PRE-FEASIBILITY STUDY (WASTE), LOMBOK, INDONESIA
INCEPTION REPORT

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[Optional 1]	
[Optional 2]	

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1. Introduction

Indonesia and Denmark have entered into a Strategic Sector Cooperation (SSC) on Circular Economy and Solid Waste Management. The SSC is carried out between environmental authorities of the two countries. The SSC has been approved and will cover June 2018 to December 2022. The overall objective of the cooperation is to foster a green and sustainable economy with sound environmental management and explore valuable resources through a Circular Economy hereby reducing negative impacts on the environment, livelihoods, economy and health in Indonesia. The partners of the SSC comprise Danish Environmental Protection Agency (DEPA), Danish Energy Agency (DEA) and the Indonesian Ministry of Environment and Forestry (KLHK). The SSC is hence a cooperation between environmental authorities working on a peer-to-peer basis in order to support conducive policies and regulatory frameworks. This will be done by exchanging knowledge, improving performance in the sector and creating better framework conditions for private sector investment. The SSC is an important tool for the Danish Ministry of Foreign Affairs in growth economies and a high priority area for the Danish Trade Council.

1.1 BACKGROUND

Indonesia is facing significant challenges associated with ensuring effective handling of increasing amounts of municipality waste in accordance with the National Waste Policy and Strategy as well as ensuring that the continued increase of electricity generation capacity is done in line with the objective of transitioning towards more renewable energy generation as stipulated in the National Energy Policy. The national targets of 30% reduction and 70% handling by 2025 are ambitious and call for immediate and concrete action at provincial and municipality levels throughout the country, not at least on the many islands, including Lombok.

Lombok has been chosen as one of the islands, as part of the SII collaboration, and offers good opportunities for advancement in Municipal Solid Waste (MSW) systems and Waste to Energy (WtE) investments. The provincial environment authorities (DLHK) and the local authorities have requested assistance from the SII for carrying out a study that will assess the current MSW situation and provide advice for future Solid Waste Management (SWM) systems and WtE investments.

In this context Ramboll perceive WtE not only as incineration but also as AD, thermal gasification, pyrolysis etc.

Lombok NTB has prepared the Jakstrada, which is the waste policy and strategy for the NTB Province in line with the national waste policy and strategy (Jakstranas). Lombok NTB has a target of managing 100 % of waste by 2023, which is two years earlier than the National Waste Strategy.

The Study will describe the present situation and future scenario for waste generation and management and recommend possible interventions at Lombok for improving conditions for advancing WtE investments. The Study will focus on compiling existing waste data, describe and analyse present waste streams and systems as well make recommendations for initiatives as basis for WtE projects.

A working group (or referred to as steering group) will be established with participation of DEPA, local partners from Lombok and the Consultant.

Objective
The overall objective of the consultancy is to prepare a study on current and future scenarios for solid waste management as basis for future investments in WtE projects at Lombok.
The Study can form the basis for further studies, i.e. detailed feasibility studies, if found relevant and feasible.

Consultants
The project is prepared by five consultants – one from Ramboll in Denmark and four local Indonesian consultants.

- Team Leader, International Consultant: Mr. Reno Munksgaard
- Senior Institutional Expert: Ms. Ova Candra Dewi
- Senior Waste Management Expert: Ms. Widita Vidyaningrum
- Waste Analysis Expert: Mr. Gendewa Tunas Rancak (Dewa)
- Waste Analysis Expert: Mr. Gabroni Ade Arbi Sagala (Boni)

Enclosed documents
The following documents are enclosed to this report:

- Time schedule
- Presentation from Inception Workshop
- Participants List from Inception Workshop
- Minutes of Meeting (MoM) from Inception Workshop

2. Inception Workshop

An Inception Workshop was held on the 8th of February 2021.
The objective of the Inception Workshop is to create a common understanding of the objectives, approach and deliverables of the Project.
Minutes of Meeting (MoM) and a List of Participants from the workshop is enclosed to this report.
There was a presentation from the consultants with presentation of the team members, the goals with this Project and review of methodology for solving the project.
Lombok DLHK provided valuable inputs and confirmed their commitment to the Project. A Work Plan for the Project was presented by the consultants. The presentation is enclosed to this report.

3. Detailed plans

A detailed plan for the project has been prepared including a pre-liminary travel plan and a schedule for implementation of the study. The implementation schedule and the travel plans will form the basis for the work during preparation of the pre-feasibility study.

