

Application of Emissions Quantification Tool(EQT) for Estimation of GHGs/SLCPs from waste sector

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Major Challenges

- National data are not available or uncertain and definitions of words and proxy to be used are variable and non-uniform to quantify and estimate GHG/SLCPs emissions associated with waste management
- The mitigation of GHGs/SLCPs emissions from waste sector are not fully addressed in the context of integrated waste management
- Absence of **Life Cycle Assessment (LCA)** which is an essential tool for consideration of both the direct and indirect impacts of waste management technologies and policies (Thorneloe et al., 2002; 2005)
- Unclear definition of **system boundaries** and **selection of models with correct baseline assumptions**
- Post-consumer waste that is a significant energy source is underestimated
- Diffusion of variety of mature technologies are limited due to lack of finance, policies, available land and support from general public

IGES/CCAC's Emission Quantification Tool (EQT): Calculation of SLCP Emissions based on Life Cycle and IWM Approach



Tool (Excel sheet)

https://www.iges.or.jp/en/pub/emission-quantification-tool-eqt-estimation/en?_ga=2.34653730.204731638.1670154527-1809256840.1654670877

Manual

<https://ccet.jp/publications/emission-quantification-tool-eqt-estimation-ghgsslcp-solid-waste-sector>

Emissions Quantification Tool (EQT)

Waste Management and its Climate Impact at city level

Decision making tool



Monitoring tool

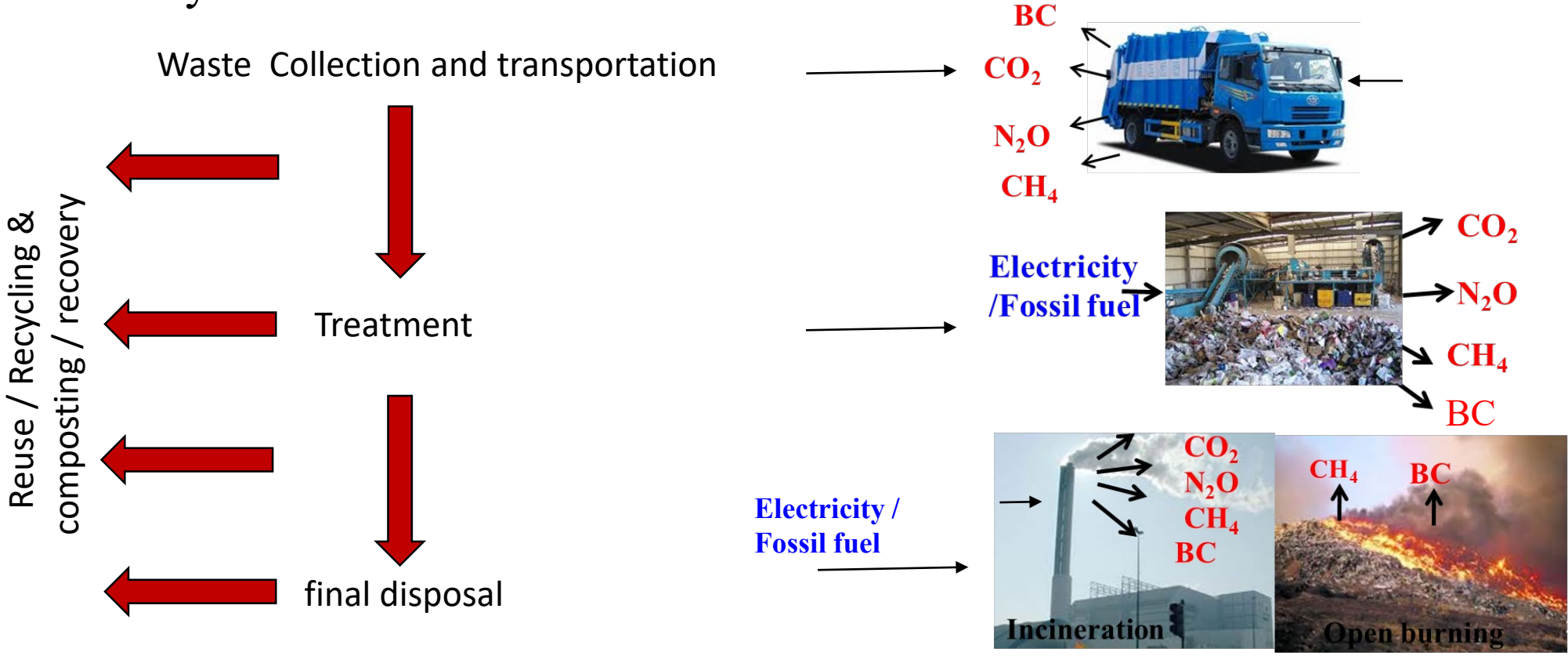


- ❑ A rapid assessment of GHGs and SLCPs emissions based on BAU and alternative scenarios to analyse the most suitable option(s) for the city.

