The GBP Impact Reporting Working Group
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Suggested Impact Reporting Metrics for Waste Management and Resource-Efficiency Projects

February 2018

The preparation of this material was **led by an informal Technical Working Group comprising EBRD, EIB, KfW, NIB and The World Bank, and kindly co-ordinated by EBRD**. Special thanks are extended to this Technical Working Group, for their detailed work, that drove the preparation of this document. **The material also benefited from generous input from members of the Impact Reporting Working Group**, **coordinated by BlackRock and EBRD**, with support from ICMA.

The GBP Impact Reporting Working Group currently consists of the following organisations:

Working Group Coordinators:

BlackRock
EBRD

Working Group Members:

Actiam	J.P. Morgan
Amundi	KfW
Ashurst	Kommunalbanken
Axa IM	Luxembourg Stock Exchange
Bank of America Merrill Lynch	Mirova
BNP Paribas	Moody's
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Carbone4	Natixis
Climate Bond Initiative	Nordic Investment Bank (NIB)
Ceres	Skandinaviska Enskilda Banken (SEB)
CICERO	South Pole
EDF	The Nature Conservancy
European Investment Bank (EIB)	TIAA Investments
I-Care & Consult	White & Case
International Finance Corporation (IFC)	World Bank
ING	World Wild Fund for Nature (WWF)
ISS-Ethix Climate Solutions	Yale Initiative on Sustainable Finance

Green Bonds
Working Towards a Harmonised Framework for Impact Reporting for Waste Management and Resource-Efficiency Projects

February 2018

Introduction

The overall goal of the green bond market is to promote and amplify the important role that financial markets can play in helping to address environmental issues. By explicitly specifying the environmentally beneficial projects to which the bond proceeds are directed, Green Bonds allow investors to assess and direct capital to environmentally sustainable investments. It is assumed that the green bonds referred to in this document are aligned with the Green Bond Principles ("GBPs")[1]. The GBP help enhance the integrity and transparency of environmental finance, including through recommending impact reporting.

In December 2015, a working group of eleven International Financial Institutions (IFIs) published a "Harmonized Framework for Impact Reporting"[2]. The framework outlined core principles and recommendations for impact reporting in order to provide issuers with reference and guidance for the development of their own reporting and provided core indicators and reporting templates for energy efficiency and renewable energy projects.

In common with the release in June 2017 of a harmonised framework for impact reporting on sustainable water and wastewater management projects[3], this document builds on the earlier framework and outlines a harmonised framework for impact reporting on sustainable waste management and resource-efficiency projects. This is one of the ten broad categories of eligibility for Green Projects under the GBP 2017. This document summarises the conclusions of an informal technical working group,[4] which has received broader input through the Impact Reporting Working Group convened by the GBP Executive Committee. It has been requested by many in the investor community, as reflected both in the GBP and in the responses to the formal consultations conducted by the GBP in 2016 and 2017.

The GBP recommend the use of both qualitative performance indicators and, where feasible, quantitative performance measures with the disclosure of the key underlying methodology and/or assumptions used in the quantitative determination. This document provides **core quantitative indicators for sustainable waste management and resource-efficiency projects as well as reference reporting templates** that issuers can adapt to their own circumstances. These templates make reference to the most commonly used indicators, however, the working group acknowledges that other indicators might be relevant as well.

All recommendations, indicators and templates need to be compatible with different approaches to the management of proceeds, which can be based on allocations to either individual projects or project portfolios.

This document does not, at this stage, cover impact reporting on the broader range of waste management projects that may be linked to the circular economy, however, the authors of this document acknowledge the importance of harmonisation also for such projects and for projects pursuant to the remaining GBP categories, for which additional suitable indicators will need to be developed in the future.

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[1] See: http://www.icmagroup.org/Regulatory-Policy-and-Market-Practice/green-bonds/

[2] See: http://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/20151202-0530-FINALRevised-Proposal.pdf

[3] https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/Water-Wastewater-Impact-Reporting-Final-8-June-2017-130617.pdf

[4] Participants: European Bank for Reconstruction and Development (EBRD), European Investment Bank (EIB), International Bank for Reconstruction and Development (IBRD), Kreditanstalt für Wiederaufbau (KfW), and Nordic Investment Bank (NIB).

