

Policy Analysis of Multi-Actor Systems

Synthesis and storyline

Example of a storyline for an issue paper

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Storyline Recycling

Main message

Issue paper format

Full storyline

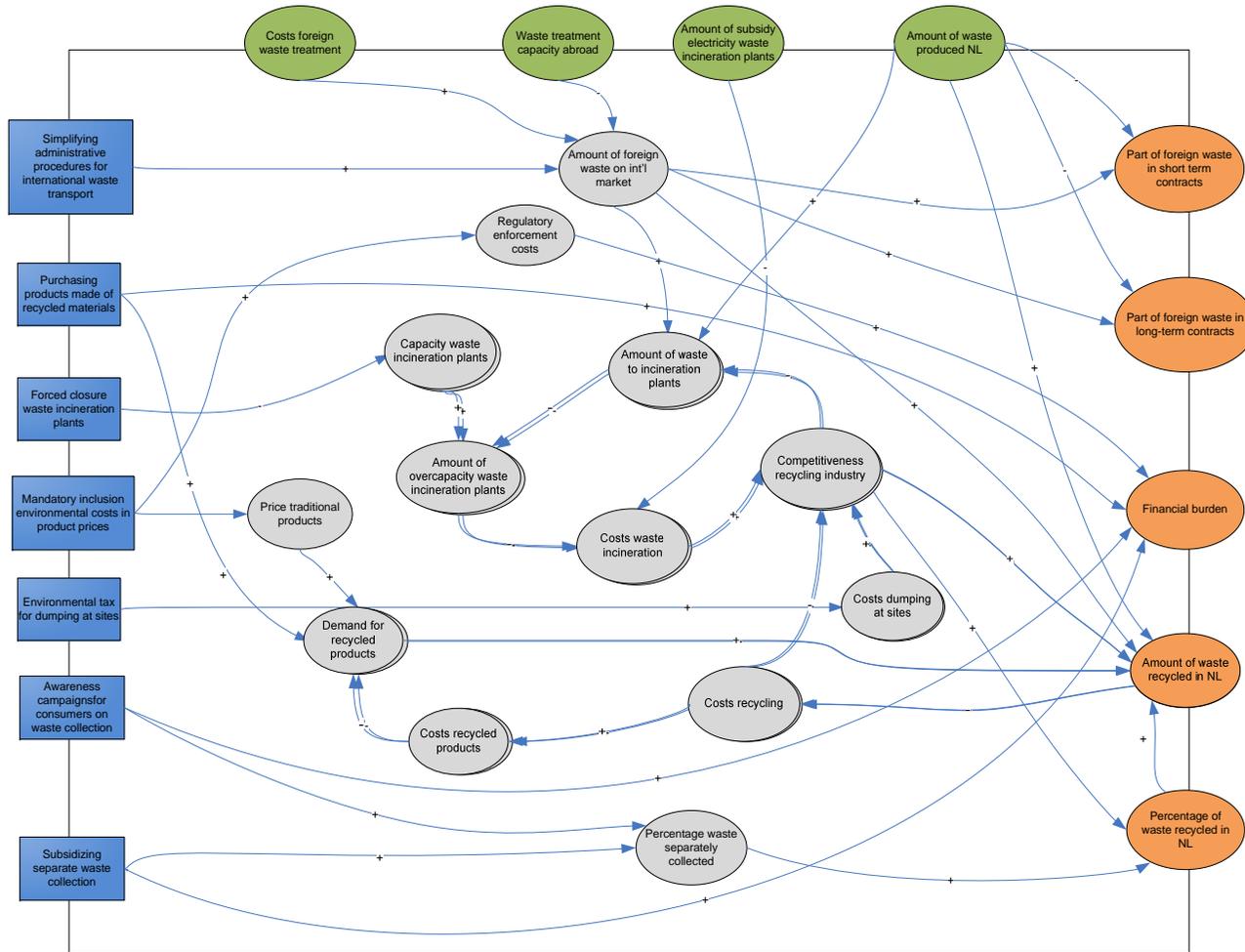
Iteration: check and sharpen key findings