The project has been divided into 5 tasks:

- Task 1- Data Collection and Analysis
- Task 2 - Discussions with local stakeholders and survey
- Task 3 - Institutional Analysis
- Task 4 - Screening and Determination of preferred treatment technology
- Task 5 - Final report

3.1 TASK 1 - DATA COLLECTION AND ANALYSIS

Task 1 is initially prepared as a desk study. Originally it was planned to be combined with field visits, but because of travel restrictions (Covid-19) it is done as a pure desk study. This task is carried out by the Senior Waste Management Expert and the two Waste Analysis Experts and reviewed by Ramboll, to ensure that result is in line with expected result. This task **does not** include field visits.
The task is described in the table below.

Table 1. Task 1 – Data Collection and Analysis.

Task 1 – Data Collection and Analysis
1. **Compilation and assessment** of existing national, regional and local data on waste generation, composition, characteristics and forecasts based on Indonesian standards; 2. Preparation of **basic waste data analysis of relevance for future investments** related to improved separation, collection and treatment of waste, in particular organic waste, as well as WtE projects; 3. Assessment of linkage to the **Jakstrada** reporting as well as recommendations for longer term strengthening of data collection and use; 4. Identification of **main institutions and stakeholders** within MSW management, and energy in/near the main cities at Lombok; 5. Identification of main industries, which generate **organic wastes** in the areas of the main cities at Lombok; 6. Identification of main energy plants, large industrial **energy consumers** and potential **energy off takers** at Lombok.

The objective of this task is to understand the starting point of the project concerning the current situation at Lombok.
The outcome of Task 1 will be a part of the final report. The duration of this task is 13 weeks.
Task 1 is prepared by Senior Waste Management Expert and the two Waste Analysis Experts and reviewed by Ramboll.

3.2 TASK 2 - DISCUSSIONS WITH LOCAL STAKEHOLDERS AND SURVEY

Based on the initial findings in Task 1, Task 2 is done by having discussions with local stakeholders and conducting survey in the capital cities - of each of the four regencies - Tanjung, Gerung, Praya and Selong and in Mataram City (Provincial capital). This task is carried out by the Senior Waste Management Expert and the two Waste Analysis Experts.

Table 2. Task 2 – Discussions with local stakeholders and survey.

Task 2 - Discussions with local stakeholders and survey
1. Discussions with **local agencies** key to waste management – including discussion on initial findings of Task 1, where local agencies may contribute with additional key information; 2. **More detailed waste analysis** is undertaken in a few selected and representative areas (potential sources of organic waste) supported by DLHK (if found necessary); 3. **Initial assessment** of waste collection systems and opportunities and challenges for waste treatment from households to landfill or other end facilities at Lombok; 4. Description of **existing waste management system** (separation, collection and treatment) and the effectiveness is assessed of the current situation and for future scenarios (improved municipality waste management and WtE);

The objective of Task 2 is to understand the local contexts for establishing waste treatment with energy and potential nutrient recovery.
The deliverable will be a section in the final report and with a duration of 17 weeks.
The task is prepared by the Senior Waste Management Expert and the two Waste Analysis Experts.
This task includes field visits.

The travel plan for Task 2 - Discussions with local stakeholders and survey – are stated below. This plan is subject to change as it is not confirmed by involved stakeholders yet.

Table 3. Travel Plan - Task 2 - Discussions with local stakeholders and survey.

Travel Plan - Task 2 - Discussions with local stakeholders and survey						
No.	**Day**	**Dates**	**Time**	**Activities**	**Location**	**Personal**
1	Sunday	14.03.2021	Afternoon	Internal meeting	Jakarta	R, O, W, D & B
2	Monday	15.03.2021	All day	Internal meeting	Lombok	O, W, D & B
3	Tuesday	16.03.2021	All day	Visit DLH Lombok	Lombok	D & B, DLHK Lombok
4	Wednesday	17.03.2021	All day	Discussions with regional and national agencies key to waste management at Lombok	Lombok	D & B, DLHK Lombok
5	Thursday	18.03.2021	All day	Discussions with regional and national agencies key to waste management at Lombok	Lombok	D & B, DLHK Lombok
6	Friday	19.03.2021	All day	Flexible	Lombok	D & B, DLHK Lombok
7	Saturday	20.03.2021	All day	Flexible	Lombok	D & B, DLHK Lombok
8	Sunday	21.03.2021	All day	Visits to relevant sites	Lombok	D & B, DLHK Lombok
9	Monday	22.03.2021	All day	Visits to relevant sites	Lombok	D & B, DLHK Lombok