- ❑ Record the GHGs and SLCPs emissions to monitor the progress overtime or to compare with other cities

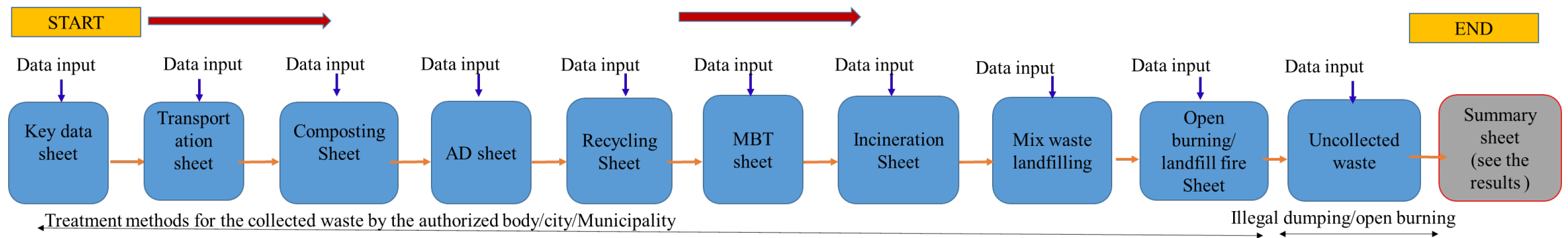
Life Cycle Assessment

Waste management activities emitting GHGs and SLCPs throughout the life cycle are taken into consideration



How to use EQT

- ❑ Simple and step by step guidance on how to enter the data in all excel sheets and obtain the results are provided in the manual
- ❑ Special skill is not required. Ability to work with excel sheet would be sufficient
- ❑ Each sheet is designed in a way that users can easily move among the sheets, enter the data and obtain the results on their waste treatment options
- ❑ Both GHG and SLCP emissions and saving potentials are accounted across the life cycle

