Advisory guidelines for the environmental impact statement on landfill 'Braambergen' at Almere

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Advisory

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CONTENTS

SUMMARY OF THE ADVICE

This advice of the Commission for environmental impact assessment (EIA) contains recommendations for the contents of the environmental impact statement (EIS) for the expansion of a landfill.

Problem definition and objectives
The EIS must give a description of the history of the landfill. Bottlenecks must be analysed. On the basis of the bottlenecks the objective of the proposed activity must be described. It must be indicated how and in which degree the proposed activity offers possibilities to react in a flexible way to changes in the waste streams.

Decision-making progress
It must be indicated for what decision the EIS is compiled and how the decision-making process is foreseen. In addition, attention must be paid to decisions already taken, policy intentions and pronouncements, which may condition or restrict the proposed activity and the referenced decision-making process. This survey can serve as framework to review the alternatives.

Proposed activity and alternatives
In describing the proposed activity distinction must be made between implementational, exploitational and finishing phase of the landfill and temporary and permanent activities thereon. Additional aftercare after closing down of the landfill should be addressed.
In the EIS emphasis must be on the facilities to prevent, locate and limit emissions and on measures to prevent disruption of the geological, geomorphologic and water management situation. Relevant aspects are infrastructure, traffic facilities and emissions in soil, ground and surface water and air. In addition, the landfill's fitting into the landscape deserves attention. Risk analysis should be applied on the chances of pollution (also in case of calamities) and it must be indicated what measures are taken to prevent pollution. The internal relationship of the control measures and the organisational framework must be described (Integral Environmental Care System), also in the long term.

Alternatives and variants for the implementation can be described. The alternatives of the proposed activity should comprise in any case the alternative in which the proposed activity is not implemented: the so-called zero alternative.
The alternative most favourable to the environment (AMFE) must also be described. This alternative departs from the best current possibilities to protect the environment and is directed to prevent or limit ground and surface water pollution, maximise the life span of the landfill, minimise undesired emissions and optimise finishing of the landfill.

Current state of the environment and autonomous developments
In describing the actual situation one must address the situation pertaining to soil and water management, the environmental quality as well as nature and landscape in the area.
The presence of sensitive and vulnerable areas and objects such as residential, nature, groundwater catchment and recreation areas deserve thereby special attention. Objects of a geological/geomorphological interest must be described as well.

Environmental impacts
The impacts on groundwater, soil, surface water, air, nature and landscape must be described. Specific attention is asked for impacts only perceivable in the long term. In case of uncertainty about impacts, also the worst situation conceivable must be described in addition to the most probable development. The chance of occurrence of pollution and of the spreading in time of possible pollution should be described.

Gaps in information and evaluation programme
The EIS must list items about which the required information cannot be given. These gaps in knowledge can be addressed in the evaluation programme, which the competent authority should establish when granting the licence. It is recommended to give already in the EIS an impulse for such an evaluation programme. Also the monitoring of the environmental impact and the environmental care system must form part of the evaluation programme.

1. INTRODUCTION

The owner of the landfill proposes to expand the landfill at Almere with about 350,000 m^3 up to a capacity of about 2,05 million m^3. The landfill is equipped for the disposal of industrial and domestic waste.
The EIS obligation has been coupled to the licence granting for the entire landfill by the executive board of the province of Flevoland.

In drafting the advice the Commission considered the public's written reactions received through the competent authority.

2. PROBLEM DEFINITION AND OBJECTIVES

Environmental Protection Act, section 7.10, subsection 1, sub a:
An EIS shall contain at least: *" a description of the purpose of the proposed activity".*

In order to gain insight into the nature of the existing landfill the EIS must give a thorough description of the history of this landfill and must contain a brief summary of the nature, history, backgrounds and bottlenecks of the waste problems within the province of Flevoland. In the problem definition the current policy for removal of relevant waste and the actual situation must be discussed. Causes of possible discrepancy between the two must be indicated. The proposed activity must be brought into relation with the actual situation. Attention must be paid to current and future bottlenecks in the removal of domestic and industrial waste, vegetables, fruit and garden waste (GFG waste) and small chemical waste (Scw), within the areas from where the waste will be delivered. Therefore the following aspects must be addressed:

- the quantity per time unit and average quantities as well as the origin of the waste to be processed (per category, including GFG waste and Scw);
- the current, expected and required processing capacity per type of waste;
- with respect to the proposed activity the expected supply, the intended supply area and the eventual presence of other waste disposal locations in the vicinity should be addressed. The relation with provincial policy should be indicated;
- the period in which the activity offers a solution for the signalled bottlenecks, also taking into account any uncertainty margins.

