICATORS: If all commitments are met by 2030:	
Air Pollution	More than 1.47 billion people will breath cleaner air
Land and Soil Pollution	Food systems will be less dependent on chemical inputs
Freshwater Pollution	1 in 7 people worldwide will experience improved access to sanitation and wastewater treatment
Marine and Coastal Pollution	30% of the world's coastlines will be cleaned up
Chemicals and Waste	Lead in paint and fuels will be eliminated
Cross-cutting	18.6b USD will have been invested in research and innovation

Given the heterogeneity of the Voluntary Commitments, the estimates for the headline indicators have been collated on the basis of generic outcomes. They are as follows:

Headline Indicators:

More than 1.47 billion people will breath cleaner air – calculated as the populations (2014-2017 data estimated from census reports)) covered by the #BreatheLife campaign and improvements in regulations for air pollution;

30% of the world's coastlines will be cleaned up – calculated as the length of coastline, using The World Factbook estimates, covered by countries which have signed up for #CleanSeas campaign; global business partnerships targeting reduction of plastics; communities planning to undertake beach-clean-ups; and reductions in marine litter due to improved regulations and marine strategies;

Lead in paint and fuels will be eliminated – based on the commitments within the ongoing actions and progress of the Global Alliance to Eliminate Lead Paint and the earlier success of the Partnership for Clean Fuels and Vehicles;

Food systems will be less dependent on chemical inputs – based on commitments from global industries and significant regional groupings of countries to implement regulatory and supply chain reform and improved plant productivity;

One in seven people worldwide will experience improved access to sanitation and wastewater treatment – based on the commitments from governments, significant regional groupings and global industries to build improved water supply, sewerage, sanitation and toilet facilities, and establish water partnerships;

18.6b USD will have been invested in research and innovation – based on the stated figures contained in commitments.

5. MONITORING, REPORTING AND EVALUATION FRAMEWORK

5.1 #BeatPollution Monitoring, Reporting and Evaluation Framework: Guidelines

The #BeatPollution Monitoring, Reporting and Evaluation Framework needs to be able to provide the right answers to the right people at the right time. It must provide easy access to the latest and most comprehensive information about the Voluntary Contributions, snapshots of how the environment is improving and whether pollution levels are decreasing as a result of the #BeatPollution activities, using a set of headline indicators, and provide data on the overall performance of #BeatPollution.

The framework needs to be open, transparent and easy to use, and provide a range of automated data exchange mechanisms and protocols for governments, civil society organisations and business to publish information about the progress, outcomes and impacts of their Voluntary Commitments - **if they wish to do so**.

Information on the Voluntary Commitments will also need to be available in the correct formats for the UN Environment Assembly as well as for the public. (see Sections 5.2 and 5.4)

The Monitoring , Reporting and Evaluation Framework should, wherever possible, be streamlined with existing monitoring and reporting activities such as i) submissions to the Multilateral Environmental Agreements, either directly or through InforMEA, ii) via national inputs to the Sustainable Development Report through the UN Division Economic and Social Affairs UN Statistics Division and co-ordinating UN agencies using a standardised data exchange mechanism, iii) the Global Reporting Initiative for business and iv) campaigns such as #CleanSeas and #BreatheLife. (see Section 3) There are also multiple national actions which can provide a context for many of the Voluntary Contributions. For example, in air pollution, national policies and actions on fuels, cooking stoves and air quality standards are key to the success of the Voluntary Contributions in several countries (see Section 5.4 Figure 8). One way to ensure that #BeatPollution contributions are linked to these processes, is to include a #BeatPollution tag in the associated metadata and reports.

Where there is no existing or obvious reporting mechanism, but monitoring and reporting is foreseen in the Voluntary Commitment, an automated link can be made with associated or relevant activities and initiatives using an Application Programming Interface (API), based on an agreement with the authorising body (see Sections 5.2 and 5.4)

Where no monitoring or reporting is foreseen in the Voluntary Commitment submission, a simple template can be established, using a traffic light system either of agreed guidelines or a self-assessment of progress. The former approach has been widely used in various settings including at the European Environment Agency, during the establishment of reporting data flows. (see Figure 4)

Finally, if the Voluntary Commitment is for a single event, establishment of a new education programme or internal to an organisation and not part of any formal monitoring or reporting, web intelligence tools can be used to compile updates from social media and the press. (see Section 5.4)

5.2 Monitoring and Reporting Considerations for Different Types of #BeatPollution Voluntary Commitments

One of the major gains from having a #BeatPollution Monitoring and Reporting Framework is being able to raise the profile of the Voluntary Commitments and encourage others to participate and to catalyse existing participants to do more. It is essential that information and data on the different types of activities be brought together in a comprehensive and transparent way, so that it make sense.