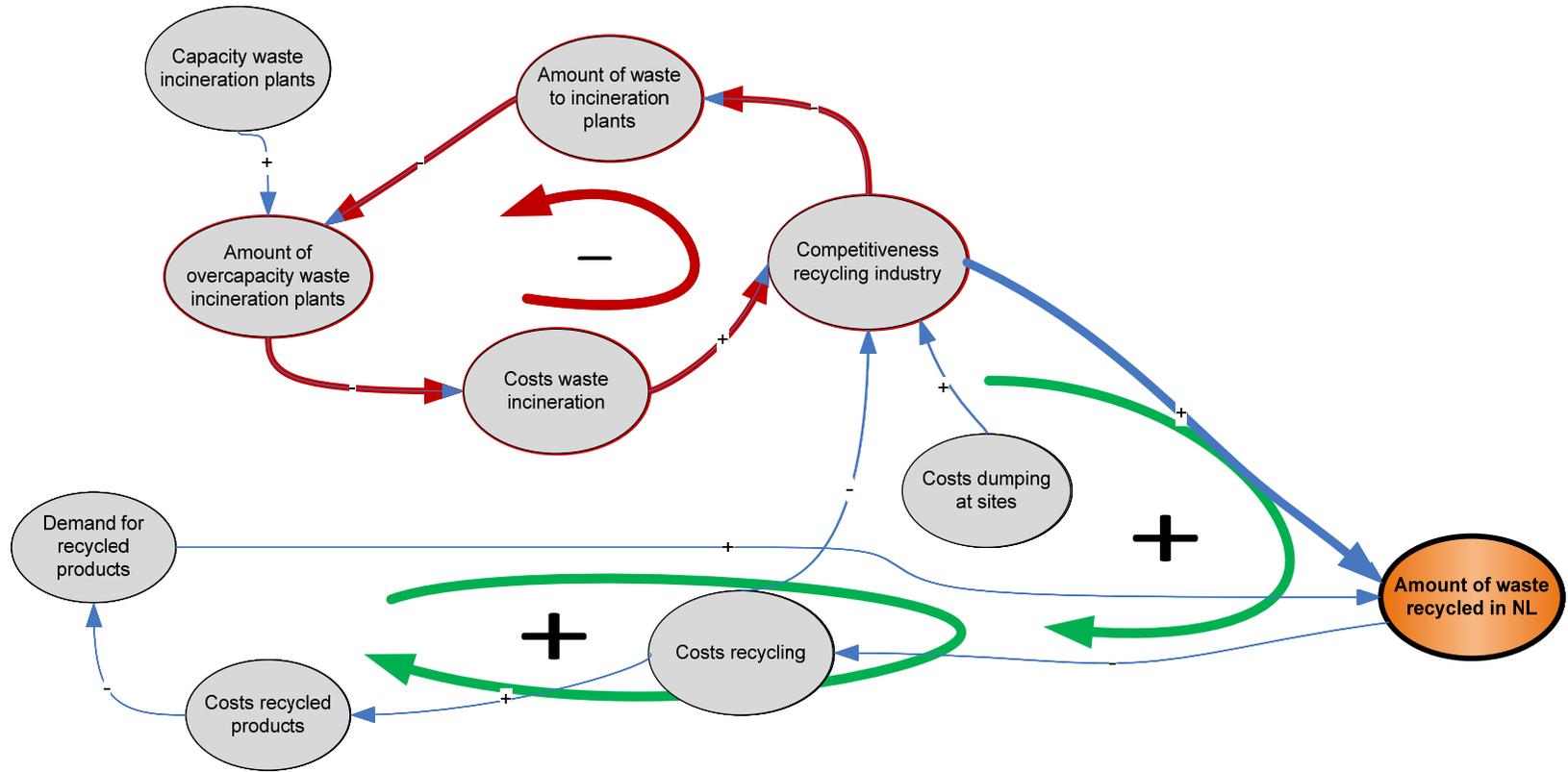
Recycling in the Netherlands

