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Waste Technical Committee Meeting - Feedback Report

2nd Meeting Report

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List of Abbreviation

NDC	Nationally Determined Contributions
MoCC&EC	Ministry of Climate Change and Environmental Coordination
CTCN	Climate Technology Centre and Network
PICIIP	Punjab Intermediate Cities Improvement Investment Program
KPCIP	Khyber Pakhtunkhwa Cities Improvement Project
ADP	Annual Development Program
GESI	Gender Equality and Social Inclusion
GGGI	Global Green Growth Institute
GGC	Green Growth Consultants
WSSP	Water and Sanitation Services Peshawar
NARC	National Agricultural Research Centre
EPA	Environmental Protection Agency
OWFM	Office of Waste and Facility Management
LGRDD	Local Government and Rural Development Department
LGCD	Local Government and Community Development

1. Introduction

A technology roadmap for NDC implementation is a strategic planning tool that provides a structured approach to identify, prioritize, and sequence the deployment of technologies to address climate change challenges and promote sustainable development. Pakistan's *Nationally Determined Contributions 2021* prioritizes technology-based interventions as a means towards climate action and calls for technology transfer and interventions for key sectors in Pakistan, including water and waste. Pakistan is committed to the incorporation of technology in its climate agenda and shaping an enabling environment for the effective incorporation of technology in its NDC implementation to ensure efficiency, inclusive access, and adequate management of its water and waste sectors. To achieve this, the Ministry of Climate Change and Environmental Coordination (MoCC&EC), through the Climate Technology Centre and Network CTCN's technical assistance, has started the development of Pakistan's Technology Roadmap for the waste and water sectors for NDC implementation.

Taking the lead from the **kick-off workshop** organized in February to highlight the priority sub-sectors and technology options in the waste sector, the **1st stakeholder feedback waste technical committee meeting** which took place in March 2024 to further assess and shortlist the technologies identified through stakeholder sensitization and desk review for the **waste** sector, and the **1st technology roadmap committee meeting**, to finalize the scoring criteria for the shortlisted technologies, the **2nd Waste Technical Committee Meeting** was focused on feedback from the stakeholders on the **shortlisted technologies, financial challenges and opportunities, and GESI** (Gender Equality and Social Inclusion) for each technology.

2. Objectives of the Meeting

The main purpose of the meeting was to understand a **Province-level priority for the technological solutions for waste sector, the financial mechanism utilized for the maintenance of existing infrastructure as well as new investments, and finally, understanding the inclusiveness of project planning and implementation from Gender, and Social Inclusion perspective**. The meeting was focused on getting technology-specific feedback, to better understand the need in each province, and address the needs fully.

3. Methodology

The meeting was held online through a pre-shared Zoom link and was attended by 20 participants of the technical committee, excluding the GGGI, GGC, and MoCC teams. The technical committee was formulated by GGC with assistance from the Ministry of Climate Change & Environmental Coordination, and the list of participants from the relevant sectors was formulated, which is also attached as **(ANNEX- I)**. Following the shortlisting of technologies and the development of scoring criteria, this meeting was conducted to gather province-specific feedback on the shortlisted technologies, financial challenges and opportunities, and Gender Equality and Social Inclusion aspects for each technology in all provinces.

