COCOON
Interreg Europe

Action plan region Netherlands

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Rijkswaterstaat
Ministry of Infrastructure and Water Management

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Part I – General information

Project: COCOON, Consortium for a coherent European Landfill Management Strategy

Partner organisation:_Rijkswaterstaat

Country:_Netherlands_

NUTS2 region:_South Holland the Hague____

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Part II – Policy context

The Action Plan aims to impact:

- ☐ Investment for Growth and Jobs programme
- ☐ European Territorial Cooperation programme
- X Other regional development policy instrument

Name of the policy instrument addressed:__3rd National Waste Management Plan___

Part III – Details of the actions envisaged

ACTION 1

Adjustment of the Dutch Waste Management Plan3 to introduce storage longer than three years LAP3 paragraph 12.6 storage of waste on landfills.

1. **The background** (please describe the lessons learnt from the project that constitute the basis for the development of the present Action Plan)

In the government-wide program "The Netherlands Circular in 2050", the government outlines how we can turn our economy into a sustainably driven, fully circular economy in 2050. To achieve this goal, we must take action and set milestones at all levels of our society. The first goal is to reduce the consumption of primary raw materials (mineral, fossil and metals) by 50% by 2030. It is appropriate to investigate the potential for recycling waste within this framework. This should take into account wastes for which recycling is currently neither technically, nor economically feasible. This can be done by storing the waste temporarily (subject to conditions) at landfills.

In the Netherlands temporary storage, longer than 3 years, is not possible within Dutch regulations. In Germany long-term storage at landfills is possible (verordnung über Deponien und Langzeitlager[1] (Ordinance long-term storage)), this is presented in COCOON as good practice 'long term storage'.

In Flanders, there is also a wish for long term storage. The Flemish government aims to save up the waste and do resource management. Thus, the waste is not really landfilled, but is stored temporarily with a view to its future valorisation when suitable techniques are available. In short, a landfill site becomes a mine for tomorrow's raw materials. This is described in the good practice on temporary storage in Flanders.

Temporary storage can take place in two different ways. Firstly, the waste can be distributed into different compartments based on the type of waste stream at a specific landfill site. This landfill site is built in accordance with the current regulations (foil, leachate collection, drainage layers, etc.) and can receive other waste streams from outside. Another principle involves the creation of mono-landfills with one type of waste stream (cf. current metal business). This principle simplifies the valorisation process of this specific waste stream in the future. Both principles have already been explored in Flanders. A good practice on long term storage of waste at a monolandfill is described in the good practice on 'De Blankaart' which has been submitted to the PLP database. In this case, new products became available after mining the landfill.

Storage under 'landfill conditions' and conservation of resources in materials, for which currently no financially and/or technically feasible recycling option exist, yet is anticipated in the near future (a decade or so), is desirable. Innovation for recycling of raw-materials is part of the EU Circular Economy[2]. A good example is the EURELCO network (EURELCO (European Enhanced Landfill Mining Consortium) is an open, quadruple helix network that supports the required technological, legal, social, economic, environmental and organisational innovation with respect to the development and implementation of a Dynamic Landfill Management (DLM) framework).

An important point of attention here is financial security. There have been examples in the past where parties collected a lot of material, went bankrupt and burdened society with the processing costs. That risk must be covered. The purpose of the exploration is to state those preconditions (financial, legal, landfill design, environmental gains, legislation and regulations, etc.). This is a clear signal that potential obstacles to the realization of the circular economy are

[1] https://www.gesetze-im-internet.de/depv_2009/DepV.pdf
[2] https://ec.europa.eu/environment/circular-economy/

being removed.

2. **Action** (please list and describe the actions to be implemented)

B.12.6 Storage of waste on a landfill (Opslag van afval op stortplaatsen)
For this action we will look into the 2008/98/EC WFD definition of temporarily storage. If long term storage is possible and desirable, the Dutch LAP3 will be amended for policy implementation. Part of the possible solution is to investigate under which conditions a temporary storage longer than 3 years is acceptable.
The Netherlands consider an amendment in their Landfill decision (Stortbesluit) for long term storage from 3 to 5 years.
For this action we will monitor:

- Implementation of new amendments for the required conditions, monitoring schemes and record keeping to allow long term storage;
- Cooperation between operator, licensing, monitoring and enforcement departments.

Players involved (please indicate the organisations in the region who are involved in the development and implementation of the action and explain their role)

- Governmental: provinces, municipalities and Dutch Soil convenant: Central and decentral regulators of new policy;
- Landfill sector – National (Dutch Waste Management Association) and International (EURELCO). Executors of new policy and innovations for the sector.