10	Tuesday	23.03.2021	All day	Visits to relevant sites	Lombok	D & B, DLHK Lombok
11	Wednesday	24.03.2021	All day	Visits to relevant sites	Lombok	D & B, DLHK Lombok
12	Thursday	25.03.2021	All day	Visits to relevant sites	Lombok	D & B, DLHK Lombok

R: Mr. Reno Munksgaard, O: Ms. Ova Candra Dewi, W: Ms. Widita Vidyaningrum, D: Mr. Dewa and B: Mr. Boni.
The outcome of Task 3 will be a part of the final report.

3.3 TASK 3 - INSTITUTIONAL ANALYSIS

Task 3 are based on an overall institutional analysis of the key institutions and stakeholders within waste management at Lombok.
This task is carried out by the International Consultant and Senior Institutional Expert.
In the table below Task 3 is described.

Table 4. Task 3 – Institutional Analysis.

Task 3 – Institutional Analysis
1. **Identification of main institutions and stakeholders within MSW management in the province and municipality** including institutional and staffing capacity, equipment; treatment and disposal facilities; location and capacity of TPS, TPST, TPS3R, and TPA etc. that make up the present waste management infrastructure in Mataram and at Lombok 2. Description of needs for and possible means for **expansion and improvement** of existing systems required for **future investments in WtE project**

The objective of Task 3 is to analyse and identify relevant institutional capacity. Describe needs for expansion and improvement of existing system for future investments in WtE.
The deliverable for this task is a section in the final report and the duration is 17 weeks.
This task is prepared by the International Consultant and Senior Institutional Expert.
This task includes field visits.

The travel plan for Task 3 - Determination of preferred treatment technology and need for changes to waste management practices - are stated below. This plan is subject to change as it is not confirmed by involved stakeholders yet.

Table 5. Travel Plan - Task 3 - Institutional analysis.

Travel Plan - Task 3 - Institutional analysis						
No.	**Day**	**Dates**	**Time**	**Activities**	**Location**	**Personal**
1	Sunday	11.04.2021	Afternoon	Internal meeting	Jakarta	R, O, W, D & B
2	Monday	12.04.2021	All day	Internal meeting	Lombok	O, W, D & B
3	Tuesday	13.04.2021	All day	Visit DLH Lombok	Lombok	D & B, DLHK Lombok

4	Wednesday	14.04.2021	All day	Discussions with regional and national agencies key to waste management at Lombok	Lombok	D & B, DLHK Lombok
5	Thursday	15.04.2021	All day	Discussions with regional and national agencies key to waste management at Lombok	Lombok	D & B, DLHK Lombok
6	Friday	16.04.2021	All day	Flexible	Lombok	D & B, DLHK Lombok
7	Saturday	17.04.2021	All day	Flexible	Lombok	D & B, DLHK Lombok
8	Sunday	18.04.2021	All day	Discussions with regional and national agencies key to waste management at Lombok	Lombok	D & B, DLHK Lombok
9	Monday	19.04.2021	All day	Discussions with regional and national agencies key to waste management at Lombok	Lombok	D & B, DLHK Lombok
10	Tuesday	20.04.2021	All day	Visits to relevant sites	Lombok	D & B, DLHK Lombok
11	Wednesday	21.04.2021	All day	Visits to relevant sites	Lombok	D & B, DLHK Lombok
12	Thursday	22.04.2021	All day	Visits to relevant sites	Lombok	D & B, DLHK Lombok

R: Mr. Reno Munksgaard, O: Ms. Ova Candra Dewi, W: Ms. Widita Vidyaningrum, D: Mr. Dewa and B: Mr. Boni.

The outcome of Task 3 will be a part of the final report.

3.4 TASK 4 - SCREENING AND DETERMINATION OF PREFERRED TREATMENT TECHNOLOGY

Task 4 are based on evaluation of the potential solutions (technology, energy utilisation, feedstocks, etc.) including economy (CAPEX, OPEX, potential incomes and required land). This task is done by the International Consultant.

In the table below Task 4 is presented.

Table 6. Task 4 – Screening and Determination of preferred treatment technology.