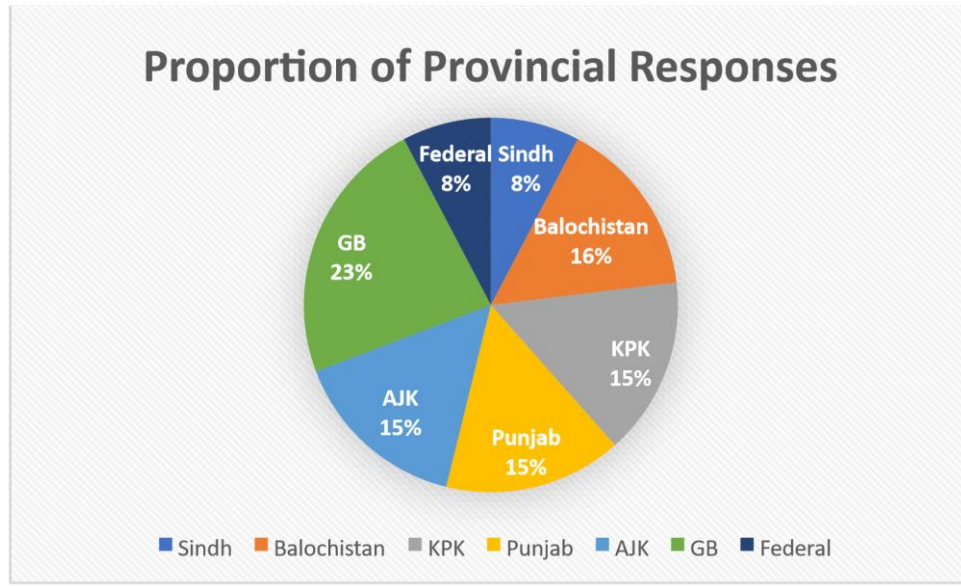


Figure 1: Responses Percentage

This meeting was conducted utilizing three critical platforms: Zoom, Mentimeter, and Google Forms. During the meeting, moderators encouraged the stakeholders to record their voices through verbal inputs as well for the smooth execution of this meeting and to fulfill the objectives. Mentimeter software was utilized to hold an interactive discussion session with participants to identify waste sector issues, ,prioritize technologies , and identify challenges that hindered implementation. Following this, a Google Form was shared with participants to record their results on several questions regarding the three focus areas; Technology, Finance, and GESI. This meeting and recorded responses successfully facilitated the identification of province-wise needs and the current situation.

4. Discussion and Outcomes

The focus was more towards the Domestic and Agriculture sectors as most of the stakeholders that filled out the form and selected that they were answering for these two sub-sectors. The following feedback was noted in the Google Forms.

A. Feedback on Technology

The participants were requested to provide an overview of the existing technology infrastructure in the province or region's waste sector. Additionally, they were asked to mention the technology projects their department had initiated over the last five years. Following responses were recorded from each province, it involves feedback recorded through google form questions and the input taken during zoom and mentimeter sessions.

Table 1. Description and feedback of the identified technologies disaggregated by province.

Province	Technologies Mentioned	Description of Feedback
Punjab	Conventional dumping, waste-to-energy, compost, Punjab Intermediate Cities Improvement Project(PICIIP) projects	Existing technology primarily involves conventional dumping methods. Recent efforts include waste-toenergy and compost projects. Innovative projects are being deployed under Punjab Intermediate Cities Improvement Project (PICIIP).
Azad Jammu & Kashmir	Incineration for infectious waste, private sector initiatives	Numerous challenges exist due to limited technological development. Waste collection is done by municipal corporations without proper disposal systems. Some progress with incineration have been made in the province.
Khyber Pakhtunkhwa	Basic technology (hand carts, dumpers), biodigester plant	Waste collection in Peshawar uses basic technology. No scientific landfills or recycling units. The KPCIP will introduce a biodigester plant and other waste management technologies.
Balochistan	Vermicomposting (experimental)	No significant technology infrastructure for agriculture waste decomposition. Vermicomposting has been introduced experimentally, but comprehensive projects or infrastructure are lacking.
Gilgit-Baltistan	Manual collection and dumping, bailer machines, reuse of agricultural waste	Waste management is manual and lacks segregation. Bailer machines introduced for recycling materials. Mixed farming allows agricultural waste to be reused as animal feed. Tourism increases the need for better waste management.
Sindh	Biofertilizer, compost preparation, climatesmart agriculture practices	Sustainable waste management methods are being worked on, focusing on biofertilizer and compost preparation, with an emphasis on climate-smart agriculture practices.

B. Finance, Challenges, and Opportunities

A question was included in the Google forms to assess whether provincial and national budgets are a major source of investment or whether grants or loans are more accessible in provinces, but it was seen that most of the provincial representatives voted for the national/provincial budget, which can also be seen in the chart below.

For the last 5 years, what has been the source of investment for water infrastructure in your province/region?
13 responses

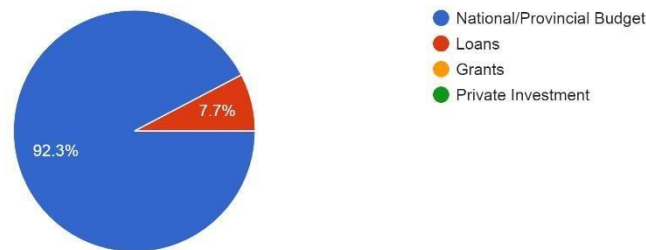


Figure 2: Source of Investment

Punjab Stakeholders from Punjab mentioned that municipal solid waste management is funded through **government sources and international loans**. Major donors included the World Bank and the Asian Development Bank. Challenges included weak legislation and insufficient funds for advanced waste management technologies. In Punjab, the disposal of waste was not adequately managed in smaller cities, and there was a significant need for capacity building.

Azad Jammu & Kashmir (AJ&K) Stakeholders from AJ&K noted that AJ&K waste management is a significant sector under the Nationally Determined Contributions, financial resources and capacity issues hinder waste management efforts. The government manages the sector with meager resources, while international support is sought for prioritized projects. Current opportunities lie in improving infrastructure and introducing technologies like **waste segregation, recycling, and bio-hydrogen technologies**. AJ&K faces several challenges, including **geopolitical issues** that hinder access to international funds, a lack of capacity building, and difficulties in project proposal development. There is potential to attract international finance through green financing, despite geopolitical challenges.