This means categorising the Voluntary Commitments according to the aims and activities that are planned, developing common ways of reporting and providing effective analytical tools to monitor progress and impact, for example through an Annual Summary and Headline Indicators. (see section 4 and 5.3)

#BeatPollution Voluntary Commitments fall into four broad categories (see Section 2):

a. Dealing with an expansion of existing activities is potentially the most straightforward, especially if there are pre-existing policies, goals and targets and institutional arrangements. In these instances, #BeatPollution Monitoring and Reporting outputs can be connected via an Application Programming Interface (api) to an existing digital platform. Connections to the multilateral environmental agreements can be made through InforMEA or the individual platforms for the multilateral environment agreements, whilst those for the Sustainable Development Goals will normally go through standard procedures overseen by national statistical offices.

In the absence of any planned indicators, Voluntary Commitments should first be mapped onto the multilateral environmental agreements and global Indicator Framework of the 2030 Agenda for Sustainable Development to see if they can serve as useful proxies of progress and outcomes. More than 300 environmental indicators, from the multilateral agreements and sustainable development goals, are supported and automatically updated on UN Environment's Data and Information Platform, Environment Live, that can support this. (see <https://uneplive.unep.org>)

b. Removing barriers through behavioural changes, technology, new policies and economics will require a variety of elements including setting clear targets, science-based standards and monitoring; evidence-informed decision-making; enhanced effectiveness of pollution-related governance; application of economic instruments to shift behaviours towards cleaner pathways; investment in innovation and research; education programmes to support long-term change; and strengthened cooperation and partnerships on knowledge, technology, finance and investment. The Monitoring, Reporting and Evaluation Framework would best serve this category through a Pathway, Timetable and Inventory approach, using simple indicators of progress and process tracking. (see Section 5.3)

Figure 4: Example from the European Environment Agency of Data and Information Reporting

Data flow name	Progress 2012-2013	Progress 2013-2014	Remark
AE1: LRTAP data			Delivery on time in CDR. Requested length of time series provided for criteria pollutants.
AE1b: NEC data	N/A	N/A	Data flow is relevant for EU MS countries only.
AE2: UNFCCC data			No information available in CDR (05 May 2014).
AE2b: EU GHG data	N/A	N/A	Data flow is relevant for EU MS countries only.
AQ1: EoI data			Data delivered on time. Data on particulate matter available for 2012. Data on particulate matter available for 2012. About 12% active stations monitoring PM10.
AQ2: Air quality questionnaire	N/A	N/A	Participation in the 2013 data flow is voluntary for countries which are not EU Member States.
AQ2b: Monthly and summer ozone data			All monthly reports for 2013 provided on time in CDR. Full summer report delivered on time. Requested metadata provided.
CDDA1: Designated areas			Delivery on time. Percentage of sites with required attributes: centre coordinates: 100%; size of area: 100%; IUCN category: 100%; designation category: 100%. Digital boundaries provided for 71% of sites with area > 1ha.
E-PRTR1: European Pollutant Release and Transfer Register			Data delivery on time to CDR. Data in specified xml format. Completeness report available.

c. Monitoring increasing awareness of pollution and the need to act urgently can best be achieved using web intelligence tools to undertake dedicated searches of social media, news and a wide variety of publications and company reports. Diagnostics should include Trend Analysis, Pervasiveness, Sentiment Analysis (i.e. is the report seen in a positive or negative manner), Source of Influence, Associated Concepts and Ontology. (see Section 5.4)

d. Tracking investment in research and development and innovation can be done through direct Reporting requests to the organisations participating, Reviews of Company and Institutional Reports and Directed searches using web intelligence tools. (see Section 5.4)

93 percent of the #Beat Pollution Voluntary Commitments from governments make reference to national and regional monitoring and reporting arrangements. The remainder (20) relate to development of Best Practices and guidelines, support of single events and establishment of new institutions. Monitoring and reporting under the #CleanSeas (32) and #BreatheLife (18) campaigns commitments were not specified.