3. **Timeframe**

2019 – 2020, discussion with stakeholders what is needed for long term storage (technical, financial, juridical) and preparation of amendments a go/no go:
2021: amendment of the LAP3 and Landfill decision
2020 -2021 conduct a survey among stakeholders (=input for amendments in NWP)

4. **Costs** (if relevant)

N/A (staff costs 1 FTE)

5. **Funding sources** (if relevant):

N/A

ACTION 2

Adjustment of the Dutch Waste Mangement Plan3 for Dynamic landfill management LAP3 paragraph 12.10 dynamic landfill mangement.

1. **The background** (please describe the lessons learnt from the project that constitute the basis for the development of the present Action Plan)

The traditional paradigm of the linear economy resulted in landfills as the final waste disposal sites. We want to development and implement a Dynamic Landfill Management (DLM) allowing at all times landfills to be used in a proper way. The DLM includes resource recovery-driven Enhanced Landfill Mining (ELFM) as one of its most advanced components, thereby supporting the transition to a resource efficient, circular, low-carbon economy.) This is a transition from waste to sustainable resource management (circular economy).
The long-term management requires a reconsideration of the Isolate, Control and Monitor (ICM)

model with an eye for a more dynamic environment. Such management concepts go beyond a traditional risk approach. Besides striving from everlasting aftercare towards an endless aftercare will not only reduce risks it also will save money.
In Belgium, Spain and within the EURELCO network (. COCOON was co-organiser of the 2nd ELFM Seminar in the European Parliament on 20 November 2018.
The Netherlands aim to implement these new ideas within the policy chapter B12.10 of their 3rd National Waste Management Plan (LAP3).

2. **Action** (please list and describe the actions to be implemented)

B.12.10 Dynamic Landfill Management (Duurzaam stortbeheer)
COCOON partners invest widely in DLM innovations. This knowledge is shared and recorded in several good practices:

- Aerobic fermentation of municipal waste inside the landfill in Cordoba (Andalucia, Spain);
- Geophysical Prospection (ERT) for the detection of leachate in a Municipal Solid Waste landfill (Andalusia, Spain);
- Landfill Aeration as a contribution to landfill stabilization and climate protection (Brandenburg, Germany);
- Leachate capturing and purification at the landfill „Grube Präsident“ (Brandenburg, Germany);
- Waste management on operational landfills: Deposition of waste (Brandenburg);
- Landfill aeration (Brandenburg);
- Remediation of a chemical waste landfill by means of ex-situ immobilization (Flanders).

These innovations, together with freshly gained knowledge in the Netherlands is input to update chapter B12.10 of the NWP LAP3

For this action we will monitor in the Netherlands:

- Contributing to the performance of pilots and accompanying (scientific) research;
- Continuing to highlight the importance of the involvement of RIVM (National Institute for Public Health and the Environment) to (local) authorities;
- Actualization of (source) data;
- Share knowledge of national and international pilots with local authorities;
- Open mind for innovations/new insights for follow up (current knowledge of models expanded since first model building: learn from it and adjust your models and strategies);
- Developing vision and strategy.

Players involved (please indicate the organisations in the region who are involved in the development and implementation of the action and explain their role)

- Governmental: provinces, municipalities and Dutch Soil covenant, as stakeholders;
- National and local (12 Dutch provinces) government: Responsible for implementation of new policy and regulations;
- Landfill sector – National (Dutch Waste Management Association) and International (EURELCO) and consultancies: initiator of innovations, partner for government to discuss obstacles and possibilities;
- Universities and knowledge institutions (TU-Delft /Deltares/TNO): scientific substantiation of innovations.

3. **Timeframe**

2019 – 2020, discussion with stakeholders what is needed for DLM (technical, financial, juridical)

and preparation of amendments in NWP an go/no go:
2020: midterm review of progress of the Green Deal SLM
2021: amendment of the NWP (LAP3)
2020 – 2021 conduct a survey among stakeholders (=input for amendments in NWP)

4. **Costs** (if relevant)

N/A (staff costs 1 FTE)

5. **Funding sources** (if relevant):

N/A

ACTION 3

Adjustment of the Dutch Waste Mangement Plan3 for re-use of former landfills LAP3 paragraph 12.11.2 former landfills.