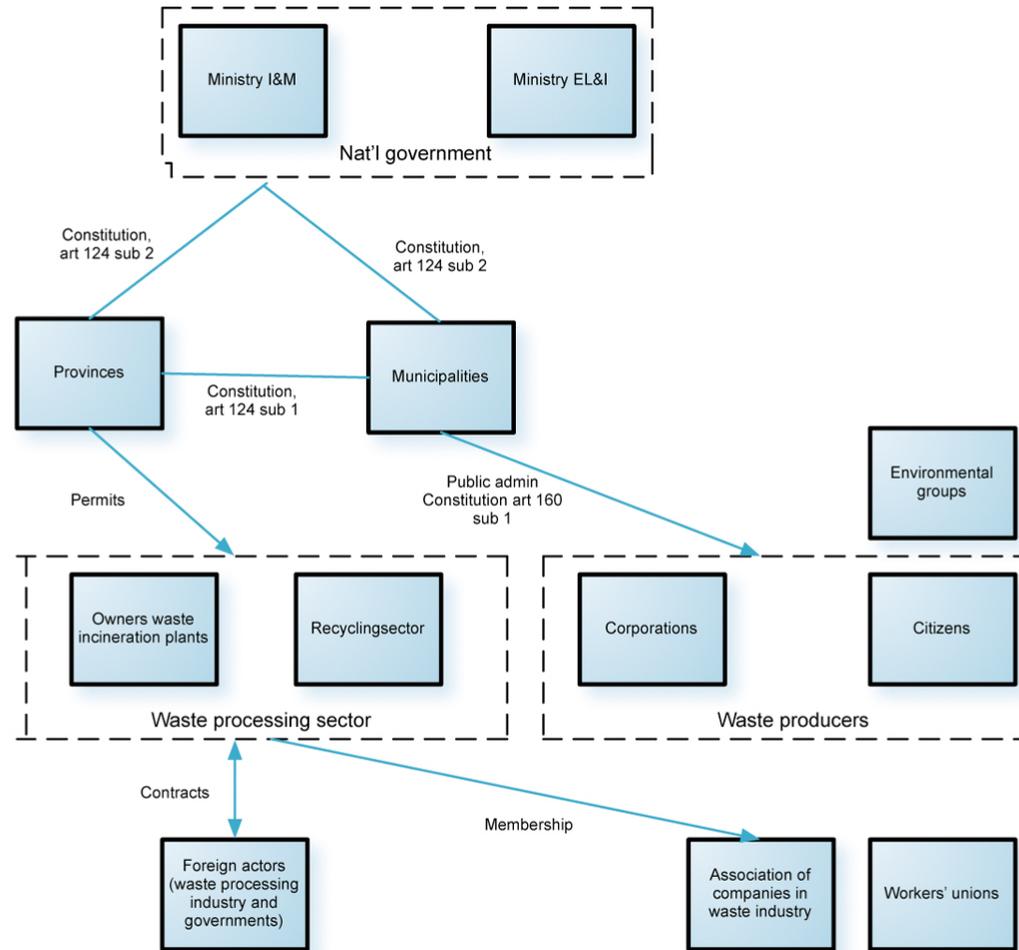
Ministry of Infrastructure
and the Environment
(I&M):