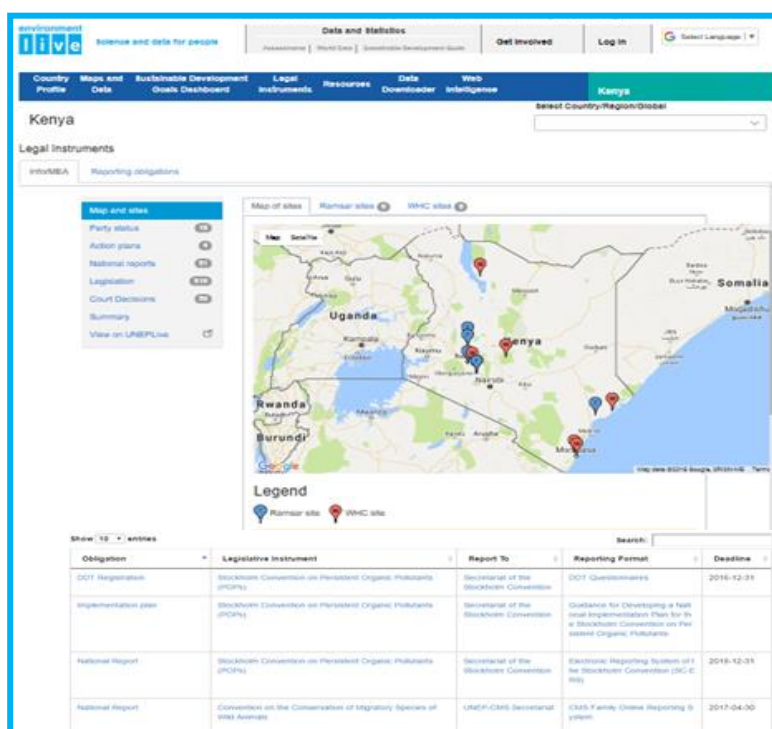
The links between monitoring and reporting in the #BeatPollution Voluntary Commitments and existing reporting to multilateral environmental agreements are explicitly defined in 29 instances. In these cases, monitoring and reporting can be streamlined through a metadata tagging procedure. (see section 5.3) For example, three national commitments address the issue of reducing persistent organic pollutants, in line with the objectives of the Stockholm Convention. The metadata and information from the #BeatPollution Voluntary Commitment could be tagged to submissions to the Stockholm Convention. This would ensure that reports to the Convention and the Voluntary Commitment are linked, thus avoiding duplication of effort and data.

For the majority of #BeatPollution Voluntary Commitments, where the link has not been explicitly cited, it is a matter of judgement by the competent authority as to whether such a link would be beneficial and if so, to undertake to effect the same type of procedure.

Linkages between the pollution related Multilateral Environmental Agreements and the Sustainable Development Goals are an important part of the Voluntary Commitments. (see Annex 5 and UN Environment 2017). A comprehensive list of existing reporting commitments to multilateral environmental agreements for each country can be found on UN Environment's Data and Information Platform Environment Live. (see Figure 5 showing an example of reporting for Kenya)

All Voluntary Commitments indicated links to one or more of the Sustainable Development Goals. Various commitments anticipate supporting reports on progress towards the 2030 Agenda on Sustainable Development. Unlike the majority of Multilateral Environmental Agreements, reporting on the Sustainable Development Goals is essentially voluntary.

Figure 5: Kenya's Ramsar Sites and Reporting requirements to the Multilateral Environment Agreements shown here in Environment Live



The Sustainable Development Goals provide clear guidelines and targets for all countries to adopt, in accordance with national priorities and in the spirit of partnership and pragmatism. It primarily works through arrangements between national statistical offices and the UN Statistical Division, supported by all the UN agencies. At this time, technical protocols for a unified system for data exchange called SDMX (Statistical Data and Metadata eXchange). are being established through a member state-UN initiative. For some Voluntary Commitments, links to the timetable for development of new Sustainable Development Indicators, set out by the Inter-Agency Expert Group on Sustainable Development Goals, will be important. (see Figure 6 showing an example for Sustainable Development water quality indicator 6.3)

Other types of information are also envisaged, such as earth observation and real-time monitoring. (see Figure 7 showing an example for Air pollution and Health, Data and Indicators)

Figure 6: Development of the new indicator for Sustainable Development Goal Target 6.3 on improving water quality by reducing pollution in freshwater. Initial data input from Global Environment Monitoring System (GEMS) station data shown here for Kenya in Environment Live