1. **The background** (please describe the lessons learnt from the project that constitute the basis for the development of the present Action Plan)

Each year in the European Union we throw away 2.7 billion tons of waste. On average 25% is going to landfills. The European directive 1999/31 / EC for landfills was an important step in the uniform management of operational landfills. The objective was to prevent or reduce the negative impact of the landfill on the environment. In addition over 95% of the EU former landfills (>500.000) do not fulfill safety standards of the EU directive. For those landfills we see remarkable differences among the various member states this was reflected in the report on mapping developed by the COCOON partnership.

The traditional paradigm of the linear economy resulted in landfills as the final waste disposal sites. For both former and new landfills, the risk based approach aiming at an eternal safe situation leads to a static landfill management with often leads not in every case to an eternal solution. Partners in COCOON are calling for a more dynamic and resource driven landfill management.

The spatial pressure is such a typical phenomenon where landfills do not always pose a threat but can also bring a solution. The demand for housing, recreation or green energy can be filled in at a landfill site.

In addition, there are also potential threats from climate change. Landfills can become more sensitive to flood risks. On the other hand, a targeted excavation and redevelopment can provide space for water and nature. Landfills are unsorted stocks of raw materials, which are currently not used. The upgrading of this deposited waste brings the end point of the linear economy back into the circular economy.

With input from partners and new Dutch legislation (transfer of authority from provinces to municipalities), increasing possibilities for spatial development and mining of former landfills occur. Sustainable spatial management is the driving force for landfill re-development and landfill mining. With this policy change the Netherlands aims to stimulate sustainable spatial developments.

There are many good practices of interim use of former landfills within the COCOON network. This can be a source of renewable energy or good landuse. Germany and Belgium developed a system to classify risks and/or determine opportunities in former landfills, see good practices ALKAT and Cedalion and Orion. Belgium even went a step further by classifying the possibility for mining. Collective regeneration of former landfills might be a possibility. The Netherlands are also in the

advisory board of the Interreg NWE project RAWFILL.
Good practices from COCOON partners, which can be adopted in the Netherlands:

- Marsascala Family Park: Rehabilitation of a Landfill into a Park (Malta);
- Possibilities of using a closed landfill area for production of renewable energy: case Luckenwalde (Brandenburg, Germany);
- Using a landfill area after closure of a landfill for a Waste management facility: Luckenwalde (Brandenburg, Germany);
- Remediation of a landfill with low risk potential in a rural environment – Case Klausdorf (Brandenburg, Germany);
- Gozo Waste Transfer Station and Material Recovery Facility (Malta);
- Extended landfill gas treatment by CHP with reservoir – case Lübben (Brandenburg, Germany);
- Klaverenboer ward: landfill remediation and tackling land pressure (Flanders);
- Rehabilitation of "La Pitilla" landfill (Andalucia, Spain);
- Brownfieldcovenants as an instrument to revitalize former landfill sites (Flanders);
- Leachate capturing and purification at the landfill „Grube Präsident" (Brandenburg, Germany);
- Wied Fulija, from landfill to recreational area (Malta);
- Zaventem: turning an old landfill into a buffer basin to prevent flooding (Flanders);
- IPCC model (Brandenburg).

The Netherlands aim to implement these new ideas within the policy chapter B12.11.2 of their 3rd National Waste Management Plan (LAP3).

2. **Action** (please list and describe the actions to be implemented)

B.12.11.2 Former Landfills (Voormalige stortplaatsen)

With input from partners and new Dutch policy (transfer of authority from provinces to municipalities), chapter B12.11.2 of the NWP (LAP3) will be updated to create policy possibilities for spatial development and mining of old landfills. Sustainable spatial management is the driving force for landfill re-development and landfill mining. With this policy change the Netherlands aims to stimulate sustainable spatial developments.
For this action we will monitor in the Netherlands:

- Priorities on not hazardous locations first. Landfills with potential risks secondly;
- Share knowledge between local governments and specialist organisations (to strengthen the network);
- Share good examples, place them in a spotlight to inspire others;
- Create and implement local policies according to the (new) Environment and planning act.