Suggested Impact Reporting Metrics for Waste Management and Resource-Efficiency Projects:

Introduction:

The indicators proposed herein aim to capture and illustrate the environmental and sustainability benefits of projects relating to waste management and resource-efficiency, which are recognised by the GBP (2017) for Green Projects under one of the ten broad categories of eligibility for Green Projects:
"pollution prevention and control (including…waste prevention, waste reduction, waste recycling and energy/emission-efficient waste to energy…)"

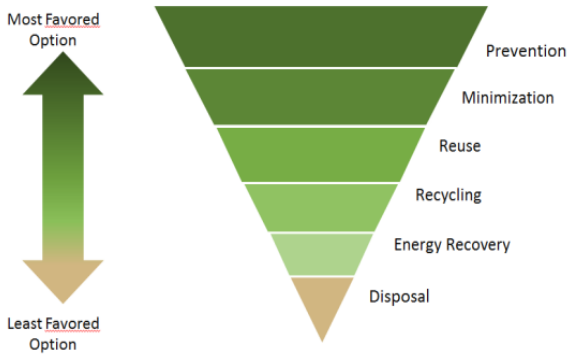
This document builds on the previous work published by the GBP Impact Reporting Working Group in June 2017 entitled "Suggested Impact Reporting Metrics for Sustainable Water and Wastewater Projects", and thus the indicators proposed here focus only on supplementary waste management projects.[5]

Although relevant projects may also reference categories focused on "eco-efficient and/or circular economy adapted products, production technologies and processes…", this is a separate eligible category under the GBP 2017, which is expected to be covered more fully in the future.

While this document proposes certain quantitative impact reporting metrics, the GBP also encourages issuers to provide qualitative information in relation to their waste management projects, whether they be focused on reducing pollution by introducing or improving waste management systems or focused on improved use of resources. Such qualitative information is also encouraged to provide for a meaningful contextualisation of the baseline situation and the improved solution as a result of the project. For waste management projects, this information may be especially meaningful when it covers the entire management system, including characterisation of waste sources, collection system (separate collection or not), waste recovery and re-use solutions (including which materials are being reused/recycled) and waste disposal, rather than isolated parts of it. In evaluating the environmental and sustainability benefits of waste management projects, it is especially useful for issuers to reference the broadly acknowledged "waste hierarchy" in any qualitative reporting on their waste strategy. This seeks to prioritise those activities that are optimal in managing resources and protecting the environment through extracting the greatest benefit with the minimum of waste generated.

[5] This document therefore excludes wastewater projects, and, in alignment with the EU waste Framework Directive http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32006L0012&from=EN it also excludes gaseous effluents, radioactive waste, waste from waste resulting from prospecting, extraction, treatment and storage of mineral resources and the working of quarries, animal carcasses and natural, non-dangerous agricultural waste, as well as decommissioned explosives.

This waste hierarchy is typically presented in the following schematic form:



As can be seen from this diagrammatic representation, waste prevention is the preferred option, followed sequentially by minimisation, reuse, recycling, energy recovery and finally safe disposal. Descriptive examples for each of these options are contained in Appendix A.

The proposed core and other sustainability indicators are designed to facilitate quantitative reporting at a project and/or at a portfolio level across geographies. The importance of the geographic context in the assessment of solutions reinforces the benefit of providing additional contextual information. We therefore encourage disclosure on the national and regional context, including waste volume and waste management solution specific baselines, to help understand the environmental impacts/benefits of the project in its context. Additional qualitative reporting is also encouraged.

Greenhouse gas (GHG) emission reductions are an important green benefit of waste management and resource recovery interventions through avoidance of methane emissions from waste disposed of by preventing, minimising, reusing or recycling waste, production of energy from waste that substitutes for more emissions intensive energy sources and mitigating GHG emissions from waste disposal sites. These projects (such as composting; waste reduction, recycling and reuse; landfill gas capture and collection; anaerobic digestion; waste to energy (thermal treatment) etc.) are motivated significantly by reducing GHG and there are approaches for estimating these emissions.