Task 4 – Screening and Determination of preferred treatment technology
1. **Analyse and identify appropriate options for technologies** for waste handling including waste separation, collection and treatment based on **COWI Technology Catalogue**; 2. Evaluation of waste management and treatment options including initial assessments of **investment costs, operational cost, incomes, potential nutrient recovery** (agricultural and forestry) and **energy potential**.

3. A few appropriate technology options are **recommend** based on COWI Technology Catalogue.
4. Evaluation of **energy utilisation** options at Lombok
5. Evaluation of availability of **co-substrates** (manure, rice husks, organic industrial wastes etc.) for co-digestion of organic fraction of organic household waste
6. Detailed description of **1-2 selected technical** options
7. Each technology option is scored on **key parameters** such as capital costs, operational costs, technical availability, incomes from energy production and nutrient recovery, job creation and other socio-economic benefits, adjustment to Indonesian context (regulation, waste composition etc.) reduction of greenhouse gas emissions, environmental impacts and scalability.

The objective of Task 4 is to analyse and recommend a few appropriate options for technologies for waste treatment. 1-2 technical options will be selected for more detailed description and analysis as part of the Study. Recommendation for appropriate waste handling technologies with focus on organic waste and ensuring a reliable and consistent waste and/or biomass for WtE will be provided.
The duration of the task is 17 weeks and will be prepared by the International Consultant
The outcome of Task 4 will be a part of the final report.

3.5 TASK 5 – FINAL REPORT

The project will be finalised with Task 5 – Final report. The results from the project will be prepared in a coherent report containing action plans, timelines and pre-feasibility studies from Lombok regarding solid waste management.
Future activities for SSC, DLHK Lombok, DEPA and local stakeholders will be suggested and described in the report. The report is prepared by all involved consultants in cooperation.

Table 7. Task 5 – Final Report.

Task 5 – Final Report
1. Compilation of the **results of Tasks 1-4** in a coherent report with preparation of a pre-feasibility study regarding current and future scenarios for solid waste management as basis for **future investments in WtE projects at Lombok** 2. Confirming **action planning, timelines and responsibilities** 3. Assessment of the **requirement for further studies**, i.e. detailed feasibility studies 4. **Comparison** (advantages/disadvantages) of utilisation of organic waste in comparison of various technology options including waste incineration 5. Suggestion and description of **future SSC activities** to LHK, Lombok NTB, KLHK, DEPA and local stakeholders in order to facilitate increased treatment capacity of organic waste and renewable energy production at Lombok 6. Identification of technology and available substrates potentially relevant in a **broader Indonesian context** for treatment of waste with focus on **organic waste** 7. Involvement of **financial stakeholders** (IFU, WB, ADB, DBF etc.) in the project 8. **Final workshop** 9. **Final report**

The objective of Task 5 is:

- To prepare a pre-feasibility study regarding current and future scenarios for solid waste management as basis for future investments in WtE projects at Lombok;

- Compilation of the results in a coherent, justified document to serve as basis for decision making regarding utilisation of MSW with focus on organic waste.

The deliverable from this task is a draft final report for commenting. From the workshop a Minutes of Meeting from final workshop will be prepared.
A revised final report (One set of common comments from all SSC stakeholders on draft report) will be delivered. Duration of this task is 12 weeks
The final report is prepared by all involved consultants in cooperation.

The travel plan for Task 5 - Final report - are stated below. This plan is subject to change as it is not confirmed by involved stakeholders yet. A draft report has been prepared in advance of the Final report meeting.

Table 8. Travel Plan - Task 5 - Final report.

Travel Plan - Task 5 - Final report						
No.	**Day**	**Dates**	**Time**	**Activities**	**Location**	**Personal**
1	Saturday	26.06.2021	Afternoon	Internal meeting	Jakarta	Ramboll Team
2	Sunday	27.06.2021	All day	Internal meeting	Jakarta	Ramboll Team
3	Monday	28.06.2021	All day	Internal meeting	Lombok	DLHK Lombok and Ramboll Team
4	Tuesday	29.06.2021	All day	Discussions with regional and national agencies key to waste management	Lombok	DLHK Lombok and Ramboll Team
5	Wednesday	30.06.2021	All day	Workshop/Meeting	Lombok	DEPA, DEA, DLHK Lombok, KLHK, RDE, Ramboll
6	Thursday	01.07.2021	All day	Workshop/meeting	Lombok	DEPA, DEA, DLHK Lombok, KLHK, RDE, Ramboll
7	Friday	02.07.2021	All day	Flexible	Lombok	DLHK Lombok and Ramboll Team
8	Saturday	03.07.2021	All day	Flexible	Lombok	DLHK Lombok and Ramboll Team
9	Sunday	04.07.2021	All day	Discussions with regional and national agencies key to waste management	Lombok	DLHK Lombok and Ramboll Team
10	Monday	05.07.2021	All day	Discussions with regional and national agencies key to waste management	Lombok	DLHK Lombok and Ramboll Team