In that context, it must be indicated what the flexibility is in the acceptance possibilities of the proposed landfill in order to be able to react to changes in the waste streams according to origin, quantity and composition. The possible changes in the supply and the marketing of specific substreams, partial flows (stagnation and/or increase) must be indicated. In addition, it must be indicated whether in case of calamities in the waste removal elsewhere in the service area, the fill can be used for a shorter or longer period of time to dump other waste categories and whether in case of calamities on this landfill, one can dump elsewhere.

The relation with the current and anticipated provincial policy with regards to landfill locations should be addressed. It must also be indicated to what extent the location satisfies the location criteria laid down in the provincial policy. For the transshipments of GFG waste alternative locations must be elaborated in the EIS.
If the location does not meet the requirements of the current and anticipated provincial policy, it must be indicated in what manner the choice of the location can be brought in accordance therewith.

On the basis of the signalled bottlenecks the objective of the proposed activity must be described. Herewith the extent to which the initiative contributes to or opposes achievement of the objectives of the provincial waste treatment policy and contributes to an efficient removal of waste must be discussed.

3. DECISION-MAKING PROCESS

Environmental Protection Act, section 7.10, subsection 1, sub c:
An EIS shall contain at least: *"an indication of the decisions in the preparation of which the environmental impact statement is to be drawn up, and a review of the decisions previously taken by government bodies relating to the proposed activity and the alternatives described".*

The EIS must indicate for which decisions it has been compiled, the status of those decisions, the necessary steps in the decision-making procedure and the time schedule.

Governmental decisions and policy intentions made public (in amongst others, the field of waste removal, regional planning, environment, nature and landscape and recreation) will influence the decision for which the EIS has been compiled or impose restrictions on it. Restrictions and influences at stake must be clearly explained. Legal demands with regard to the design of the landfill should be addressed.

On the basis of these decisions review criteria must be indicated, which might be used in reviewing the impact of the proposed activity on the environment and in the comparison of the alternatives.

4. PROPOSED ACTIVITY AND ALTERNATIVES

Environmental Protection Act, section 7.10, subsection 1, sub b:
An EIS shall contain at least: *"a description of the proposed activity and the manner in which it will be carried out, and of the alternatives which should reasonably be taken into consideration".*

Environmental Protection Act, section 7.10, subsection 3:
"The alternatives to be described in accordance with subsection one, under b, shall in any case include the alternative which makes use of the best means available for protecting the environment".

4.1 General

The proposed activity and the relevant alternatives must be described and elaborated in the EIS.
The description of the proposed activity must in particular be focused on those aspects, that give insight into sources of emission into soil, air and water.
The choice of the alternatives and variants must be carefully motivated in the EIS, just as the manner of selection of the possible preferred alternative. It must be indicated to what extent every alternative complies with the objectives stated.
In the descriptions the activities must be addressed separately and in their relationship (use of common facilities, relations through waste flows etcetera).

4.2 Proposed activity

The proposed activity relates to the entire landfill, including the parts already finished and those still in use. These parts must also, insofar as relevant for the activities to be elaborated upon, be fully described.
In the notification of intent it is insufficiently clarified which activities will take place on the landfill and at what times these activities will be started. All permanent and temporary activities, among which the transhipment of GFG waste and the exploitation of the Scw depot must be accurately described in the EIS.
In describing the proposed activity a distinction must be made according to lay-out, the exploitation and the finishing of the landfill. One must address the aftercare after closing of the landfill.
The following subjects must in any case be discussed:

Organization of the landfill[1]]

- the size, design and location of the landfill (amongst others filling plan, including phasing);
- the opening up of the area, stating routes of transportation, connections to main traffic roads and expected traffic intensities:
- any construction activities yet to be executed, among which the excavation of land and other ground works and the impact thereof on the possibly present barrier function of the subsoil;

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1 Both the existing and the new part.

- the location of the landfill in relation to the groundwater (GHG[2]) level and the original ground level;
- the nature and construction of the bottom sealing, including drainage systems;
- other soil protecting facilities;
- general facilities, such as weighbridge, the Scw depot, the GFG transhipment, the storage of clean soil, the inspection floor and facilities directed at the processing of waste streams;
- compartmentalisation, also in relation to separated disposal of categories of waste; differences in filling heights;
- the manner of percolate drainage, storage and treatment; its evacuation to the water treatment facility and drainage into surface waters;
- the manner of collection, transport, treatment and removal of landfill methane gas;
- control facilities (amongst others drains and other vertical control facilities); one must address specifically the manner in which the correct functioning of control facilities will be guaranteed.