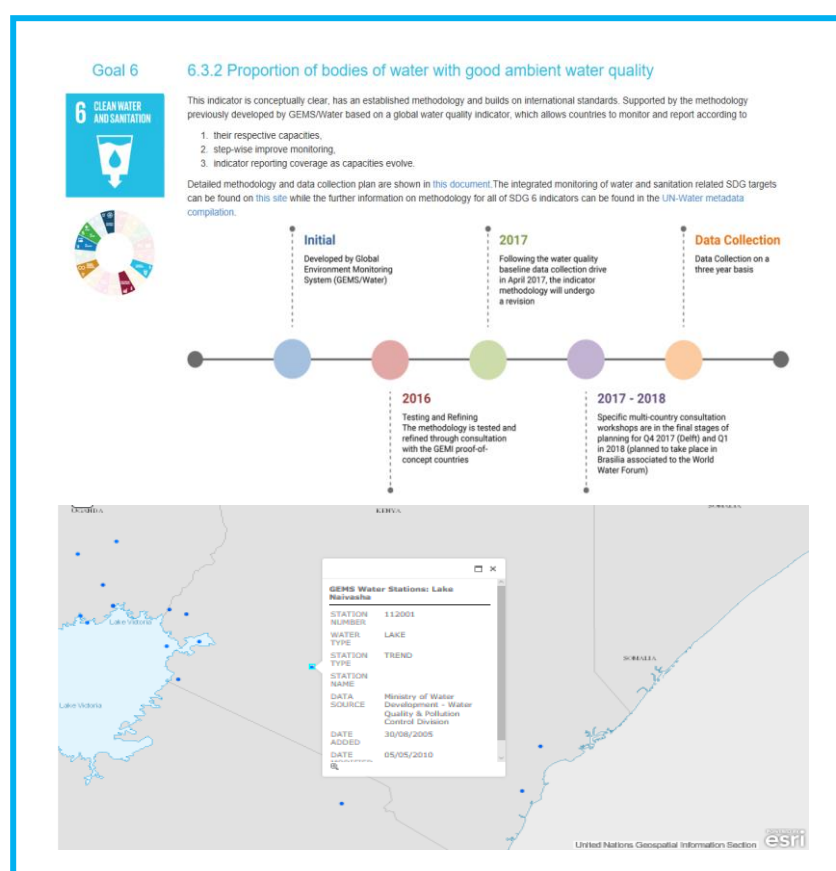
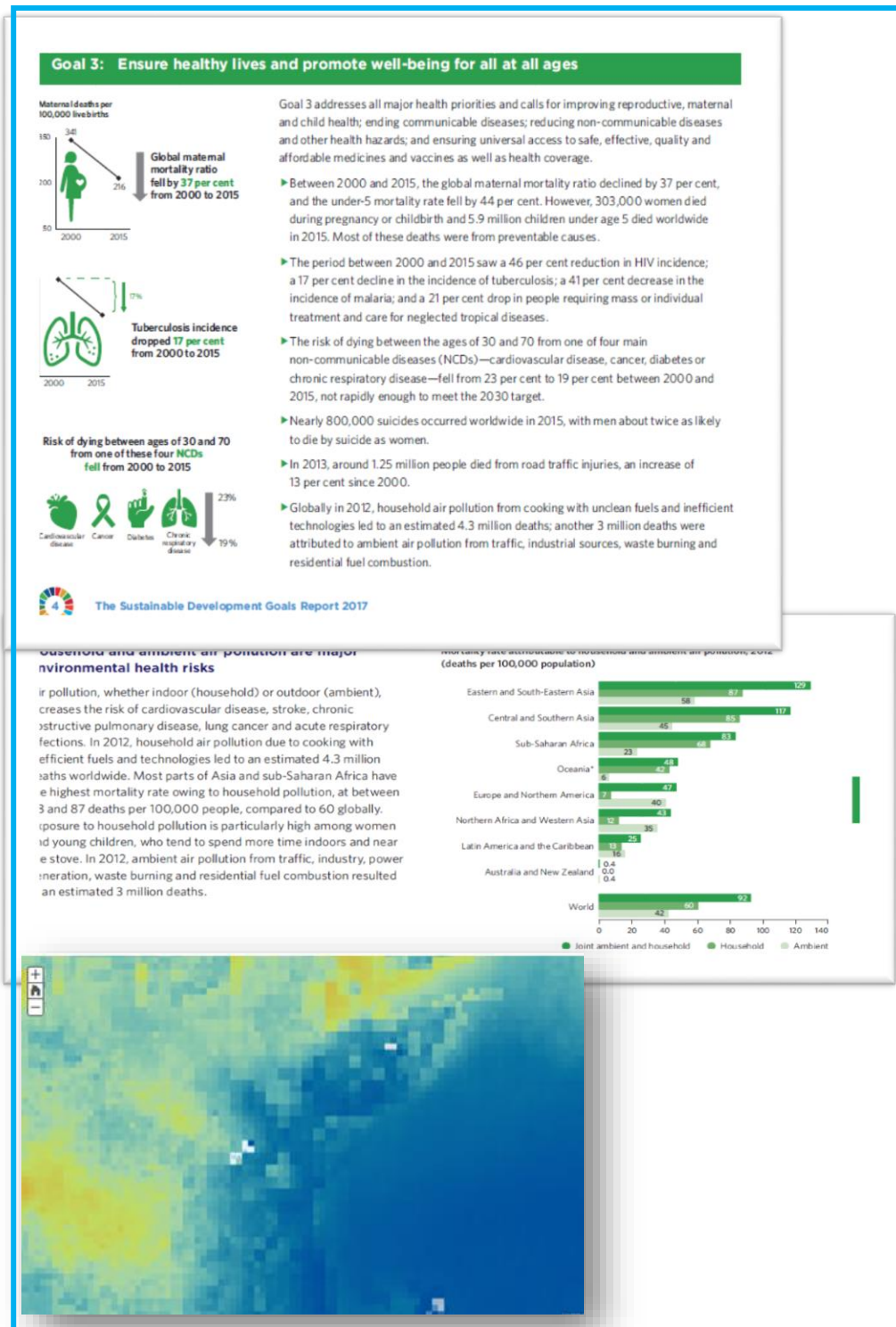


Figure 7: Sustainable Development Goals Report 2017 on Goal 3, covering impacts of pollution on health and showing global PM2.5 gridded data shown here for Kenya on Environment Live



Two of the most important questions to be asked are whether the Voluntary Commitments have the potential to make a difference (i.e. their efficacy) and in the future, have they achieved their intended impact (i.e. attribution). The efficacy of the Voluntary Commitments was evaluated (see Section 4) using a rule-based, expert judgement approach. Initial results showed that the efficacy was high for nearly all government commitments and for a small sub-set of civil society and business.