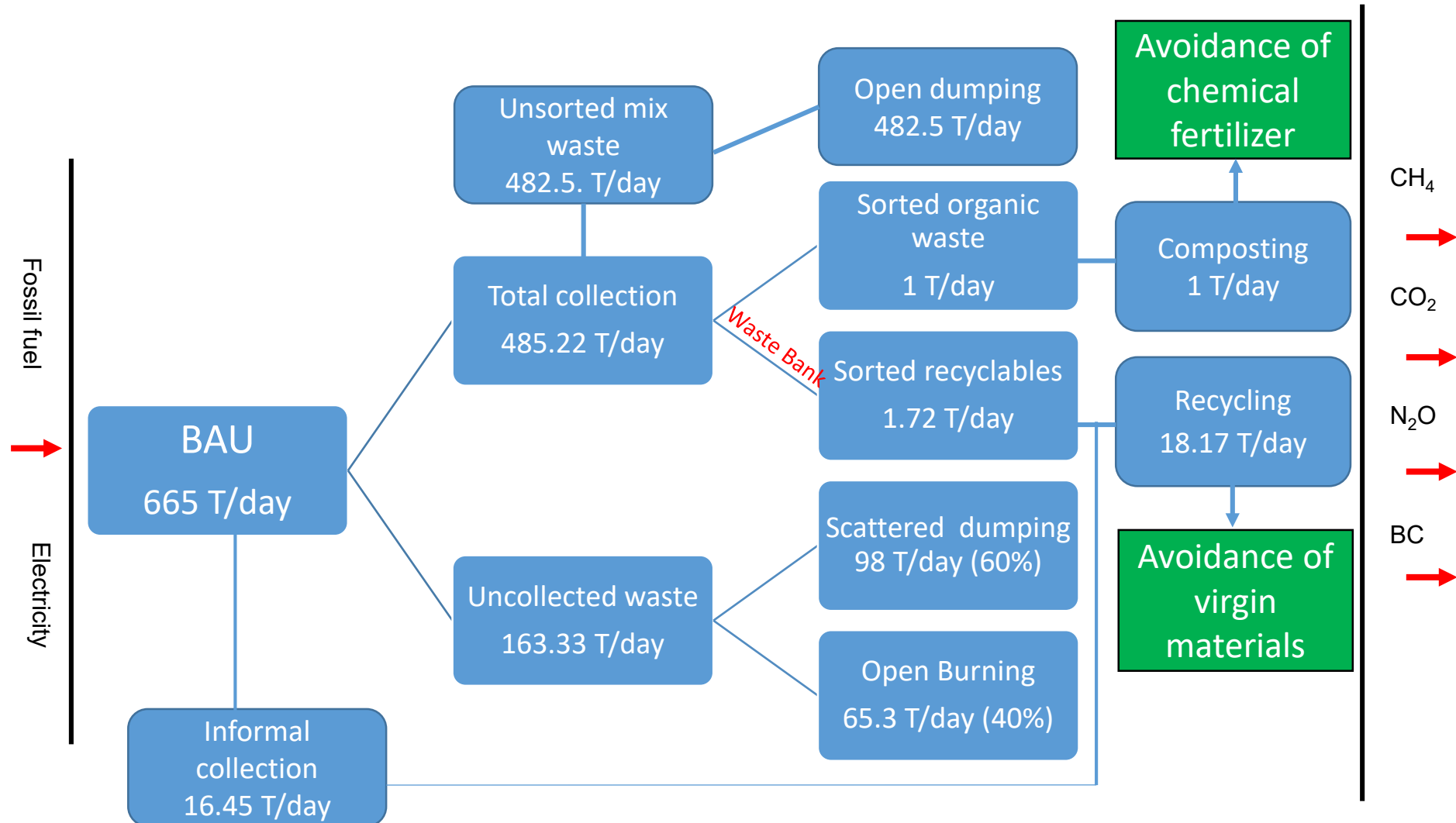


What does the result of EQT show you?

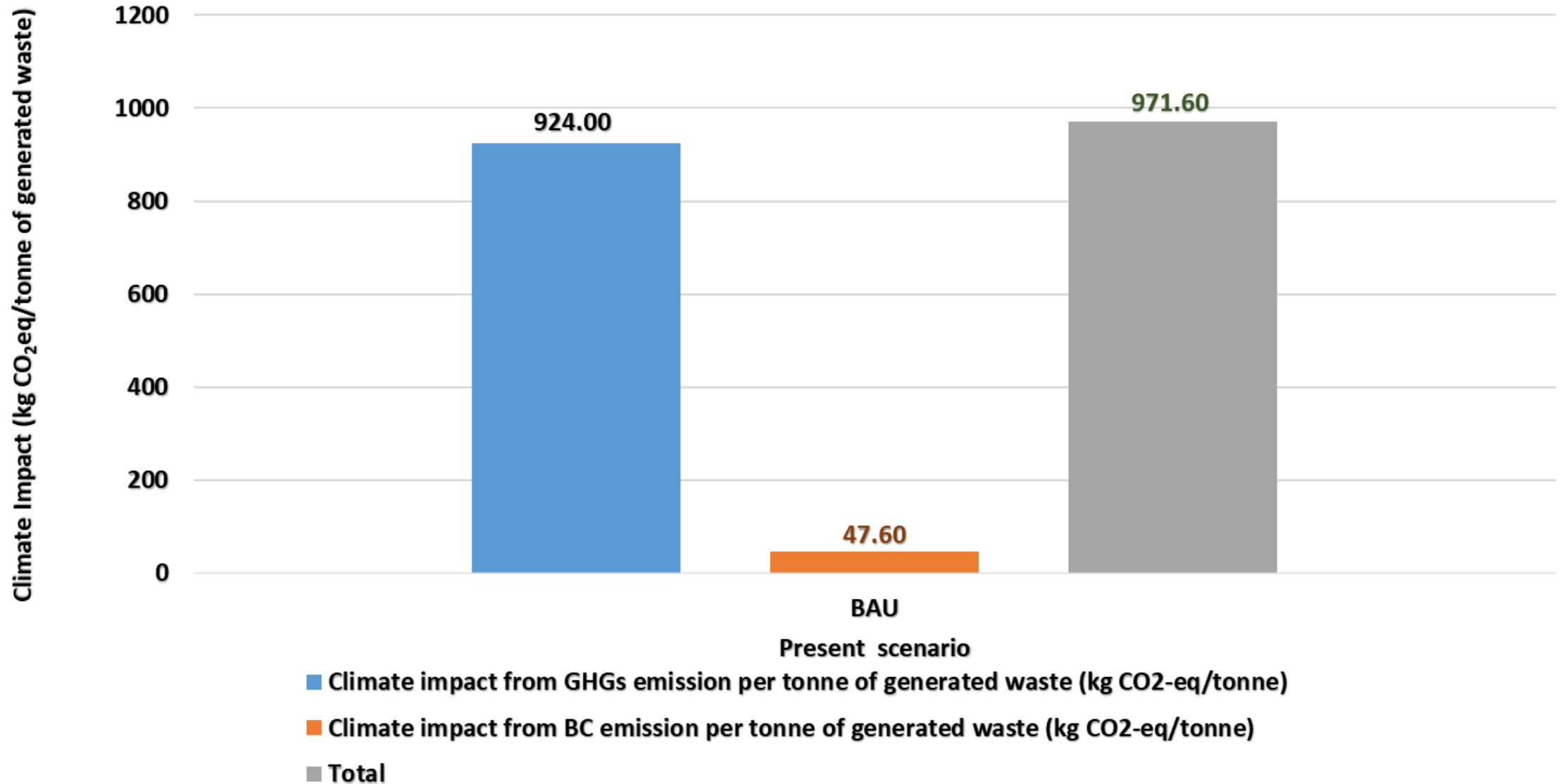
- Waste flow from generation to fate
- Potential climate impact caused by GHG and SLCP (black carbon) emission from waste sector (per tonne and per year)
- Estimate emission of GHG and SLCP (black carbon) from each waste management activity (transportation, composting, recycling, open burning, open dumping, incineration, etc)