Khyber Pakhtunkhwa (KP) Stakeholders in KP highlighted that **government funding covers operational expenditures**, while donor, funded projects like KPCIP support development. Financial constraints prevent the implementation of advanced waste management technologies, though there is potential for high-tech interventions like **incineration and pyrolysis**. Khyber Pakhtunkhwa (KP) has active waste management companies that could benefit from tapping into international finance due to limited Annual Development Program (ADP) budgets. There is a ban on polythene bags in KP but it struggles with the enforcement of plastic bans due to legal issues with industries and insufficient source segregation.

Balochistan: In Balochistan, stakeholders identified a lack of funding and financial mechanisms to maintain and invest in new infrastructure. There is a significant need to allocate budgets for new technology in waste management.

Gilgit-Baltistan (GB): Stakeholders from GB pointed out that **provincial budgets fund waste management**, but the lack of proper systems remains a challenge. Opportunities exist for collaboration with private investors for recycling projects, but political will and sustainable policies are required.

Sindh: Stakeholders in Sindh mentioned that **the agricultural waste sector is financed through national and provincial budgets**. Significant opportunities lie **in recycling and reusing waste materials for biproducts and biofertilizers**. Barriers include financial limitations, awareness, and capacity building.

In conclusion, the challenges in waste management across various regions of Pakistan are multidimensional and include financial, legislative, and capacity issues. In Punjab, **weak legislation and insufficient funding** hinder advanced waste management technologies, particularly in smaller cities. AJ&K faces financial and capacity constraints, **geopolitical barriers to international funding**, and a lack of infrastructure and technology. KP struggles with **financial constraints, enforcement of plastic bans**, and a need for advanced waste management technologies despite active waste management companies. Balochistan suffers from a **lack of funding and financial mechanisms** to invest in new infrastructure and technology. In GB, **provincial budgets are insufficient for proper waste management systems**, requiring political will and sustainable policies for improvement. Sindh encounters **financial limitations, low awareness, and capacity building needs**, despite opportunities in recycling and biproduct generation from agricultural waste.

C. Gender Equality and Social Inclusion

For Gender Equality and Social Inclusion (GESI), two questions were added to the google forms and shared with the stakeholders, the questions and the feedback are as follows:

- Is the planning and budgeting for the water sector gender-sensitive, and socially inclusive in your province/region?

What can be done to prioritize women, youth, and vulnerable communities in financial decisions and include them in decision-making in the water sector in your province/region?

To assess the state of gender equality and social inclusion in the waste sector, two critical questions were added to a Google Forms survey and distributed to stakeholders across various provinces and regions. The purpose was to gather insights on current practices and identify potential improvements. Stakeholders were asked to provide insights on the status of gender sensitive budgeting and social inclusivity in their regions. Further, it was asked how women, youth and vulnerable communities can be integrated in decision making and financial decisions particularly in their provinces.

Following responses were recorded from each province, it involves feedback recorder through google form questions and the input taken during zoom and mentimeter sessions.

Punjab Stakeholders from Punjab emphasized the need to **prioritize women, youth, and vulnerable communities in financial decisions and include them in stakeholder engagements** to understand their

needs. There is a female quota in jobs, and international donors have been requested to help build capacity. However, Punjab is currently lagging in terms of inclusion. Gender mainstreaming is considered in foreign projects as it is often a prerequisite for funding.

Azad Jammu & Kashmir (AJ&K) Stakeholders from AJ&K reported that gender sensitivity and social inclusion are **integral parts of the planning process**. The role of women is crucial in door-to-door waste collection and segregation at home. There is a need to incorporate children and women into educational schemes aimed at promoting segregation awareness. Polyethylene pollution is a significant concern for river pollution in the region. The Social Welfare Department of AJ&K is working on policies to enhance inclusivity. Opportunities exist to involve women, youth, and marginalized communities in entrepreneurship and financial decision-making through **workshops and awareness campaigns**.

Khyber Pakhtunkhwa (KP) Stakeholders from KP highlighted the **social mobilization efforts of WSSP, targeting both males and females in awareness sessions about waste management**. **Female sanitary staff** is involved in waste collection, and women are seen as crucial to household-level waste segregation efforts. Awareness sessions are being conducted at the **college and school levels**, and there is a consideration to include **waste management topics in the curriculum** with both male and female instructors. KP's climate policy includes a chapter on gender.

Balochistan Stakeholders in Balochistan noted the **lack of gender-sensitive planning and budgeting in the waste sector**. Awareness and legislation are needed to improve inclusiveness and mobilize women in waste management practices.