Concerning attribution, there is growing pressure in the international community to provide more rigorous assessments of whether specific interventions have been the cause of environmental improvements, policies and social change.

5.3 Attribution of the Voluntary Commitments and Overall Performance of #BeatPollution

For #BeatPollution, the main issue is that traditional counterfactual analysis is unlikely to be sufficient. This is because the policy processes involved are complex and happen over time, and so it is very difficult to find identical control cases. Instead, what is needed is a well-articulated theory of change, encompassing different hypotheses, monitored through process tracking and Bayesian updating (Beach and Pedersen 2013; Befani 2016; Bennett 2014; Humphreys and Jacobs 2015). With such an approach, rather than asking very specific causal questions about net effect, such as which part of the outcome can be solely attributed to an intervention, the causal question is phrased in a different way by constructing a hypothesis that describes how the outcome is being achieved. Using process tracking, it is possible to determine the mechanisms through which policies and investments are being influenced by different factors and hence where a #BeatPollution Voluntary Commitment fits in. Through a series of refinements to the hypothesis, and using Bayesian updating, it is then possible to see what happens first, what happens later, and what are the contextual conditions, such as a window of opportunity, that was taken advantage of.

Process tracking and updating can be used to assess the degree of confidence in 'contribution claims' in a transparent and replicable way, independent of any impressions about the 'magic of one intervention' and establish which outcomes and impacts need to be monitored and reported on. Guidelines for the implementation of process tracking would be part of the framework.

The cumulative global impacts of the Voluntary Commitments can best be described using a set of **Headline Indicators, based on the efficacy of activities planned**. An initial example set is presented in **Section 4**; it is comprised of i) an estimate of the number of people breathing cleaner air by 2030, ii) the length of coastline to be cleaned up, iii) the elimination of lead in paints and fuel, iv) less dependency of chemicals in agriculture - due to improvements in plant uptake efficiency, soil productivity and innovations in green chemistry, v) improved access to sanitation and wastewater treatment and vi) the total amount of investment in innovation and research to reduce pollution - as explicitly stated in reports of expenditure. These can be elaborated on or expanded as #BeatPollution progresses and feedback on outcomes is delivered through the Monitoring, Reporting and Evaluation Framework.

The Framework should also be able to provide information for governments, civil society and business on the overall performance of the global movement, based on how well addresses universality, sustainability, integration, precaution and risk, and inclusiveness (UN Environment 2017).

5.4 #BeatPollution Monitoring, Reporting and Evaluation Framework: Knowledge Management

The Voluntary Commitments involve a broad spectrum of activities, generating a wide range of data and information coming from many types of institutions that will be used for monitoring and reporting. These include data from Monitoring Authorities, structured data for example from National Statistical Offices, Mapping and Space Agencies, unstructured data from social media, news outlets, local organisations, civil society stakeholders and sources of relevant publications.

The #BeatPollution knowledge management will need to include various approaches to deal with the different sources and types of information, including web intelligence tools to analyse social media trends pervasiveness, positive and negative sentiments, sources of influence; knowledge extraction; integrated analytics to provide governments, civil society and business with an up-to-date picture of progress and performance of the global effort. (see **Figure 8**)

UN Environment's Data and Information Platform - Environment Live contains more than 300 relevant indicators from national programmes, Multilateral Environmental Agreements, Sustainable Development Goals, regional programmes and global initiatives. These are automatically updated, so #BeatPollution participants can connect their own indicators and outcome measures with these. For example, in the area of combatting air pollution there are a variety of actions and policies already in place which will enable the Voluntary Contributions to meet their aims. (see **Figure 9**)

Monitoring and Reporting is also supported by Environment Live through **the Indicator and Reporting Information System (IRIS)**. This can be used to help organisations, and governments collate data, reports and information for their #BeatPollution reporting needs. It is a template-based, interactive, multi-sector tool for consistent and simplified reporting; it is being used for national, regional and global environmental policies, State of

Environment reporting, Multilateral Environmental Agreements and other regional environmental agreements, and the Sustainable Development Goals. It has the benefit of being very flexible, easy to use, cost-effective and can increase national influences and public awareness of ongoing activities.