Players involved (please indicate the organisations in the region who are involved in the development and implementation of the action and explain their role)

- Governmental: provinces (IPO), municipalities (VNG) and Dutch Soil convenant (UvW): implementation new rules in local environment and planning act.
- Landfill sector – National (Dutch Waste Management Association) and consultancies: initiator of innovations, partner for the local governments to discuss obstacles and possibilities;
- Universities and knowledge institutions (TU-Delft /Deltares/TNO): scientific

substantiation of innovations

3. **Timeframe**

2019 – 2020, discussion with local authorities and stakeholders what is needed for former landfills (technical, financial, juridical) and preparation of amendments in NWP (LAP3) an go/no go:
2020: organise information and informative sessions for local authorities
2021: amendment of the NWP (LAP3)
2020 – 2021 conduct a survey among stakeholders (=input for amendments in NWP and input what local authorities need from the central government)

4. **Costs** (if relevant)

N/A (staff costs 1 FTE)

5. **Funding sources** (if relevant):

N/A

ACTION 4

Adjustment of the Dutch Waste Mangement Plan3 for landfill mining LAP3 paragraph 12.12 landfill mining

1. **The background** (please describe the lessons learnt from the project that constitute the basis for the development of the present Action Plan)

   With this action we open the policy line to divert from a linear to circular approach towards former landfills. This will generate a complete new approach towards old landfills. This action has strong overlap with action 1. Yet we see this as a separate action. Stimulating to get raw materials from a landfill back into the circular economy is often underexposed and therefore deserves extra attention from national and local authorities.
   Former landfills are a potential risk for the environment. With static landfill management we leave these risks to future generations. Besides landfills can become more sensitive to flood risks (E. Wille OVAM). On the other hand, a targeted excavation and redevelopment can provide space for water and nature. Landfills are unsorted stocks of raw materials, which are currently not used. The upgrading of this deposited waste brings the end point of the linear economy back into the circular economy. These ideas where discussed and presented on the 2nd ELFM Seminar in the European Parliament (November 20, 2018).
   Input from good-practices from COCOON partners is shared in the Dutch network. Examples from partners:

   - Landfill remediation by excavation – Case Treuenbrietzen (Brandenburg, Germany);
   - Cedalion and Orion, a decision support tool for dynamic landfill management (Flanders);
   - Waste deposit and landfill tax system of Flanders (Flanders);
   - Klaverenboer ward: landfill remediation and tackling land pressure (Flanders) (or AP3??);
   - Geophysical Prospection (ERT) for the detection of leachate in a Municipal Solid Waste landfill (Andalusia, Spain);
   - Complex remediation of a closed landfill below groundwater level - Case

Hennickendorf (Brandenburg – LfU);
- Brandenburg policy: Remediation of closed landfills with small volume in a rural area (Brandenburg – LfU);
- Database ALKAT (Brandenburg – LfU);
- IPCC model (Brandenburg);
- De Blankaart (Flanders);

COCOON partners and their network (EURELCOo, RAWFILL) are active with pilots and research to change the mindset from static towards dynamic landfill management including the option of landfill mining. Besides technical measures, financial and juridical measures are needed to stimulate landfill mining.
The Netherlands aim to implement these new ideas within the policy chapter B12.12 of their 3rd National Waste Management Plan (LAP3).

2. **Action** (please list and describe the actions to be implemented)

B.12.12 Landfill mining (Afvalmining)

In this paragraph we open the policy line to divert from a linear to circular approach towards former landfills. This will generate a complete new approach towards landfills.

By making amendments in chapter B12.12 of the NWP (LAP3) this will create possibilities for mining of landfills.

For this action we will monitor in the Netherlands:

- Study inventarisation and registration by municipalities;
  - Register locations of old landfills at local level;
  - Research the composition of the landfilled material;
- Innovations for landfill mining (cooperation municipalities and branch organisation): knowledge sharing of excavated landfills.

Players involved (please indicate the organisations in the region who are involved in the development and implementation of the action and explain their role)

- Governmental: provinces (IPO), municipalities (VNG) and Dutch Soil convenant (UvW): implementation new rules in local environment and planning act;
- Landfill sector – National (Dutch Waste Management Association) and consultancies: initiator of innovations, partner for the local governments to discuss obstacles and possibilities;
- Universities and knowledge institutions (TU-Delft /Deltares/TNO): scientific substantiation of innovations.

3. Timeframe

2019 – 2020, discussion with local authorities and stakeholders what is needed for landfill mining (technical, financial, juridical) and preparation of amendments in NWP (LAP3) an go/no go:
2020: organise information and informative sessions for local authorities and their stakeholders (together with action 3)
2021: amendment of the NWP (LAP3)
2020 – 2021 conduct a survey among stakeholders (=input for amendments in NWP and input what local authorities need from the central government)

4. **Costs** (if relevant)

N/A (staff costs 1 FTE)

5. **Funding sources** (if relevant):

N/A

Date:_5 December 2019_

Signature: _Ruud Splitthoff Director Leefomgeving RWS__

Stamp of the organisation (if available): _____

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