In order to enable a responsible choice from alternatives (vertical or horizontal expansion, excavation) the EIS must also describe with regard to existing fill heaps:

- the size of the old fill heaps;
- the nature and age of the waste fill heaps per heap;
- insulation, management and control facilities (IMC) already present in those parts of the landfill, already finished off and still in use;
- to what extent does pollution (already present and to be expected) and the measures to be taken to control it, influence the arrangements to be made for the whole activity;
- to what extent does the level of protection of the existing part of the landfill satisfy the legal criteria for landfills and to what extent will adjustment be necessary.

Risk analysis

In the description of the proposed activity a risk analysis must also be included. This serves to define qualitatively and if possible quantitatively the chance of occurrence of any failure of the made arrangements. This in view of pollution of soil and ground water. The risk of failure of the control arrangements should also be addressed. The risk analysis must relate to all parts of the landfill, hence, including any parts finished off and those still in use. A 'worst case' scenario must also be described.

Exploitation

One must address:

- the acceptation and registration of offered waste categories, indicating how care will be taken that those categories, for which other processing possibilities exist, are send through. It must in particular be indicated in

2 Average highest groundwater level.

what manner and with what arrangements asbestos and asbestos containing materials are treated;
- the nature, origin and amounts of the accepted waste;
- the build up of the fill heaps;
- the use of temporary coverings;
- methane gas control;
- measures to prevent hindrance as a result of dust, smell, sound and litter and measures to prevent attraction of undesired animals. Special attention must be paid to the drifting of dirt in relation to daily covering;
- water balance and water management specified for percolation water, precipitation, dry weather discharge and run-off water;
- the exploitation period of the landfill;
- measures to prevent far-reaching dispersion of pollution in case of calamities (leakage of bottom lining, both the existing and the new parts);
- monitoring system in both exploitation and the aftercare stage;
- the supply and removal and the internal transport.

Space occupation
The EIS must indicate whether, and if so in what manner, the activity imposes restrictions on possibilities of use of land on and around the landfill.

Final finishing[3]]
One must address the following issues in the EIS:
- at what quantity methane gas development is estimated in connection with the arrangements to be made;
- determination of the moment that the final top lining can be placed (dependent on gradual compression and soil subsidence);
- nature and build up of the upper cover including the upper lining also in relation to the final destination;
- the proposed final destination of the landfill with a visual impression of the landscape;
- the finishing of the landfill, also in relation to the final destination.

After-care[4]]
The conditions of delivery of the landfill must be described in view of the possibilities of after-care. One must address the quality and characteristics of the arrangements made (among others drainage, bottom sealing, upper cover) and the maintenance and control system for these arrangements.
An estimation of the life span of the arrangements to be made is thereby important in view of among others gradual compression and soil subsidence and the time span and importance of the methane gas development. It must be indicated how possible repairs of arrangements can take place, this also in relation to the final destination. It must also be indicated how the finishing, the re-design and the (eternal) aftercare, in particular the management of the vegetation and control of dispersal of polluted groundwater is planned.

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3 Both the current and the new part.

4 Both the current and the new part.

Other installations
In addition to the landfill proper, the following installations will form part of the initiative:
- transhipment station for GFG waste;
- Scw depot.

For each of the two in any case the following aspects must be discussed (insofar as applicable):
- the processing capacity and the location, as well as the arrangement and the accompanying facilities;
- the waste (sub)streams;
- the requirements, which the composition must minimally satisfy in connection with the marketing;
- the amounts and expected composition;
- the marketing possibilities;
- the destination of the waste streams;
- in case the sale of the waste streams stagnates: the guarantee of removal of the category concerned.

One must address the following aspects in the EIS:
- the objective and the function of the installation;
- which waste streams will be transshipped or stored;
- the means of transportation in which the waste matters are transshipped;
- the transportation movements generated and the decrease of the need of transport as a whole eventually to be achieved;
- facilities to prevent or limit pollution of the soil, the ground and surface water and the air;
- inconvenience restricting facilities, in particular facilities directed against inconvenience through vermin and stench;
- plans and arrangements in case of calamities.