83% of waste to be
recycled by 2015

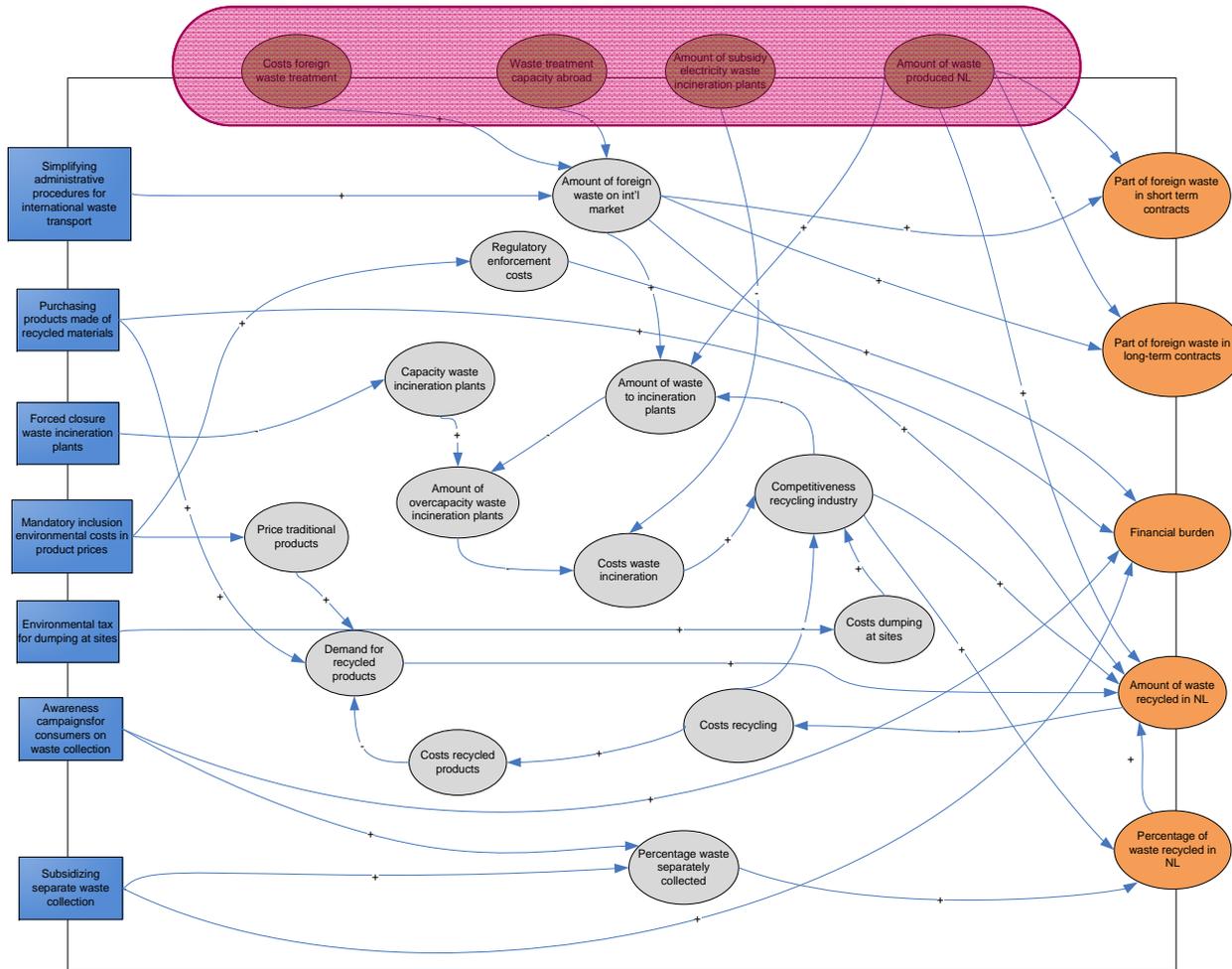








	Dedicated actors		Non-dedicated actors	
	Critical actors	Non-critical actors	Critical actors	Non-critical actors
Similar/ supportive interests and objectives	<ul style="list-style-type: none"> • Provinces • Municipalities* • Recycling companies • Association of waste companies • Ministry of Economic Affairs* • Ministry I & M 	<ul style="list-style-type: none"> • Environmental groups • Unions 	<ul style="list-style-type: none"> • Foreign waste companies or governments 	<ul style="list-style-type: none"> • Citizens • Private sector (non-waste sectors)
Conflicting interests and objectives	<ul style="list-style-type: none"> • - Owners of waste incineration plants • - Municipalities* • - Ministry of Economic Affairs* 	<ul style="list-style-type: none"> • Unions 		<ul style="list-style-type: none"> • Citizens • Private sector (non-waste sectors)





Exploring the future: Trend-extrapolation

Important context factors:

- Costs of waste treatment abroad ↓
- Waste treatment capacity abroad ↑
- Amount of waste produced in the Netherlands - / ↓



Key findings recycling

- Over-capacity waste incineration plants Netherlands
- Short term (2015): difficult to achieve objectives
- Longer-term approach required
 - reduction of incineration capacity
- But:
 - Waste incineration plants owned by others
 - Also serve other purposes
- Need to reflect on policy objectives and waste management ‘ladder’?