Nearly all civil society and business Voluntary Commitments rely on public awareness raising, campaigns or annual reports. Several businesses also report under the Global Reporting Initiative on progress towards reducing impacts on the environment. These can all be tagged to the #BeatPollution Monitoring Framework through a digital connection, such as APIs.

Figure 8: Schema for #BeatPollution Knowledge Management

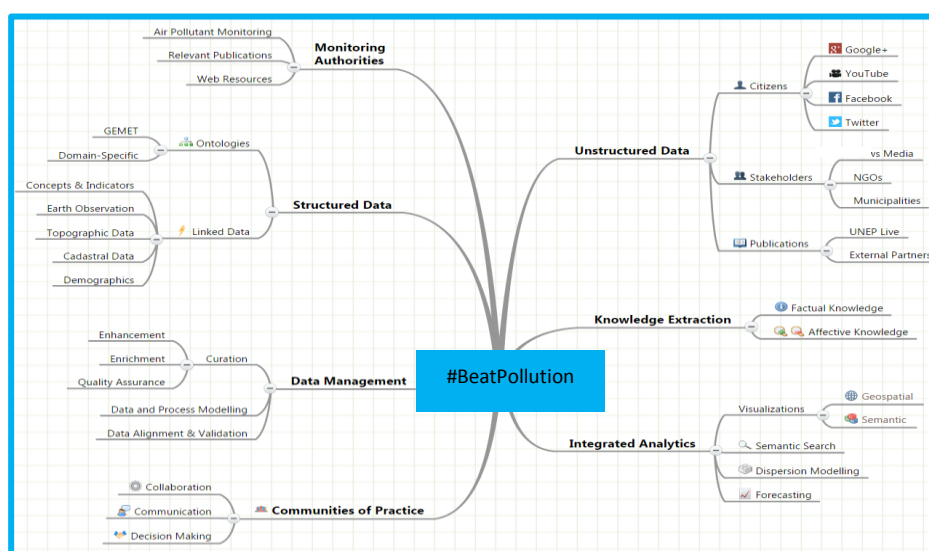
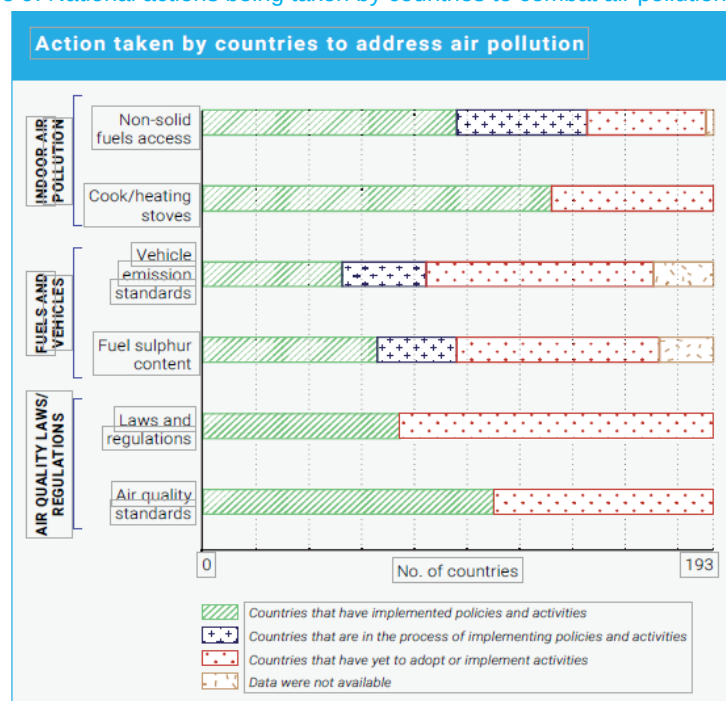


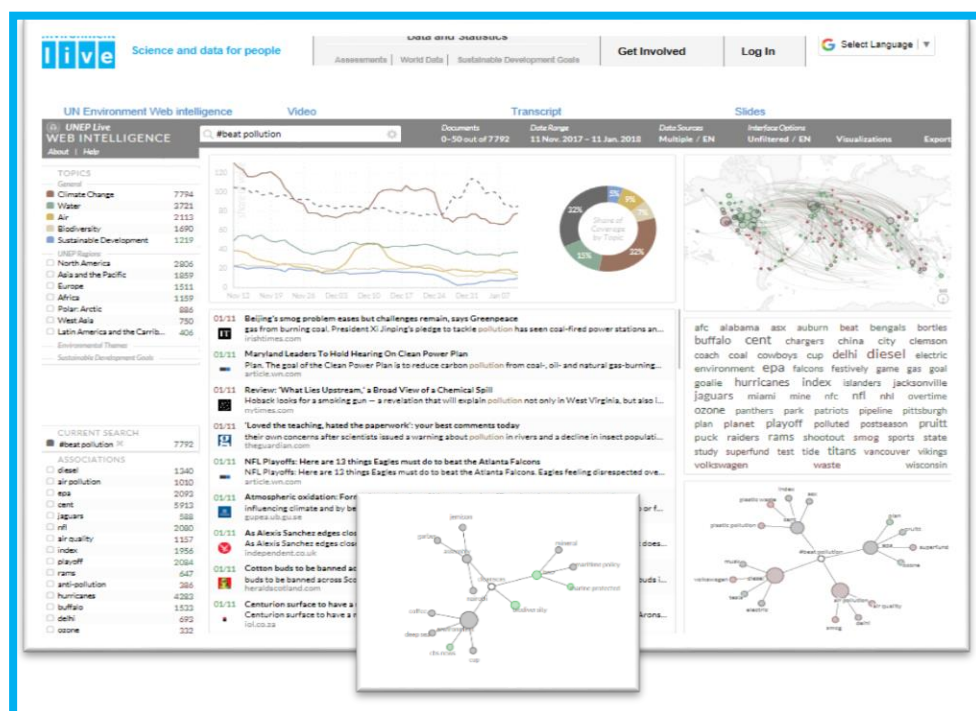
Figure 9: National actions being taken by countries to combat air pollution²