4.3 Alternatives and variants

In developing alternatives a distinction can be made according to implementation alternatives and transport alternatives.
In addition, the alternative must be described at which the proposed activity is cancelled, the so-called zero alternative.
Finally, the alternative most favourable to the environment must be developed.

Implementation alternatives
Through combining various variants in the execution of the planned facilities, implementation alternatives can be developed. The variants can relate among others to:
- the methods of bottom lining, including drainage systems;
- the (depth)location of the bottom lining in relation to the original ground level and the average highest groundwater level, also in combination with the expected soil subsidence;
- the methods of filling; the manner of compartmentalisation;
- the size and location of the fill compartments;

Above-mentioned points must be described in relation to the expected subsidence. Furthermore variants might relate to:

- the treatment of the percolate;
- the control and treatment of the methane gas;
- collection and evacuation of the precipitation surplus;
- methods of upper and side lining and the moment of their placement;
- measures to limit nuisance by smell, dust, litter and undesired animals;
- control measures;
- measures in case of calamities;
- rehabilitation of the existing landfill;
- finishing alternatives in connection with the surrounding environment and possible recreational functions;
- aftercare.

With regard to the landfill various options can be developed by changing the design and lay-out (fill heights and fill surfaces). Options must be developed in relation to the final destination of the location.

Transport alternatives
In order to minimise emissions and nuisance resulting from transport, transport alternatives can be developed.

Alternatives with respect to the existing landfill
At the development of alternatives also the parts of the existing landfill (already finished and still) in use must be involved. The following alternatives must be investigated:

- rehabilitation and control alternatives for the existing part, whether or not in combination with monitoring, groundwater and soil protection variants;
- rehabilitation through geohydrological insulation and/or removal of polluted ground and polluted groundwater, excavation and separation of waste components and the anew construction of excavated landfill parts;
- complete rehabilitation, by total excavation of the existing parts and renewed dumping in conformity with the current legal demands for landfills. The newly planned fill compartments can also be included herein (transhipment of waste to new parts, followed by re-implementation and new use of excavated parts).

Zero alternative
The expected development of the environment must be described in the EIS in case neither the proposed activity nor one of the alternatives is realized. It must by indicated to what extent this no action alternative can be considered as a realistic alternative.

The waste processing in the delivery area will then develop under the influence of already existing activities or proposed activities, of which it is already certain that these will take place (the autonomous development). The location will then develop earlier than planned under the influence of other destinations.
This development must be described and must be seen in connection with the description of the current and autonomous development of the environment.

Alternative most favourable to the environment
The alternative most favourable to the environment must be discussed as a full alternative. It must be an independent description of the activities and environmental impact so that a comparison with other activities is possible. The alternative can be composed of a combination of elements, most favourable to the environment, of the various alternatives described, combined with further environmental protective measures. The best current possibilities to protect the environment must be adopted.
The alternative most favourable to the environment must be directed in the first place at the prevention or limitation of soil and (ground)water pollution and the maximisation of the life span of the insulating facilities of the landfill.

In addition, attention must be paid to a minimisation of the emissions into the air (methane gas, dust and odour).
After filling the finishing and the management of the landfill must be directed towards taking up an ecologically functional position in the landscape. For the other activities on the landfill site the alternative most favourable to the environment must be directed at the best current environmental protecting measures to prevent any air, soil and surface water pollution and noise.

5. CURRENT STATE OF THE ENVIRONMENT AND AUTONOMOUS DEVELOPMENTS

Environmental Protection Act, section 7.10, subsection 1, sub d:
An EIS shall contain at least: *"a description of the current state of the environment in so far as the proposed activity or the described alternatives may affect it, and the expected developments in the said environment in the event that neither the said activity nor the alternatives are undertaken".*

5.1 General

The current situation of the environment must be described as far as this may be relevant for prediction of the impact on and the comparison with the environmental impacts of the proposed activity and alternatives.
Environmental aspects that result from the earlier use of the location should be addressed.
In the description one must take into account any possible follow-up impacts of completed or current interventions in the area of study and the autonomous developments (for instance recreation facilities).
The presence of sensitive and vulnerable objects (such as residential areas, nature reserves, drinking and industrial water supply zones, private water extraction zones, recreation areas and the like) in the area of study deserve special attention. A sketch of the situation of the location (in terms of distances and relations) in relation to these objects and in relation to roads, waterways, water-retaining structures, residential nuclei, recreation areas and agricultural enterprises is desirable.