Waste flow from input data

- BAU Scenario in Padang City

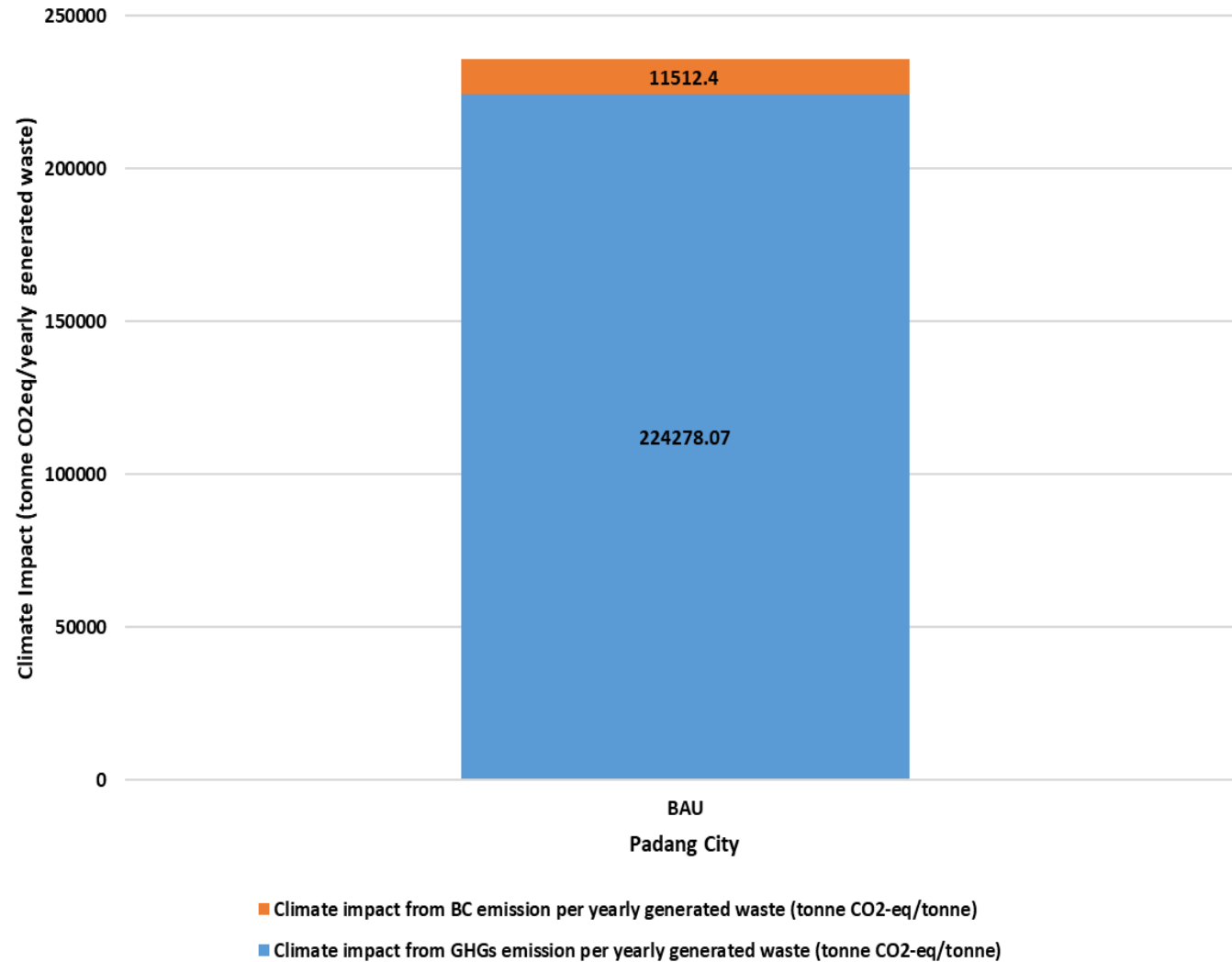


Potential Climate Impact per Tonnes of Generated Waste for Padang City

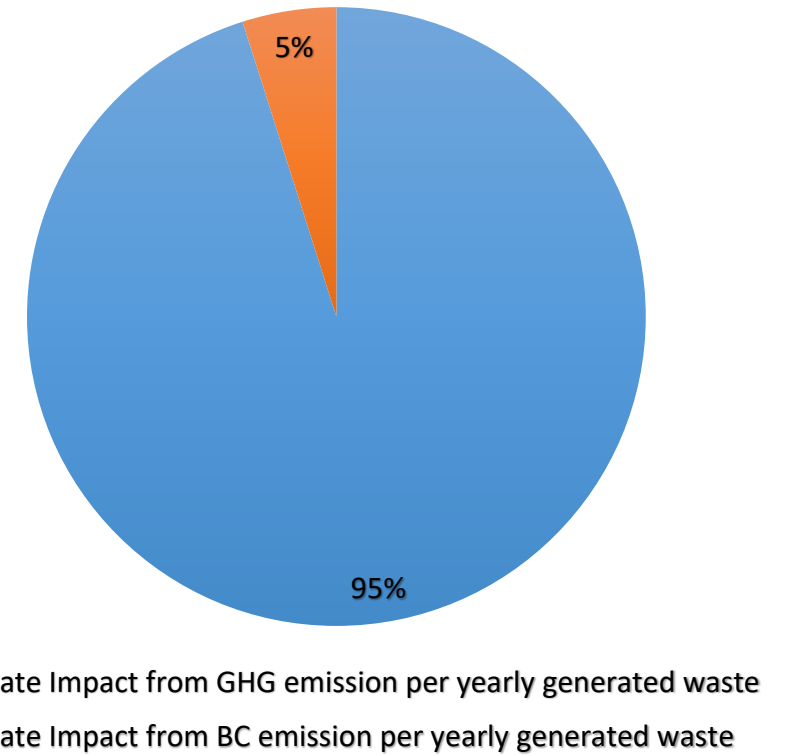


Padang City

Potential Climate Impact per Yearly Generated Waste in Padang City

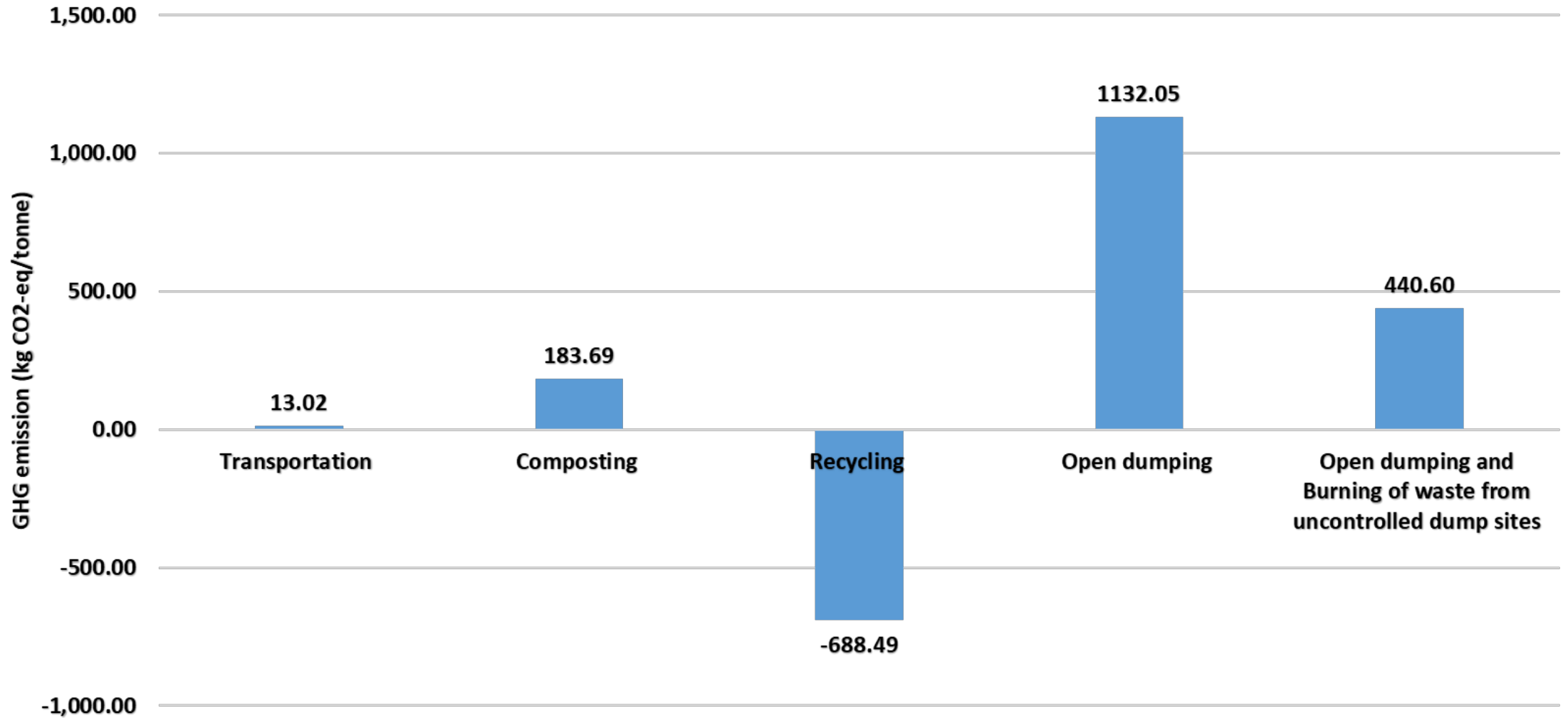


Potential Climate Impact



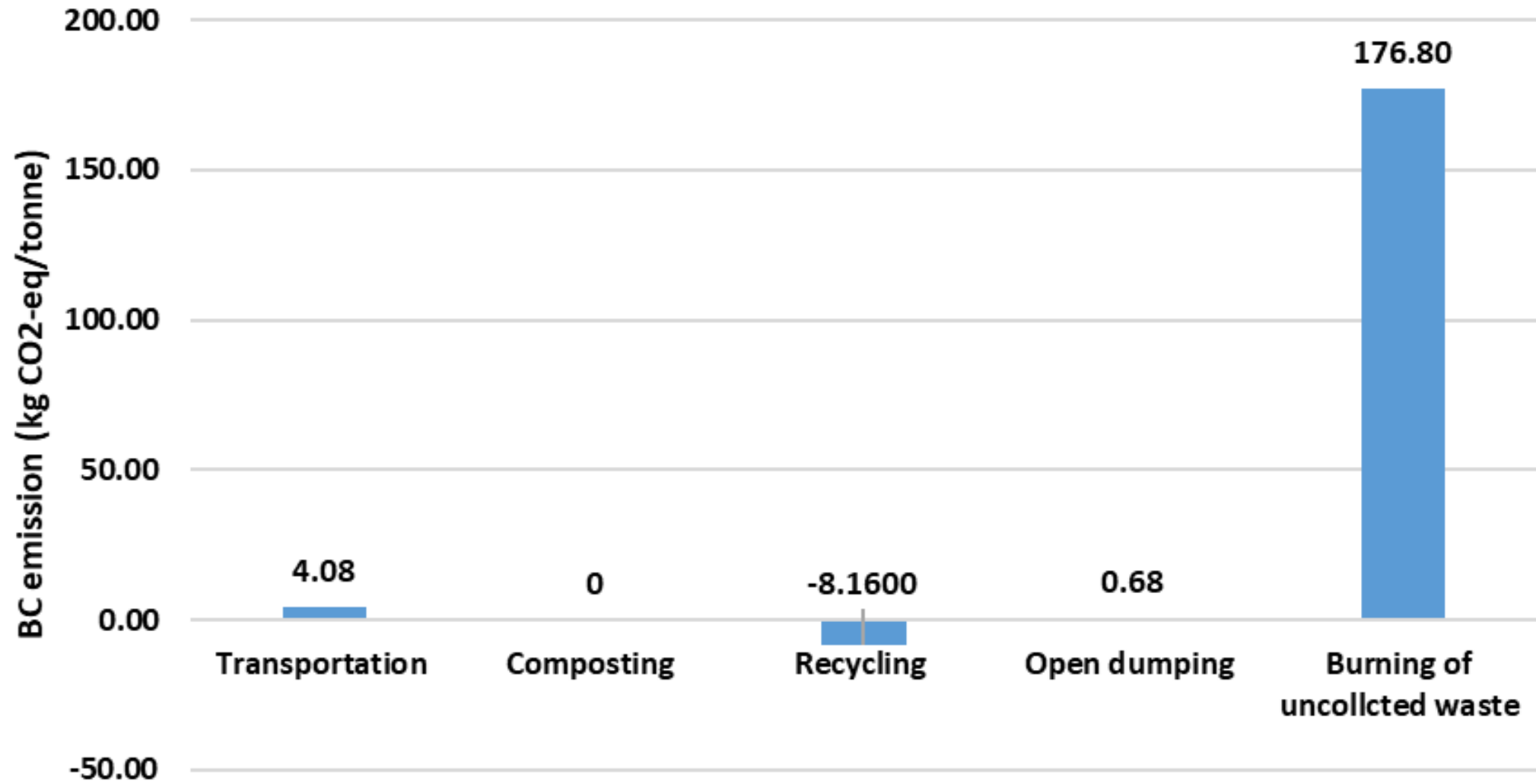
Padang City

GHG Emission from BAU scenario