For meaningful aggregation of indicators across projects, consistency in the methods of calculation, baselines and benchmarks would be required. Thus for the purpose of data quality, issuers are encouraged to disclose additional technical reports and/or data verification protocols where additional information could be provided as well as links to the sources of such data and methods of calculation.

Core Indicators for Waste Management and Resource-Efficiency Projects:

A. Waste Management Projects – Resource Efficiency

#1) Waste prevented, minimised, reused or recycled

- *Indicators:*
  - *Waste that is prevented, minimised, reused or recycled before and after the project in % of total waste and/or in absolute amount in tonnes p.a.*

  - *For certain waste management projects that reduce the amount of waste disposed of, it may also be possible to capture GHG emissions from waste management before and after the project in tCO2–e p.a.*

Benchmarks:

- ❖ *Internationally recognised benchmark standards for waste management (e.g. EU Waste Policy and Waste Framework Directive statistics and reports)*
- ❖ *Internationally recognised tools for calculating Greenhouse Gases (GHG) in Solid Waste Management (SWM), such as the SWM-GHG Calculator* (https://www.ifeu.de/english/index.php?bereich=abf&seite=klimarechner) *or EPA's Waste Reduction Model (WARM,* https://www.epa.gov/warm)

B. Energy Recovery from Waste Including Energy/Emission-Efficient Waste to Energy Projects

#2) Energy recovered from waste

- ➢ Annual amount of energy that is recovered from waste before and after the project in an environmentally sound manner through specified methods:
  - *Energy recovered (e.g. through landfill gas collection, anaerobic digestion plants, waste-to-energy generation, biomass gasification, Mechanical Biological Treatment etc.)*

- *Indicators:*

  - *Annual energy generation from non-recyclable waste in energy/emission-efficient waste to energy facilities in MWh/GWh (electricity) and GJ/TJ (other energy)*
  - *Energy recovered from waste (minus any support fuel) in MWh/GWh/KJ of net energy generated p.a.*[6]
  - *GHG emissions from waste management before and after the project in tCO2–e p.a.*

[6] Where supporting fuel is added in order to facilitate the combustion of waste, the energy from this fuel should be subtracted from the total energy generated.

Benchmarks:

- *Internationally recognised tools for calculating Greenhouse Gases (GHG) in Solid Waste Management (SWM), such as the SWM-GHG Calculator* (https://www.ifeu.de/english/index.php?bereich=abf&seite=klimarechner) *or EPA's Waste Reduction Model (WARM,* https://www.epa.gov/warm)
- *Internationally recognised standards for air emissions from waste to energy facilities (e.g. EU Directive on Waste Incineration, EU Industrial Emissions Directive and Best Available Techniques reference document for waste incineration)*

C. Pollution Control Projects

#3) Waste collected and treated or disposed

- Collection and treatment or disposal of waste (according to country legislation compatible with internationally recognised standards):
  - *Waste that is separated and/or collected, and treated (including composted) or disposed of in an environmentally sound manner before and after the project. (This presumes no leakage of contaminants.)*

- *Indicators:*
  - *Annual absolute (gross) amount of waste that is separated and/or collected, and treated (including composted) or disposed of (in tonnes p.a. and in % of total waste)*

Benchmarks:

- *Internationally recognised benchmark standards for waste separation and/or collection and environmentally sound waste disposal, such as EU Landfill Directive.*

Other Sustainability Indicators for Waste and Resource-Efficiency Management Projects:

#1) Resource efficiency/reduction in raw materials used in manufacturing

- *Indicators:*
  - *KG of raw material per produced unit before and after*
  - *Added monetary value created using waste*

#2) Improved access to municipal waste collection (including separation)

The increase in the share of the population with access to waste collection helps in domestic waste pollution abatement.