11	Tuesday	06.07.2021	All day	Internal meeting	Jakarta	Ramboll Team
12	Wednesday	07.07.2021	All day	Meeting/Evaluation/Danish Embassy	Jakarta	DEPA, DEA, RDE and Ramboll Team
13	Thursday	08.07.2021	All day	Flexible	Jakarta	Ramboll Team

Ramboll Team: Mr. Reno Munksgaard, Ms. Ova Candra Dewi, Ms. Widita Vidyaningrum, Mr. Dewa and Mr. Boni.

A final report will be submitted after Task 5 including all inputs from the last workshop.

4. Technology Catalogue

As part of the Sustainable Island Initiative COWI is preparing a technology catalogue with focus on sustainable energy. Below figure is from COWI Inception Meeting in connection with start-up of the Technology Catalogue project.

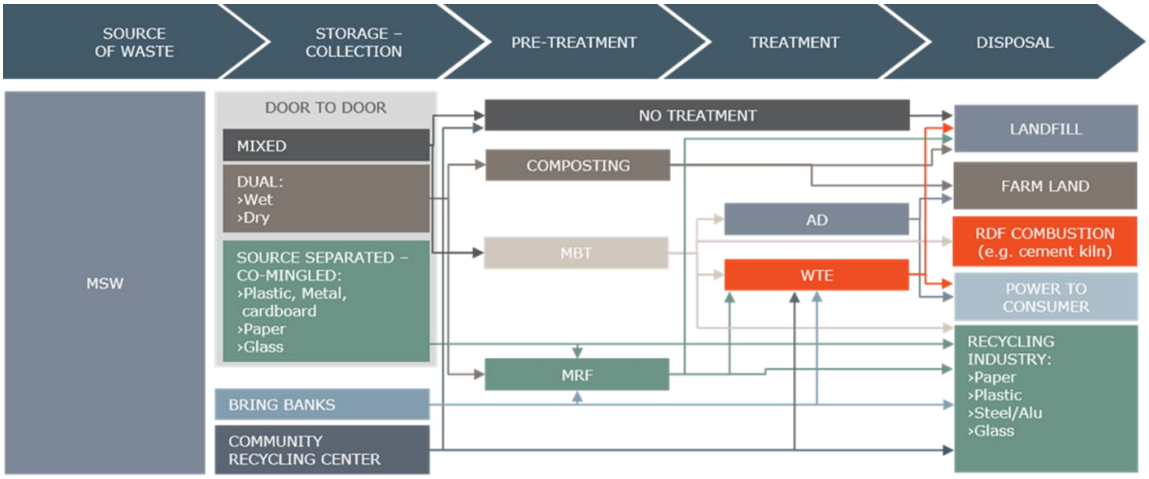

Figure 1. Technology Catalogue sustainable energy (Source: COWI).

In above figure Pre-treatment and Treatment technologies are illustrated.
Based on the figure focus on pre-treatment will in regard to:

- Composting,
- MBT and
- MRF

And there will be focus on following treatment technologies:

- AD and
- WtE

The Technology Catalogue list will be an important part of Task 4. Correspondence with the involved companies/agencies will be by virtual meeting platforms, phone and e-mail. There are no planned visits in this activity.

5. Stakeholders

A list of relevant stakeholders and a plan for involvement considering the local government, Lombok DLHK and other local authorities, which are subjects of the study, has been prepared. The present list is incomplete. It will be updated at the end of Task 1. The list is dynamic and will be updated during the whole project.

Table 9. Stakeholders List.