² https://wedocs.unep.org/bitstream/handle/20.500.11822/17203/AQ_GlobalReport_Summary.pdf?sequence=1&isAllowed=y.

Environment Live supports the type of multilingual semantic web intelligence and mapping tools that will enable users of the Monitoring and Reporting Framework to undertake searches of sources in multiple languages and analysis of pervasiveness, sentiment and source influence. As an example, in the past two months, the web analytics show that #BeatPollution is primarily linked with air pollution and plastics, that the large global spike in information flows during the beginning was linked to UN Environment Assembly and that pollution and climate change are strongly intertwined. The most cited sources were from the USA (California and Washington), Great Britain, Canada, China, India, Germany, France, Spain, Mexico and, Ethiopia. There is also a sentiment distribution of all media sources which indicates a strong split around the world. During the same period, the #CleanSeas campaign was strongly linked to the UN Environment Assembly and biodiversity. (see Figure 10 showing results for #BeatPollution and #CleanSeas)

Figure 10 Results for #BeatPollution showing various web analytics and the graph tree for #CleanSeas during the same period



5.5 #BeatPollution Monitoring, Reporting and Evaluation Framework: Schema

The different needs of governments, civil society and business for monitoring and reporting, mean that there has to be a high degree of flexibility in the deployment of the framework. A flexible, four-stage Monitoring, Reporting and Evaluation Framework is proposed which includes the tools and methods needed for Designing, Implementing, Reporting and Communicating about the #BeatPollution Voluntary Commitments - should proposers wish to use it. (See Figure 11 and below)

The #BeatPollution Monitoring, Reporting and Evaluation Framework is unique in that it looks at the efficacy of planned commitments and activities and allows for attribution of the activities on reducing pollution over a wide and heterogeneous mix of activities beyond regulation and policies. It is designed to be simple and flexible enough to incorporate all the Voluntary Commitments from governments, civil society and business. The four steps are as follows:

Step 1 Designing

- Developing a simple scheme (Theory of Change) of how the Voluntary Commitment will lead to the outcomes projected. The Theory of Change will help in subsequent process tracking and attribution analysis. Completing an Efficacy check and making revisions accordingly;
- Mapping of the Voluntary Commitment onto the Multilateral Environment Agreements and Sustainable Development Goals (if not done so already) and other processes such as the Global Reporting Initiative. If appropriate, connect with the Competent Authority to create a connection to existing Reporting processes;

- Checking the extent that the five underlying Principles are addressed and make adjustments accordingly.
- Developing a monitoring system for collection of information, to be used for tracking progress and outcomes and linking this to existing, relevant monitoring schemes where possible;
- Confirming the digital link with #BeatPollution and other bodies for reporting of results.

Step 2 Implementing

- Engaging with partners and participants involved in the Voluntary Commitment to ensure the principles are reflected in activities;
- Reflecting the efficacy analysis results in the ways of working to ensure activities help the Voluntary Commitment reach its full potential;
- Running the process tracking and Bayesian updating;
- Establishing the monitoring system, data collection and reporting responsibilities. In the case of a single event, it is helpful to include follow-up and feedback.

Step 3 Reporting and Analysis

- Confirming with partners and participants, the results of the process tracking and attribution analysis;
- Publishing the final details and outcomes of the Voluntary Commitment; where possible using an Application Programming Interface to ensure automated updating by #BeatPollution.

Step 4 Communicating

- Confirming results with #BeatPollution during any collation for communications;
- Contributing to the development of existing and new headline indicators;
- Championing the #BeatPollution campaign.

For Governments wishing to provide reports to #BeatPollution, the majority of Voluntary Commitments are associated with some form of national reporting. Similarly, for the EU Voluntary Commitments, the policy tools and measures proposed have their own associated monitoring and reporting arrangements. Automated links can be made with #BeatPollution.