- *Indicators:*
  - *Number of people or % of population with access to waste collection under the project*
  - *Area with improved regular (daily, weekly or bi-weekly) waste collection service*
  - *How many fractions of waste were separated before and after the project*
  - *The absolute amount or % of residual non-separated waste before and after the project*

#3) Improved and regular access to street sweeping

- *Indicators:*
  - *Number of people or % of population with access to street sweeping under the project*
  - *Km of street with regular (daily, weekly or bi-weekly) street sweeping service coverage*

#4) Improved municipal waste treatment or disposal services

- *Indicators:*
  - *Number of people or % of population provided with improved municipal waste treatment or disposal services*

#5) Improved recycling programmes

- *Indicators:*
  - *Number of people benefitting from selective collection of recyclables*
  - *Number of informal recyclers integrated into a formal system*

#6) Reduced local pollution to air and/or water

- *Indicators:*
  - *Absolute or % reduction in local pollutants*

#7) Manufacturing for the circular economy

- *Indicators:*
  - *Tons of waste reduced*
  - *Products changed to increase waste reduction*
  - *Tons of secondary raw materials or compost produced*

Appendix A:

Waste Management activities at each level of the Waste Management hierarchy may be described as follows:-

Waste Prevention:

- Any operation that reduces at source the quantity of waste before recycling, composting, energy recovery and landfilling become options.

Waste Minimisation:

Any operation that:

- reduces the quantity of material used in the creation of products and increases the efficiency with which products, once created, are used;
- limits unnecessary consumption by designing and consuming products that generate less waste; *and/or*
- checks, cleans or repairs products or components that have become waste in preparation for reuse without any other pre-processing.

Waste Reuse:

- Any operation that reuses products or components for the same purpose for which they were conceived.

Waste Recycling:

- Any operation that recovers and reprocesses waste materials into materials or substances whether for the same purpose for which they were conceived, or for other purposes.

Energy Recovery:

- Any operation that converts non-recyclable waste materials into usable heat, electricity or fuel.

Waste Disposal:

- Any operation which is not waste recovery.

Illustrative Summary Template for Project-by-Project Report:

Waste Management Projects – Resource Efficiency	Signed Amount a/	Share of Total Project Financing b/	Eligibility for green bonds	Waste Management component	Allocated Amount c/	Project lifetime d/	#1) i) Waste prevented, minimised, reused or recycled e/		#1) ii) Annual GHG emissions reduced e/	Other Indicators
Project name f/	***currency***	***%***	***% of signed amount***	***% of signed amount***	***currency***	***in years***	***in % of total waste***	***in tonnes p.a.***	***in tonnes of CO2 equivalent p.a.***	*~ KG of raw material per produced unit before and after* *~ Added monetary value created using waste* *~ Products changed to increase waste reduction* *~ Tons of secondary raw materials or compost produced*
e.g. Project 1	XX	XX	XX	XX	XX	XX	XX	XX	XX	

Energy Recovery from Waste Projects	Signed Amount a/	Share of Total Project Financing b/	Eligibility for green bonds	Energy Recovery from Waste component	Allocated Amount c/	Project lifetime d/	#2) i) Annual energy generation from non-recyclable waste (electricity/other energy) e/		#2) ii) Annual energy recovered from waste (minus any support fuel) of net energy generated e/	#2) iii) Annual GHG emissions reduced e/
Project name f/	***currency***	***%***	***% of signed amount***	***% of signed amount***	***currency***	***in years***	***in MWh/GWh***	***in Gj/Tj***	***in MWh/GWh/KJ***	***in tonnes of CO2 equivalent p.a.***
e.g. Project 2	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX

Pollution Control Projects	Signed Amount a/	Share of Total Project Financing b/	Eligibility for green bonds	Pollution Control component	Allocated Amount c/	Project lifetime d/	#3) Waste separated and/or collected and treated or disposed in environmentally sound manner e/		Other Indicators
Project name f/	***currency***	***%***	***% of signed amount***	***% of signed amount***	***currency***	***in years***	***in % of total waste***	***in tonnes p.a.***	*~ Number of people or % of population with access to waste collection* *~ Area with improved regular waste collection service* *~ How many fractions of waste were separated* *~ Absolute amount or % of residual non-separated waste* *~ Number of people or % of population with access to street sweeping* *~ Km of street with regular street sweeping service coverage* *~ Number of people or % of population with improved municipal waste treatment or disposal services* *~ Number of people benefitting from selective collection of recyclables* *~ Number of informal recyclers integrated into a formal system* *~ Absolute or % reduction in local pollutants*
e.g. Project 3	XX	XX	XX	XX	XX	XX	XX	XX	