External stakeholders		
Stakeholders	**Description**	**Contact person**
Local government *(not yet involved, as the Governor is the project's entry point)*	Mataram, Lombok	via Mr. Ida Bagus Gede Sutawijaya (Gusde), Mr. Radyus
Communities *(not yet involved)*	Mataram, Lombok	via Mr. Gendewa Tunas Rancak (Dewa)
NGOs	Indonesian	Will be updated during the project
Experts	Indonesian	Will be updated during the project
Academicians	Indonesian	Will be updated during the project
Business sectors	Worldwide	See Financial
Informal sectors	Indonesian	Will be updated during the project
Legislators	Indonesian	Will be updated during the project
Internal stakeholders		
Stakeholders	**Description**	**Contact person**
SSC	Strategic Sector Cooperation	Mr. Jan Møller Hansen Mr. Rasmus Eisted
KLHK (DG Waste)	Indonesian Ministry of Environment and Forestry (Indonesian General Directorate of Solid Waste, Hazardous Waste and Hazardous Substances Management)	Mrs. Rosa Vivien Ratnawati via Mr. Sayid & Mrs. Hani (SII), Mr. Novrizal (SSC), Mr. Ari Sugasri, Ms. Ana Suryana, Ms. Tyasning Permanasari
MFVM	Danish Minestry of Environment and Food	Mrs. Anne Marie Zinck via Mr. Jan Møller Hansen
DMFA	Danish Minestry of Foreign Affairs	
DTC	Danish Trade Council	
ESC	Environmental Sector Counsellor	Mr. Morten Holm van Donk
RDE	Royal Danish Embassy Jakarta	Mr. Morten Holm van Donk
RDE	Royal Danish Embassy Jakarta	Mr. Agrivickona Ario Vicaksono (Vicko)
DEPA	Danish Environmental Protection Agency	Mr. Jan Møller Hansen Mr. Rasmus Eisted Ms. Anne Louise Nissen Mr. Jesper Skovby Jørgensen
DEA	Danish Energy Agency (DEA)	Mr. Kristian Havskov Sørensen, Mr. Toke Rueskov Madsen, Mr. Anders Kruse

Provincial Government: West Nusa Tenggara Provincial Environmental and Forestry Agency	Mataram, Lombok	Mr. Ida Bagus Gede Sutawijaya (Gusde), Mr. Radyus
Provincial Government: West Nusa Tenggara Provincial Energy and Mineral Resources Agency	Mataram, Lombok	Mr. Ida Bagus Gede Sutawijaya (Gusde), Mr. Radyus
Provincial Government: West Nusa Tenggara Provincial Development Planning Agency	Mataram, Lombok	Mr. Ida Bagus Gede Sutawijaya (Gusde), Mr. Radyus
Waste Analysis Expert #1, National Consultant	Ramboll	Mr. Gabroni Ade Arbi Sagala (Boni)
Waste Analysis Expert #2, National Consultant	Ramboll	Mr. Gendewa Tunas Rancak (Dewa)
Senior Waste Management Expert, National Consultant	Ramboll	Ms. Widita Vidyaningrum
Senior Institutional Expert, National Consultant	Ramboll	Ms. Ova Candra Dewi
Team Leader, International Consultant	Ramboll	Mr. Reno Munksgaard
Financial stakeholders		
Financial stakeholders	**Description**	**Contact person**
Danida Finance		Mr. Morten Elkjær
IFU		Ms. Deepa Hingorani
World Bank		Mr. Frank van Woerden
Asean Development Bank		Mr. Amr J. Qari
CIP		Will be updated during the project
IFC		Mr. Gregor Pfeifer
Minestry of Finance (for Pre-FS, we do not need to involve them yet at this stage)		Mr. Agunan Samosir
Minestry of Public Works (for Pre-FS, we do not need to involve them yet at this stage)		Mr. Prasetyo
Energy sector		
Stakeholders	**Description**	**Contact person**
Power providers		Will be updated during the project
Power plants		Will be updated during the project
Cement factories		Will be updated during the project
Organic waste sector		
Stakeholders	**Description**	**Contact person**
Food Markets		Will be updated during the project
Fruit Industry		Will be updated during the project
Vegetable Industry		Will be updated during the project

Palm Oil Industry	Sustainable facilities	Will be updated during the project
Food processing Industry		Will be updated during the project
Meat processing Industry		Will be updated during the project
Farmers Association		Will be updated during the project
Nutrient/fertiliser factories		Will be updated during the project
SII Project		
Stakeholders	**Description**	**Contact person**
SII Project	Technology Catalogue (COWI)	Mr. Jan Skajaa, Mr. Kenneth Ahrensberg

6. Initial risk analysis and mitigation plan

This chapter describes possible risks and constraints to the progress of the project. Suggestions with regards to solving these problems in order to fulfill overall project objectives are presented in the text below. Each of the eight following paragraphs highlights a risk and describe a suggestion(s) of solutions.