Padang City

BC Emissions from BAU scenario



How do we use the result of EQT?

- For monitoring
- For decision making
- For developing future strategy through scenario analysis

Available technologies for solution

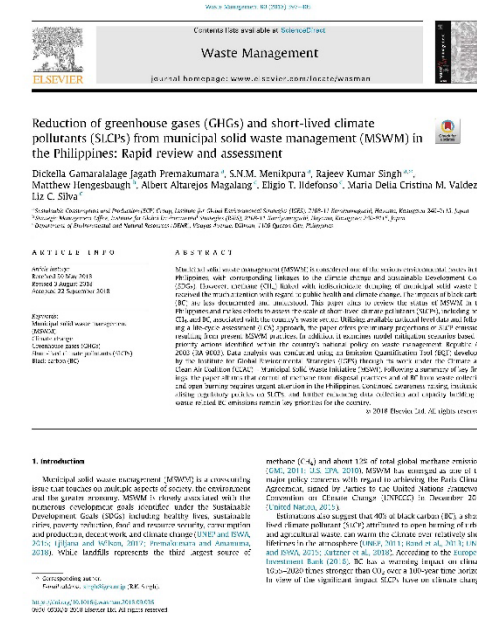
- **Organic Waste Diversion with Composting:** Minimizing the food waste sent to landfills to avoid methane generation
- **Landfill Gas Capture and Use:** Capturing or oxidizing landfill CH₄ to prevent methane from entering the atmosphere.
- **Prevention of Open Waste Burning :** Promoting alternatives to open burning to reduce black carbon emissions
- **Thermal treatment:** pollution-free Incineration (with / without energy recovery), RDF, industrial co-combustion, MBT with landfilling of residuals, anaerobic digestion

Development of “National Strategy to Reduce Short-Lived Climate Pollutants from the MSW sector in the Philippines”

