recycling

MDPI

Table S1. The Swing Questionnaire: points given to each scenario were used in the calculation of the stakeholder's preference weight for the objective pointed by an arrow in the respective scenario.

SELECTING ORGANIC WASTE TREATMENT TECHNOLOGY FOR LIMBE MARKET

Swing-Method	Name:	Interviewer: **Wrixon Mpanang'ombe**
	Stakeholder:	Date:

Worst Scenario: Points: 0

	Technical reliability	Social Acceptance	Hygiene and health protection	Economic sustainability	Environmental protection
☺					
☹	*90 days/year downtime*	*10/10 Potential hazards* *All week bad smell 20 m far from plant* *1 worker/ton* *0% of successful past experiences*	*1% of collected organic waste can be treated* *20% wet waste weight as residue*	*0 income- expenditure ratio*	*2700 kg CO_2 equivalent/ton* *5/5 leachate risk* *0% N recovered* *0% Phosphorus recovered* *0 kWh/ton energy produced*

Scenario: Points:

	Technical reliability	Social Acceptance	Hygiene and health protection	Economic sustainability	Environmental protection
☺	*0 day/year downtime*				
☹ ↑		*10/10 Potential hazards* *All week bad smell 20 m far from plant* *1 worker/ton* *0% of successful past experiences*	*1% of collected organic waste can be treated* *20% wet waste weight as residue*	*0 income- expenditure ratio*	*2700 kg CO_2 equivalent/ton* *5/5 leachate risk* *0% N recovered* *0% Phosphorus recovered* *0 kWh/ton energy produced*

Scenario: Points:

	Technical reliability	Social Acceptance	Hygiene and health protection	Economic sustainability	Environmental protection
☺		*2/10 Potential hazards* *No bad smell 20 m far from plant* *8 workers/ton* *100% of successful past experiences*			
☹ ↑	*90 days/year downtime*		*1% of collected organic waste can be treated* *20% wet waste weight as residue*	*0 income- expenditure ratio*	*2700 kg CO_2 equivalent/ton* *5/5 leachate risk* *0% N recovered* *0% Phosphorus recovered* *0 kWh/ton energy produced*

Scenario:

Points:

☺

Hygiene and health protection

100% of collected organic waste can be treated

0% wet waste weight as residue

☹

Technical reliability

90 days/year downtime

Social Acceptance

10/10 Potential hazards

All week bad smell 20 m far from plant

1 worker/ton

0% of successful past experiences

Economic sustainability

0 income- expenditure ratio

Environmental protection

2700 kg CO_2 equivalent/ton

5/5 leachate risk

0% N recovered

0% Phosphorus recovered

0 kWh/ton energy produced

Scenario:

Points:

☺

Economic sustainability

39 income- expenditure ratio

☹

Technical reliability

90 days/year downtime

Social Acceptance

10/10 Potential hazards

All week bad smell 20 m far from plant

1 worker/ton

0% of successful past experiences

Hygiene and health protection

1% of collected organic waste can be treated

20% wet waste weight as residue

Environmental protection

2700 kg CO_2 equivalent/ton

5/5 leachate risk

0% N recovered

0% Phosphorus recovered

0 kWh/ton energy produced

Scenario:

Points:

☺

Environmental protection

0 kg CO_2 equivalent/ton

1/5 leachate risk

100% N recovered

100% Phosphorus recovered

3000 kWh/ton energy produced

☹

Technical reliability

90 days/year downtime

Social Acceptance

10/10 Potential hazards

All week bad smell 20 m far from plant

1 worker/ton

0% of successful past experiences

Hygiene and health protection

1% of collected organic waste can be treated

20% wet waste weight as residue

Economic sustainability

0 income- expenditure ratio

Sub-objectives for main objective: Social acceptance

Worst Scenario: Points: 0

☺				
☹	**Working safety** *10/10 potential hazards*	**Smell impact** *All week bad smell 20m far from plant*	**Job creation** *1 worker/ton*	**Trust in technology** *0 % successful past experiences*

Scenario: Points:

☺	**Working safety** *2/10 potential hazards*			
☹	↑	**Smell impact** *All week bad smell 20m far from plant*	**Job creation** *1 worker/ton*	**Trust in technology** *0 % successful past experiences*