Storyline Recycling

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Full storyline

Iteration: check and sharpen key findings



Issue paper format

1. Client's problem?
2. Main finding(s)?
3. Knowledge gaps?
4. Further research?



Part 1: Introduction

1. Issue: waste management
 - a) Problem owner and problem: Ministry of Infrastructure and Environment (I&M)
83% of waste recycled by 2015
 - b) Means: Current policy measures
 - c) But: already high amount of waste recycling in Netherlands, more not easy.

Part 2: Problem Analysis

2. Over-capacity in waste incineration plants is barrier for recycling objectives
3. Longer term approach needed (>2015)
 - a) Waste incineration plant closure cannot simply be 'ordered'.
 - b) Imports of waste is difficult as longer term strategy
 - c) Conditions to reduce opposition from other parties:
older plants;
no running contracts;
no integration heating networks.
4. On short term (2015) temporary measures should be taken
5. Consider reflection on current policy objectives

Conclusions (recap) and Knowledge gaps

6. Recycling targets difficult to realize. Require longer term.
7. Knowledge gaps mainly related to plant closure
 - a) Alternative 'green' energy sources in the coming 20 – 50 years?
 - b) Dependency of municipalities on waste incineration plants due to coupled city heating infrastructure?
 - c) Time needed for waste incineration plants to recover past investments?
 - d) Incineration capacity needed to dispose of waste that cannot be recycled?

Part 3: Research Proposal

8. Research question:
 - a) What are the critical factors in facilitating a transition towards (nearly) complete recycling in the Netherlands?
9. Method: System Dynamics
 - a) Better understanding of factors influential in facilitating positive change

Storyline Recycling

Main message

Issue paper format

Full storyline

Iteration: check and sharpen key findings

Storyline: Recycling in the Netherlands

Part 1: Introduction

- 1) Introduction
 - a) Issue: waste management
 - b) Problem owner and problem: Ministry and national policy objectives recycling
 - i) Official policy objective: 83% of waste recycled by 2015 (I&M, 2010)
 - c) Means: Current policy measures (Milieu, 2011; Wiel, 2011; Hoogers, 2012):
 - i) stimulating innovation and knowledge bundling, 'grondstofronde', involving municipalities, waste companies and producers
 - ii) reduce red-tape (administrative burdens) for international waste transportation,
 - iii) stimulating separated waste collection (e.g. public awareness campaigns).
 - iv) But: already high amount of waste recycling in Netherlands, more not easy.

Part 2: Problem Analysis

- 2) Competitiveness of recycling within waste management system
 - a) Over-capacity in waste incineration plants is barrier for recycling objectives
 - i) (based on Annex with causal relations diagram and system diagram, backed mainly by Perree, 2011, Brbs, 2011).
 - b) Instruments to increasing the competitiveness of recycling: Reduce the overcapacity in waste incineration plants, or increase the supply of waste to feed the incineration plants.
- 3) Longer term approach needed (>2015)

An effective policy to increase recycling in the future requires a longer-term approach, for instance to be able to shut down certain existing waste incineration plants

 - a) Looking into waste incineration plant closure
 - i) Achieving recycling goals of 83% of waste being recycled, roughly requires an increase of 1.5 million tons of waste per year (Milieu, 2011). Current over capacity in waste incineration plants is estimated at 1 million tons per year (Nuzakeljk, 2012). Further reducing waste for incineration with 1.5 million tons thus seems difficult.
 - ii) It will run into protests from plant operators and municipalities.
 - iii) Incineration plants are run by independent organizations, whose closure cannot simply be 'ordered'. Furthermore, the Ministry and its Deputy-Minister have already signaled they do not want to order closure of plants, but consider this an issue that needs to be resolved by the market, as these are private organizations (Harlingen, 2012).
 - iv) waste incineration also provides a source of 'green' energy production, something that is also of interest to (other parts of) the Ministry of Infrastructure and Environment.
 - b) Using imports of waste as long-term strategy
 - i) Waste incinerators could be 'fed' by import of waste, as currently the Netherlands and Germany offer the lowest prices for waste incineration in the EU (Persson, 2012). On the longer-term this seems a difficult strategy, because the supply of (cheap) foreign waste is likely to reduce in the future, as countries as Poland, Cyprus, Bulgaria are likely to create their own facilities (AgentschapNL4, 2012; Defra, 2011).