Notes:

a/ Signed amount represents the amount legally committed by the issuer for the project or component that is eligible for green bond financing.

b/ This is the share of the total project cost that is financed by the issuer. Issuers may also report the total project cost. When aggregating impact metrics only the pro-rated share should be included in the total.

c/ This represents the amount of green bond proceeds that has been allocated to disbursements on the project.

d/ Based on either the expected economic life or financial life of the project, if applicable. Issuers should disclose the reporting basis used.

e/ The methodology and assumptions used should be disclosed for calculations in quantitative reporting.

f/ Confidentiality considerations may restrict the project level detail that can be disclosed, but issuers should aim to report the list of projects and either project level or aggregate level committed and allocated amounts and core indicator amounts.

Illustrative Summary Template for Portfolio-based Report:

Waste Management Portfolios – Resource Efficiency	Signed Amount a/	Share of Total Projects Financing b/	Eligibility for green bonds	Waste Management component	Allocated Amount c/	Average Portfolio lifetime d/	#1) i) Waste prevented, minimised, reused or recycled e/		#1) ii) Annual GHG emissions reduced e/	Other Indicators
Portfolio name	***currency***	***%***	***% of signed amount***	***% of signed amount***	***currency***	***in years***	***in % of total waste***	***in tonnes p.a.***	***in tonnes of CO2 equivalent p.a.***	*~ KG of raw material per produced unit before and after* *~ Added monetary value created using waste* *~ Products changed to increase waste reduction* *~ Tons of secondary raw materials or compost produced*
e.g. Portfolio 1	XX	XX	XX	XX	XX	XX	XX	XX	XX	

Energy Recovery from Waste Portfolios	Signed Amount a/	Share of Total Projects Financing b/	Eligibility for green bonds	Energy Recovery from Waste component	Allocated Amount c/	Average Portfolio lifetime d/	#2) i) Annual energy generation from non-recyclable waste (electricity/other energy) e/		#2) ii) Annual energy recovered from waste (minus any support fuel) of net energy generated e/	#2) iii) Annual GHG emissions reduced e/
Portfolio name	***currency***	***%***	***% of signed amount***	***% of signed amount***	***currency***	***in years***	***in MWh/GWh***	***in Gj/Tj***	***in MWh/GWh/KJ***	***in tonnes of CO2 equivalent p.a.***
e.g. Portfolio 2	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX

Pollution Control Portfolios	Signed Amount a/	Share of Total Projects Financing b/	Eligibility for green bonds	Pollution Control component	Allocated Amount c/	Average Portfolio lifetime d/	#3) Waste separated and/or collected and treated or disposed in environmentally sound manner e/		Other Indicators
Portfolio name	***currency***	***%***	***% of signed amount***	***% of signed amount***	***currency***	***in years***	***in % of total waste***	***in tonnes p.a.***	*~ Number of people or % of population with access to waste collection* *~ Area with improved regular waste collection service* *~ How many fractions of waste were separated* *~ Absolute amount or % of residual non-separated waste* *~ Number of people or % of population with access to street sweeping* *~ Km of street with regular street sweeping service coverage* *~ Number of people or % of population with improved municipal waste treatment or disposal services* *~ Number of people benefitting from selective collection of recyclables* *~ Number of informal recyclers integrated into a formal system* *~ Absolute or % reduction in local pollutants*
e.g. Portfolio 3	XX	XX	XX	XX	XX	XX	XX	XX	

Notes:

a/ Signed amount represents the amount legally committed by the issuer for a portfolio of projects or components that are eligible for green bond financing.

b/ This is the share of the total project cost financed by the issuer. Issuers may also report the total project cost. When aggregating impact metrics only the pro-rated share should be included in the total.

c/ This represents the amount of green bond proceeds that has been allocated for disbursements to the portfolio.

d/ Based on either the expected economic life or financial life of the projects, if applicable. Issuers should disclose the reporting basis used.

e/ The methodology and assumptions used should be disclosed for calculations in quantitative reporting.