1. Influence from Covid-19

Travel restrictions can cause difficulties to carry out field visits at Lombok by Indonesian consultants not located at Lombok as planned. This can be mitigated by using local Lombok consultants more extensive than planned.
The present waste composition does not give a real picture as there is more plastic and paper / textile (or what masks are made of) than usual which gives the impression of too high calorific value. This will be mitigated by using existing waste data available, which will be further analysed, from Lombok and comparable studies from Lombok and similar localities. It is important to look at future forecasts, as possible facilities should be designed to cover a number of years ahead.
Expose of sampling/analysis personal to unnecessary risk due to the risk of infection. This will be mitigated by not carrying out any pick analysis during the project.

2. Shortfall of manpower (specialist and local consultant)

The project is based on desktop studies, site visits and expert knowledge from waste specialists and local consultants. These persons are the main resource in this project. In case of shortfall (sickness, change of job, lack of availability, etc.) it is necessary to have a backup plan and be able to replace the respective person.
<u>International Consultant:</u>
There is a pool of waste experts in Ramboll to supplement the present consultant.
<u>Local Consultant:</u>
The Local consultant have already been replaced successfully previously. Replacement of Local consultants is done with help from local sources.

3. Delay in delivery from external consultants

In case of delay in delivery of Technology Catalogue for use in Task 4, it can be necessary to prepare an alternative technology catalogue internally to have the opportunity to continue working on task 4 and finalise the project.

4. Availability of manure

The project is partly depending on availability of manure (if wet AD process) to stabilise the anaerobic digestion process and to better utilise waste from agricultural farming.
In case there are no manure or other agricultural waste available for the anaerobic digestion process, it will be necessary to find other similar products. It could be waste products from food industry or meat processing industry. Straw from rice or similar products could be another option.

5. No disposal of digestate

The project is partly depending on the availability of farmland or other similar areas for disposal (utilisation) of compost or digestate (if wet AD process).
In case there are no areas for disposal of compost or digestate it is essential to find other solutions locally for this part of the project. One solution could be to make RDF from compost or digestate or to change the anaerobic digestion process to dry process.

6. Unexpected results

The project is depending on availability of various data on waste and energy, local conditions in Lombok, regional and national conditions, regulative restrictions etc.
In case of poor results caused by poor data availability or lack of waste collection systems it will be difficult to collect and create new data caused by a very tight time schedule. In this case the project will have to apply assumptions which will then have to be confirmed outside the scope of the project if necessary.

7. Natural disasters

The project can be affected by natural disasters (flood, landslides, earthquake etc.). It would be necessary to postpone the project in the area influenced by this.

8. Time schedule

The time schedule for the project is very tight and partly depending on external partners. The final report most be delivered at end of July 2021.

7. Conclusion

The objective of the Inception Meeting is to create a common understanding of the objectives, approach and deliverables of the Project.
Part of the conclusion from the inception Meeting is that Lombok DLHK are open for this project and the activities that follow. Lombok DLHK and partners are looking forward for the result and furthermore is hopping:

- To have applicable solutions in the near future, tailored to the current waste situation in Lombok;
- To have more detailed strategies to improve waste separation;
- To get better data on waste composition;
- To attract citizens to be more involved in practicing waste separation at source;
- To have proposed options/solutions to be applicable, both for the city and rural areas;
- To have waste treatment technology solutions that require less land;
- To have solutions to avoid mix of MSW with non-municipal waste categories (medical waste, hazardous waste);

- To have an analysis showing if existing local regulations on waste management are sufficient in order to handle the waste generated;
- To have an analysis on the issue related to cooperation between city government and provincial government related to waste sources location and location of landfills;
- To have solutions to avoid mixture of segregated waste during transportation;
- To have a better understanding on the waste projection;
- To have an analysis of required transportation capacity of waste;
- To have an estimation of appropriate tipping-fee to cover the operational cost of the proposed alternative technology;
- To have recommended potential sites.

The objective of the Inception Report is to define a detailed work plan for executing the Project.
Conclusion of the Inception Report is that:

- a detailed work plan and travel plan have been prepared. The travel plan is dynamic and will be revised during the project as required;
- a list of relevant stakeholders has been prepared. This list is dynamic and will be filled in during the whole project and
- an initial risk analysis and mitigation plan has been prepared.