- ii) Also, waste imports are problematic for the Ministry, as they may contradict the higher environmental objective of reducing greenhouse gas emissions.
 - c) Towards long-term reduction in waste incineration capacity
 - i) Closure of plants cannot be ordered, but there are certain conditions that need to be met to reduce opposition from other parties against closure: plants older than 20 years (average time to recover investments, AgentschapNL2, 2011); no running contracts with municipalities for waste disposal; no contracts/integration in local heating networks.
- 4) On short term (2015) temporary measures should be taken
 - a) Introducing taxes will encounter opposition and effect is limited as waste will simply travel to Germany, which also has low prices.
 - b) Subsidies introduce financial burden, as subsidies need to be considerable in order to be effective (see Perree, 2011; Hoogers, 2012).
 - c) Most promising measures on short term are increase in import cap, allowing more imports of waste, and reducing the administrative burdens associated with imports.
- 5) Finally: consider reflection on current policy objectives
 - a) Is current target and prioritization still applicable when waste incineration provides a 'green' form of energy supply?
- 6) Conclusions (recap) and Knowledge gaps
 - a) Recycling targets difficult to realize. Requires measures to address overcapacity in waste incineration plants, which are only feasible on longer term.
 - b) Furthermore, decision on these longer-term strategies requires that several knowledge gaps are being addressed. Among others:
 - i) What are the alternative 'green' energy sources in the coming 20 – 50 years?
 - ii) What is the dependency of municipalities on waste incineration plants due to coupled city heating infrastructure?
 - iii) What is the time needed for waste incineration plants to recover past investments?
 - iv) What incineration capacity remains needed to dispose of waste that cannot be recycled?

Part 3: Research Proposal

- 7) Research proposal
 - a) Research question: What are the critical factors in facilitating a transition towards (nearly) complete recycling in the Netherlands?
 - b) Method: System Dynamics
 - i) Elaborate the model around the observed feedback loops, to get a better understanding of system behavior, and factors that are influential in facilitating a change towards positive developments



Storyline Recycling

Main message

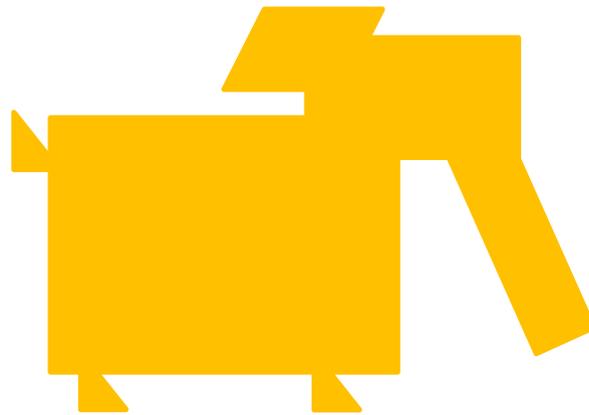
Issue paper format

Full storyline

Iteration: check and sharpen key findings



C. Full story line



C. Full storyline – structuring element

- ‘System’ provides main structuring element
- ‘Overcapacity in waste incineration’ is barrier in system
- The other ingredients (actors, futures) are connected to this.



Storyline recycling

Part 1: Introduction (approx. 1 – 1,5 pages / 500 – 800 words)

- 1) Introduction
 - a) Issue: waste management
 - i) Waste management is important issue. Improper management can damage public health and/or environmental health. Also, it can contribute to climate change mitigation, for instance as green/bio-fuel source (I&M, 2010)
 - b) Problem owner and problem: Ministry and national policy objectives recycling
 - i) In the Netherlands, the Ministry of Environment and Infrastructure is responsible for national waste management policy.
 - ii) National waste management policy 2009 – 2021 ("Landelijk Afvalbeheer Plan 2) has been developed.
 - iii) Priority order: "Lansink's Ladder" (see Wikipedia, 2012).
 - iv) Official policy objective: 83% of waste recycled by 2015 (I&M, 2010)
 - c) Means: Current policy measures (Milieu, 2011; Wiel, 2011; Hoogers, 2012):
 - i) stimulating innovation and knowledge bundling, "grondstofroutes", involving municipalities, waste companies and producers
 - ii)
 - iii)
 - d) Co
 - e) Pr
 - f) Outline of issuepaper structure