Gilgit-Baltistan (GB) Stakeholders from GB indicated that **women play a significant role in farm activities and should be mobilized** for entrepreneurship related to agricultural waste. Provincial government responsibilities include mainstreaming marginalized communities through legislation. Women play a direct role in managing waste in various sectors. GB has allocated a proportion of its loan scheme to women and is providing training to foster social inclusion, even in rural areas. However, strict cultural norms hinder awareness campaigns and women's participation.

Sindh Stakeholders in Sindh suggested focusing on women's empowerment through involvement in **agriculture-related waste management** and **small business initiatives**. Gender-sensitive planning and inclusion of women and youth in financial decisions are crucial for sustainable development.

Federal: The National Agricultural Research Centre (NARC) is working on research projects for wastewater treatment through bioremediation in collaboration with several foreign donors. These initiatives are crucial for advancing gender sensitivity and social inclusion in the waste management sector.

In conclusion, stakeholder across various regions of Pakistan highlighted the need for greater participation of women, youth, and vulnerable communities in waste management and financial decision making. In Punjab, there is an **emphasis on building capacity** and prioritizing these groups, though inclusion remains limited. AJ&K integrates **gender sensitivity in planning**, focusing on women's roles in waste segregation and educational schemes. KP engages both genders in waste management awareness and **includes female sanitary staff in collection efforts**, with plans to incorporate waste management into **educational curricula**. Balochistan **lacks gender-sensitive planning and budgeting**, requiring legislative action and

awareness. In GB, women are significant in **agricultural waste management**, with efforts to mainstream marginalized communities despite cultural barriers. Sindh advocates for women's empowerment in **agriculture and small business initiatives**. Federally, the NARC collaborates with foreign donors on wastewater treatment projects, promoting gender sensitivity and social inclusion.

5. Conclusion

The 2nd Waste Technical Committee Meeting focused on gathering feedback from stakeholders regarding technology, financial challenges, opportunities, and gender equality and social inclusion (GESI) in the waste management sector across various provinces in Pakistan. Key challenges identified include inadequate funding, weak legislation, and insufficient infrastructure, which hinder advanced waste management technologies. Financial mechanisms primarily rely on provincial and national budgets, with limited accessibility to international grants and loans. The importance of integrating gender sensitivity and social inclusion in planning and implementation was emphasized, with each region highlighting specific roles and barriers for women and marginalized communities.

6. Way Forward

The next steps in the roadmap development process include the assessment of the shortlisted technologies based on the three categories; legal, regulatory, and financial landscape, Economic and Technical feasibility, and Inclusive development and Social impacts. Further, the shortlisted technologies will be evaluated (scored) and a total of **5 technologies**, including **4 existing and 1 emerging technology**, will be prioritized. The evaluation will be presented to the stakeholders in a **2-day workshop** planned for the **29th and 30th** of May and the feedback will be taken on the evaluation and scoring.

ANNEX-I Participants list

Name	Gender	Sector	Institution/designation	Province
1. Sanullah Solangi	Male	Gov	Deputy Director Technical-IV, Agriculture Research Center	Sindh
2. Dr. Muhammad Junaid	Male	Gov	Project Coordinator, Ten Billion Tree Tsunami	KPK
3. Dr. Arif Shah Kakar	Male	Gov	Director Agric Plant Protection, Agriculture	Balochistan
4. Adil Hussain	Male			
5. Babar H Minhas	Male	Gov	DD, LGRDD	AJK
6. Javed Akhtar	Male	Gov	DD, Agriculture	GB
7. Dr Sardar Muhammad Rafique	Male	Gov	DD, EPA	AJK
8. Mishal Zahra	Female	Gov	Scientific Officer, EPA	GB
9. Saeed Khan	Male	Gov	Manager, WSSP	KPK
10. Syed Asif Ali Shah	Male	Gov	DD, EPA	KPK
11. Farhana Jameel	Female	Gov	DGA, OWFM	Punjab
12. Sohaib Zaheer	Male	Gov	Research Officer, P&D	Punjab
13. Zamir Hassan	Male	Gov	General Manager WASA	KPK

14. Waqas Abdullah	Male	Gov	Manager, Agriculture Department	AJK
15. Dr Arshad	Male	Gov	NDC Focal, NARC	Federal
16. Mirza Karim	Male	Gov	DD, Local Government	GB
17. Abdul Wali	Male	Gov	DD, EPA	Balochistan
18. Zunaira Gill	Female	Gov	AD, Agriculture	Punjab
19. Afsar Khan	Male	Gov	DD, EPA	KPK
20. Muhammad Aslam Nadeem	Male	Gov	SO Companies, LGCD	Punjab