☺		**Smell impact** *No bad smell 20m far from plant*		
☹	**Working safety** *10/10 potential hazards*	↑	**Job creation** *1 worker/ton*	**Trust in technology** *0 % successful past experiences*

Scenario: Points:

☺			**Job creation** *8 workers/ton*	
☹	**Working safety** *10/10 potential hazards*	**Smell impact** *All week bad smell 20m far from plant*	↑	**Trust in technology** *0 % successful past experiences*

Scenario: Points:

☺				**Trust in technology** *100% successful past experiences*
☹	**Working safety** *10/10 potential hazards*	**Smell impact** *All week bad smell 20m far from plant*	**Job creation** *1 worker/ton*	↑

Sub-objectives for (main) objective: High hygiene and health protection

Worst Scenario: Points: 0

☺		
☹	**Processing capacity** *1% of organic waste collected treatable*	**Residue generation** *20% of waste as residue*

Scenario: Points:

☺	**Processing capacity** *100% of organic waste collected treatable*	
☹	↑	**Residue generation** *20% of waste as residue*

Scenario: Points:

☺		**Residue generation** *0% of waste as residue*
☹	**Processing capacity** *1% of organic waste collected treatable*	↑

Sub-objectives for (main) objective: High environmental protection

Worst Scenario: Points: 0

☺		
☹	**Environmental pollution** *2700 kg CO_2 equivalent* *5/5 leachate risk*	**Resource recovery** *0% N recovered* *0% Phosphorus recovered* *0 kWh/ton energy produced*

Scenario: Points:

☺	**Environmental pollution** *0 kg CO_2 equivalent* *1/5 leachate risk*	
☹	↑	**Resource recovery** *0% N recovered* *0% Phosphorus recovered* *0 kWh/ton energy produced*

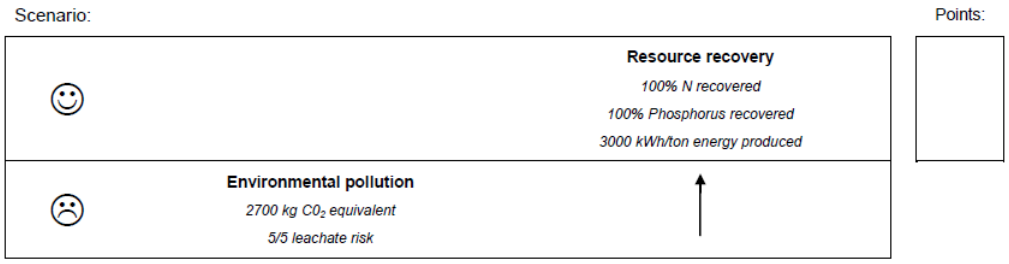


Table S2. The Reverse Swing Questionnaire: points given to each scenario were used in the calculation of the stakeholder's preference weight for the objective pointed by an arrow in the respective scenario.

SELECTING ORGANIC WASTE TREATMENT TECHNOLOGY FOR LIMBE MARKET

Reverse Swing-Method	Name:	Interviewer: **Wrixon Mpanang'ombe**
	Stakeholder:	Date:

Best Scenario: Points: 100

	Technical reliability	**Social Acceptance**	**Hygiene and health protection**	**Economic sustainability**	**Environmental protection**
☺	*0 days/year downtime*	*2/10 Potential hazards* *No bad smell 20 m far from plant* *8 of workers/ton* *100% of successful past experiences*	*100% of collected organic waste can be treated* *0% wet waste weight as residue*	*39 Income-expenditure ratio*	*0 kg CO_2 equivalent/ton* *1/5 leachate risk* *100% N recovered* *100% Phosphorus recovered* *3000 kWh/ton energy produced*
☹					

Scenario: Points:

		Social Acceptance	**Hygiene and health protection**	**Economic sustainability**	**Environmental protection**
☺	↓	*2/10 Potential hazards* *No bad smell 20 m far from plant* *8 workers/ton* *100% of successful past experiences*	*100% of collected organic waste can be treated* *0% wet waste weight as residue*	*39 Income-expenditure ratio*	*0 kg CO_2 equivalent/ton* *1/5 leachate risk* *100% N recovered* *100% Phosphorus recovered* *3000 kWh/ton energy produced*
☹	**Technical reliability** *90 days/year downtime*				

Scenario:

Points:

☺	**Technical reliability** *0 days/year downtime*		**Hygiene and health protection** *100% of collected organic waste can be treated* *0% wet waste weight as residue*	**Economic sustainability** *39 Income-expenditure ratio*	**Environmental protection** *0 kg CO_2 equivalent/ton* *1/5 leachate risk* *100% N recovered* *100% Phosphorus recovered* *3000 kWh/ton energy produced*
☹		**Social Acceptance** *10/10 Potential hazards* *All week bad smell 20 m far from plant* *1 worker/ton* *0% of successful past experiences*			

Scenario:

Points:

☺	**Technical reliability** *0 days/year downtime*	**Social Acceptance** *2/10 Potential hazards* *No bad smell 20 m far from plant* *8 workers/ton* *100% of successful past experiences*		**Economic sustainability** *39 Income-expenditure ratio*	**Environmental protection** *0 kg CO_2 equivalent/ton* *1/5 leachate risk* *100% N recovered* *100% Phosphorus recovered* *3000 kWh/ton energy produced*
☹			**Hygiene and health protection** *1% of collected organic waste can be treated* *20% wet waste weight as residues*		

Scenario:

Points:

☺	**Technical reliability** *0 days/year downtime*	**Social Acceptance** *2/10 Potential hazards* *No bad smell 20 m far from plant* *8 workers/ton* *100% of successful past experiences*	**Hygiene and health protection** *100% of collected organic waste can be treated* *0% wet waste weight as residues*		**Environmental protection** *0 kg CO_2 equivalent/ton* *1/5 leachate risk* *100% N recovered* *100% Phosphorus recovered* *3000 kWh/ton energy produced*
☹				**Economic sustainability** *0 Income-expenditure ratio*	

Scenario:

Points:

☺	**Technical reliability** *0 days/year downtime*	**Social Acceptance** *2/10 Potential hazards* *No bad smell 20 m far from plant* *8 workers/ton* *100% of successful past experiences*	**Hygiene and health protection** *100% of collected organic waste can be treated* *0% wet waste weight as residues*	**Economic sustainability** *39 Income-expenditure ratio*	↓
☹					**Environmental protection** *2700 kg CO_2 equivalent/ton* *5/5 leachate risk* *0% N recovered* *0% Phosphorus recovered* *0 kWh/ton energy produced*

Sub-objectives for main objective: Social acceptance

Best Scenario:

Points:

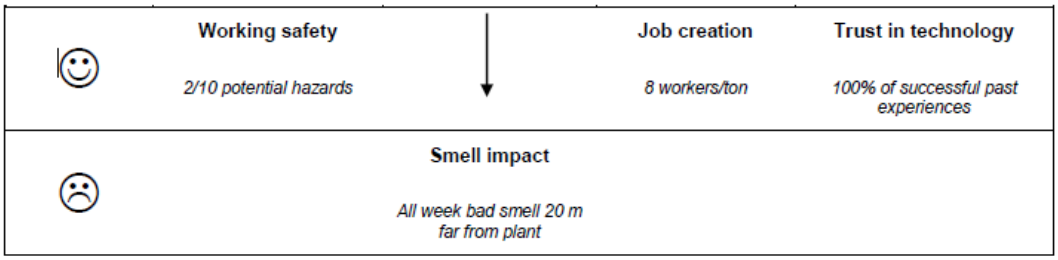
☺	**Working safety** *2/10 potential hazards*	**Smell impact** *No bad smell 20 m far from plant*	**Job creation** *8 workers/ton*	**Trust in technology** *100% of successful past experiences*
☹				

100

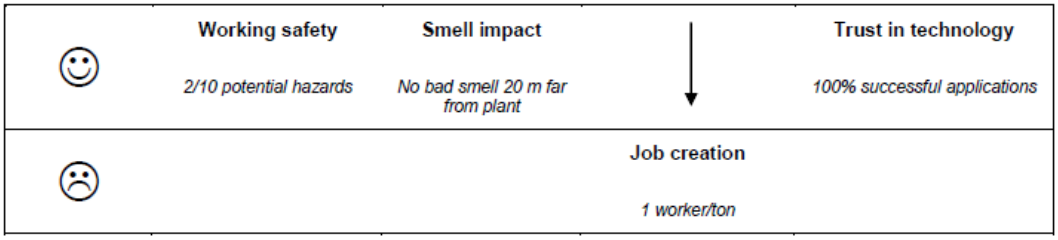
Scenario:

Points:

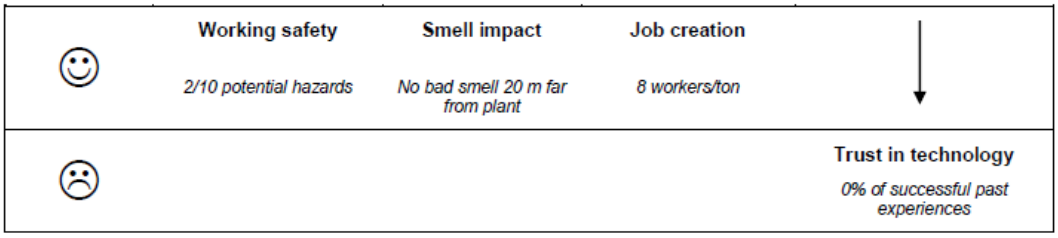
☺	↓	**Smell impact** *No bad smell 20 m far from plant*	**Job creation** *8 workers/ton*	**Trust in technology** *100% of successful past experiences*
☹	**Working safety** *10/10 potential hazards*			



Scenario: Points:

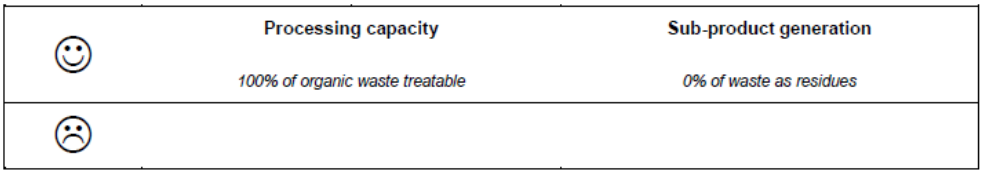


Scenario: Points:

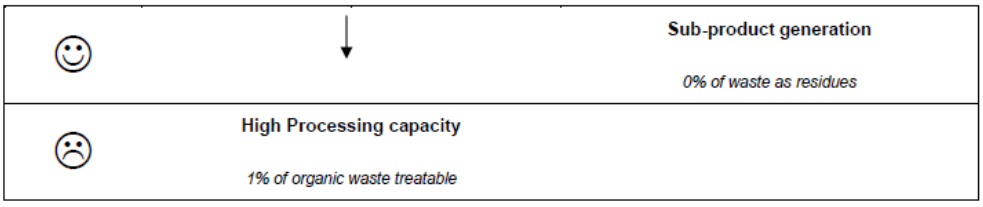


Sub-objectives for (main) objective: High hygiene and health protection

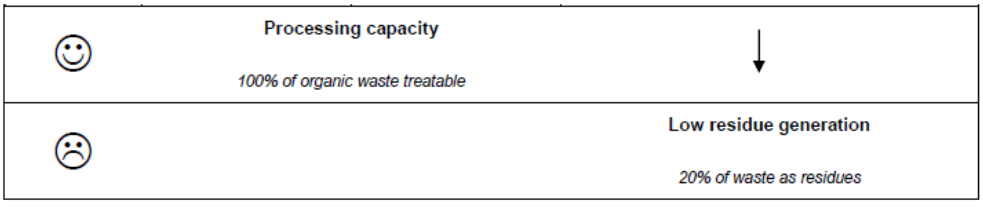
Best Scenario: Points: 100



Scenario: Points:



Scenario: Points:



Sub-objectives for (main) objective: High environmental protection

Best Scenario:

Points: 100

☺	**Environmental pollution** *0 kg $C0_2$ equivalent* *1/5 leachate risk*	**Resource recovery** *100% N recovered* *100% Phosphorus recovered* *3000 kWh energy produced*
☹		

Scenario:

Points:

☺	↓	**Resource recovery** *100% N recovered* *100% Phosphorus recovered* *3000 kWh energy produced/ton*
☹	**Environmental pollution** *2700 kg $C0_2$ equivalent* *5/5 leachate risk*	

Scenario:

Points:

☺	**Environmental pollution** *0 kg $C0_2$ equivalent* *1/5 leachate risk*	↓
☹		**Resource recovery** *0% N recovered* *0% Phosphorus recovered* *0 kWh energy produced/ton*