- c) Most promising measures on short term are increase in import cap, allowing more imports of waste, and reducing the administrative burdens associated with imports. This increases dependency on foreign waste, but as a short measure that may be acceptable. Note that effect is likely to be positive, but not sure if it will be sufficient to realize the 83% target.
- 5) a) Finally: consider reflection on current policy objectives
 - a) Current policy target based on waste management "ladder", which prioritizes recycling over waste incineration. Current 83% target is motivated also by European regulation, but the idea is to stimulate recycling, as proper 'use' of waste. Strict 83% target may be unnecessary limiting. Is current target and prioritization still applicable when waste incineration provides a 'green' form of energy supply?
 - 6) Conclusions (recap) and Knowledge gaps
 - a) Recycling targets difficult to realize. Requires measures to address overcapacity in waste incineration plants, which are only feasible on longer term.
 - b) Furthermore, decision on these longer-term strategies requires that several knowledge gaps are being addressed. Among others:
 - i) What are the alternative 'green' energy sources in the coming 20 – 50 years?

Literature (mainly in Dutch)

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Milieu defensie

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Example is available as PDF on the Course website

Part 2: Problem Analysis (approx. 6-8 pages / 3.500 words)

- 2) Competitiveness of recycling within waste management system
 - a) Over-capacity in waste incineration plants is barrier for recycling objectives
 - i) Three policy measures considered. All ("grondstofroute", reducing administrative barriers, stimulating separate waste collection streams) will in principle have positive effects on key objectives of the Ministry (more waste recycled, lower costs, limited dependence on foreign waste – see Rijksverheid 2012 and Annex with Goal Tree), (based on Annex with causal relations diagram and system diagram)
 - ii) However, effects of these measures are likely to be undone by the effect of the existing over-capacity in waste incineration plants in the Netherlands. This keeps costs of waste incineration low, meaning that recycling cannot compete with waste incineration as a destiny for waste. (Based on Annex with causal relations diagram and system diagram, backed mainly by Perree, 2011, Brbs, 2011). In fact, incineration plants "need" fuel.
 - b) Instruments to increasing the competitiveness of recycling: Reduce the overcapacity in waste incineration plants, or increase the supply of waste to feed the incineration plants.
 - i) Instruments that the Ministry could use: introduce a tax on waste incineration (to affect current low price of waste incineration), reintroduce tax on dumping waste, introducing a subsidy for recycling, force incineration plants to close (legal measure), introduce (strict) laws and regulations on waste recycling, and heighten the existing import cap for foreign waste (Perree, 2011; I&M, 2010).

- b) in the Netherlands?
 - i) Method: System Dynamics
 - i) Elaborate the model around the observed feedback loops, to get a better understanding of system behavior, and factors that are influential in facilitating a change towards positive developments
 - ii) Method proposed is system dynamics, useful to understand system behavior and influence of factors and relations on longer-term developments. System to be studied includes important feedback loops and has clearly recognizable "stocks-and-flows" in waste materials. Key factors include those involved in the feedback loops that drive system behavior (see system diagram/causal relations diagram). Data available from? *Check possible sources!!*
 - iii) Planning: indication of planning, staying within time limit of 2 months.
 - iv) (Alternatively) Cost-effectiveness analysis could be proposed, tackling question of what plants to prioritize/ schedule for closure in future. Taking into account several factors for existing plants (size, past investments, linkage to heating infrast., suitability types of waste, ...)
 - 4) On short term (2015) temporary measures should be taken
 - a) Introducing taxes will encounter opposition and effect is limited as waste will simply travel to Germany, which also has low prices. Subsidies introduce financial burden, as subsidies need to be considerable in order to be effective (see Perree, 2011; Hoogers, 2012).

Next: Checking your storyline

Thank you for your attention!