For Voluntary Commitments associated with single events, establishing new institutions, or participation in campaigns such as #CleanSeas and #BreatheLife, the key is to create digital links to the #BeatPollution Framework. This can be done by publishing reports and outcomes via a national data portal, a dedicated platform or via an Application Programming Interface to #BeatPollution. Contributions to the headline indicators is an important element and agreements will be needed on the choice of which ones to use. In each case. Attribution of outcomes from the Voluntary Commitments and alignment with the principles will play a vital part in determining the overall success of individual activities and #BeatPollution.

Some Business are already involved in forms of global reporting, for example the Global Reporting initiative, #BeatPollution can collate these results through web intelligence tools and agreed APIs.

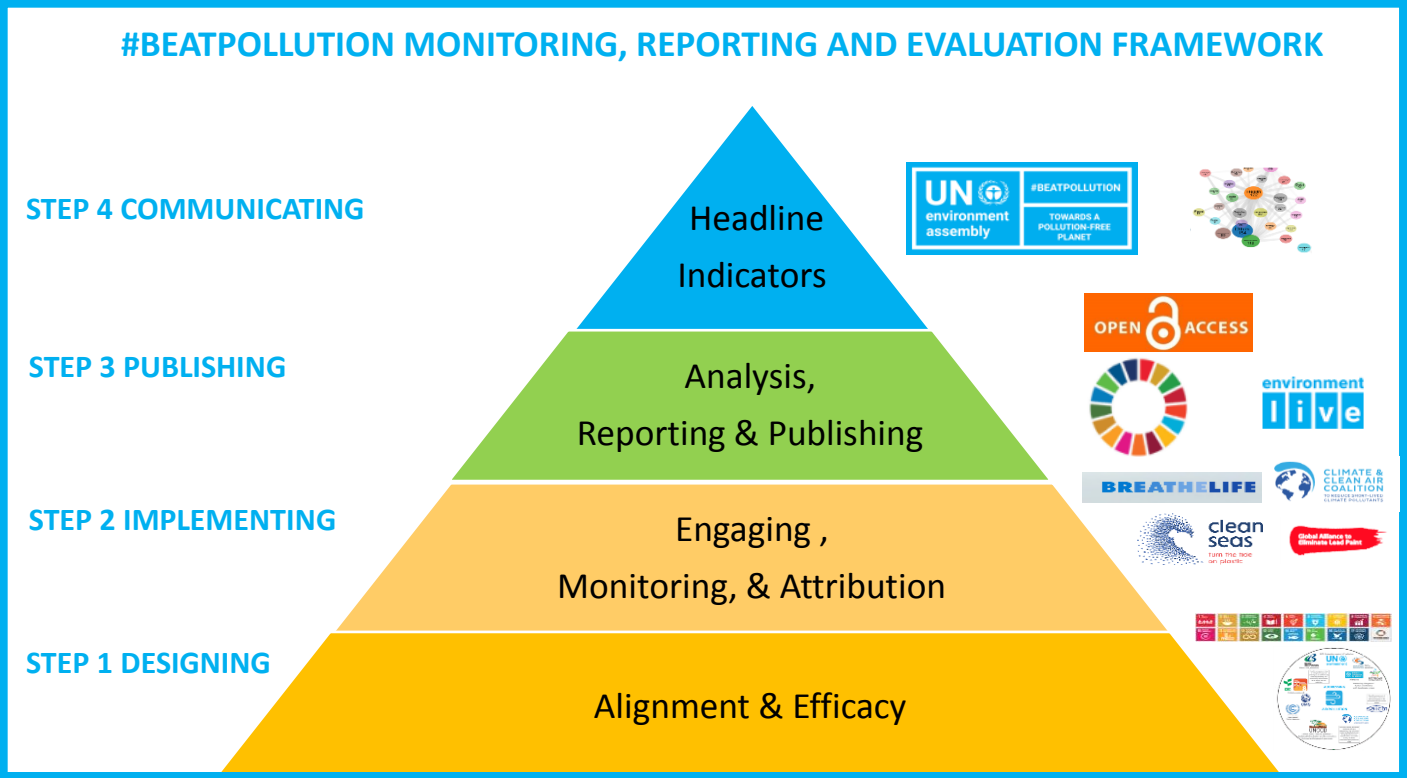
For Civil Society and Business not directly involved in other reporting processes, the four-stage template can be envisaged.

Finally, from the perspective of the UN Environment Assembly, the Framework can help to provide answers to two key questions –

Is there evidence to show that the #BeatPollution Voluntary Commitments are making a difference?

To what extent is #BeatPollution helping to move the world towards a pollution free Planet?

Figure 11: Schema for #BeatPollution Monitoring, Reporting and Evaluation Framework



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