-Department of Environment and Natural Resources

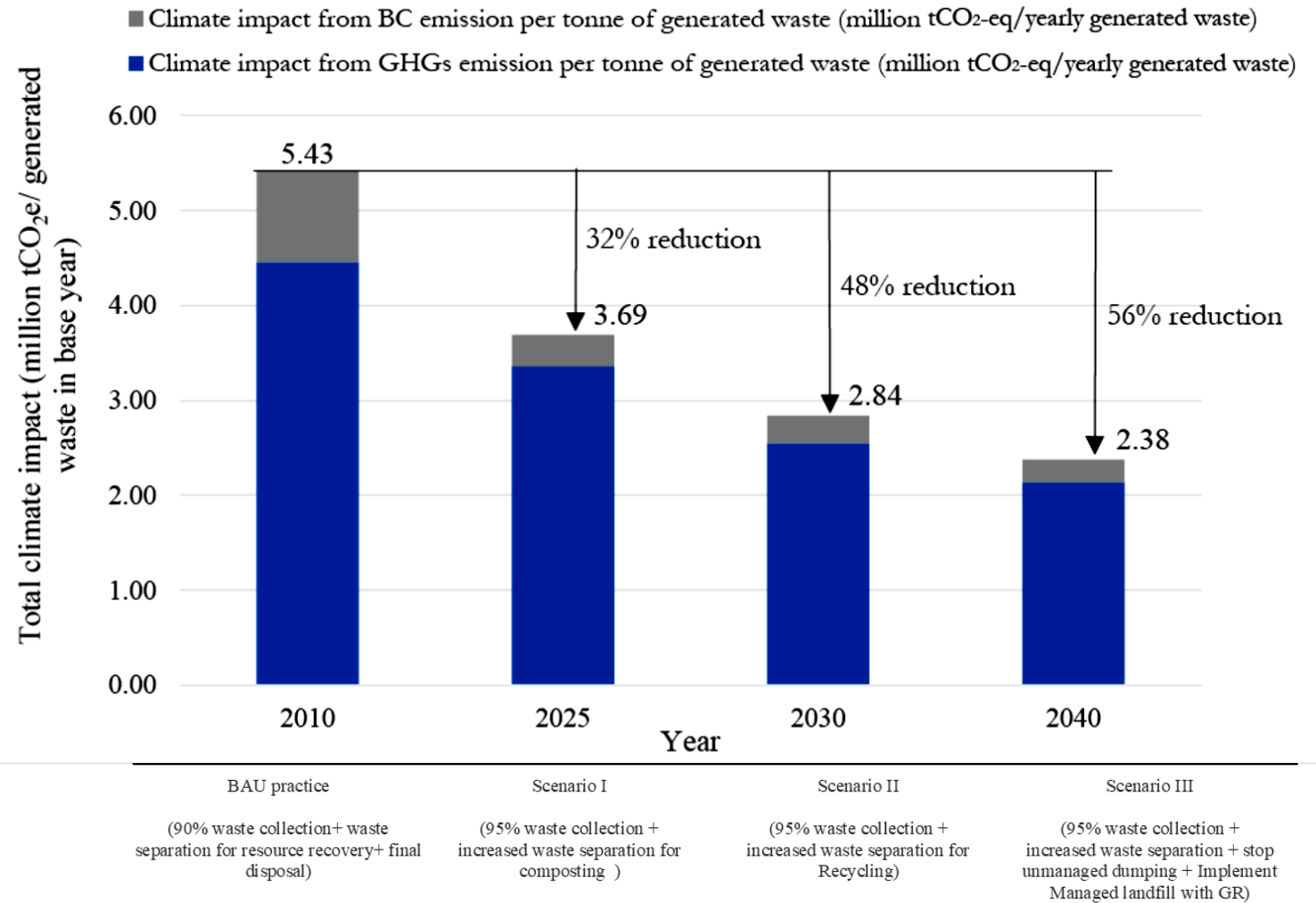
Environmental Management Bureau’s, Climate Change Division, Solid Waste Management Division, National Solid Waste Management Commission and Climate Change Commission

-Completed in March 2019 and adopted by the government



Comparative Assessment of Overall Climate Impact

- As an immediate action, overall climate impacts can be reduced 32% by implementing Scenario I.
- As long-term goal, Scenario 2 and Scenario 3 can be implemented with gradual improvements of resource recovery and waste collection rate while terminating unmanaged disposal sites, which would mitigate climate impact by 48% and 56% respectively as compared to BAU practice



Quiz 1

- At what level can EQT be used?
 1. At national level
 2. At provincial level
 3. At city level
 4. At project level
 5. All of above

Quiz 2

- How could the scenario be used?
 1. For monitoring of emissions from the waste sector
 2. For selecting best option for reduction of GHG and SLCPs
 3. For enhancing the capacity of waste management
 4. All of above