The location and the areas adjacent in a (geo)hydrological, ecological and cultural-historical sense, which can be directly or indirectly influenced through the activity and the accompanying infrastructure, form together the area of study. In general, it can be stated that the size of the area of study is determined by the reach of the impacts and can differ therefore per environmental aspect. The boundaries of the areas of influence must be clearly motivated in the EIS and be indicated on a map.

In describing of the current situation of the environment and the autonomous development a distinction can be made according to abiotic aspects, biotic aspects, landscape and national heritage.

5.2 Abiotic aspects

The following points must be described:

- soil and geomorphological situation, among which excavation and land filling, as well as the ground mechanical characteristics;
- place, nature and amount of waste already dumped;
- local and regional water management and geohydrological situation and the accompanying relevant characteristics and parameter values, namely:
  - geological buildup (including discontinuities, damming up and the like);
  - geohydrological schematization;
  - groundwater tables, including the variations;
  - flow direction and flow quantities of the groundwater (horizontally and vertically);
  - geohydrological sub systems (from infiltration to seepage areas);
  - relation with surface water and current public and private water catchment including absorption areas.
- the chemical composition of land and ground and surface water; and possible pollution and the spreading thereof, at which it must be indicated whether treatment of removal is necessary and if not, why not;
- noise and vibration; current sound contours during the evening, the night and the day also on the basis of traffic pressure and the impact on those contours of current and future developments;
- the air quality, in particular scent and dust emissions.

5.3 Biotic aspects

Points to be described:

- the vegetation: designation of area specific vegetation types, indicator species or life communities;
- the fauna: area specific species composition, presence of special species; functions in the area (forage, resting, breeding, summer and hibernation area);
- the location in the relation to the location of nature reserves.

5.4 Landscape, cultural heritage and other aspects

Points to be described:
- the current use of the land and the landscape image;
- cultural-historical, including archaeological elements;
- current recreative use.

6. ENVIRONMENTAL IMPACTS

Environmental Protection Act, section 7.10, subsection 1, sub e:
An EIS shall contain at least: *"a description of the effects which the proposed activity or the described alternatives may have on the environment, and an explanation of the manner in which the said effects have been determined and described".*

6.1 General

In this chapter of the EIS the impacts of the realization of the landfill (for all stages thereof: construction, exploitation and aftercare) on the environment must be described. Consideration must also be given to the risks and the impacts of possible calamities and the emergency measures for these calamities. Impacts must be described for the same aspects as those mentioned in chapter 5 (current situation of the environment). In addition, attention must be paid to the aspect of residential and natural environment and safety. Special attention must be paid to pollution risks in the long term in connection with the expected (finite) life span of the arrangements made. This impact must be profoundly described, also in relation to the final destination of the landfill.

The impacts must be quantified as much as possible.

If important differences between the alternatives/variants are expected, the impact per separate alternative/variant must be described.

A description of the (positive and negative) environmental impact of the proposed activity and the alternatives must eventually result in a comparison between the alternatives. In describing of the impacts on the environment one must take into account that these might be temporary or permanent, or only gradually become perceivable in the long term.
It must therefore be indicated in what term the described impacts are to be expected and how long the impact will be perceivable. It must also be indicated whether accumulation and possibly synergism may occur, at which also other sources in the area of study can be involved.

The EIS must indicate which prediction methods have been used to determine environmental impact, which input data[5]] have been used and which reliability the data and methods have. In case of uncertainty about the impact whether or not occurring, in addition to the most probable development also the worst conceivable situation must be described.
In the next sections the various aspects will be further addressed.

6.2 Abiotic aspects

6.2.1 Soil, ground and surface water

The EIS must in any case pay attention to the following aspects of the construction and presence of the landfill:

- the impacts, qualitatively and quantitatively, on the composition of soil, ground and surface water as well as the rehabilitation and control possibilities in case of calamities and rehabilitation of the entire landfill (conversion of the old parts of the landfill in conformity with the legal requirements);
- the impacts with regard to stability, soil subsidence, permeability and retention capacity of the subsoil;
- changes in the water management and geohydrological situation;
- the impacts of the occurrence of subsidence in the landfill and the subsoil on the functioning of the arrangements made;
- the impacts on the groundwater extraction (public, industrial and private, among which agriculture);
- the impacts of the efficient functioning of the water treatment facility and on the receiving surface water;
- rehabilitation measures to limit the presence of polluted materials in the waste water;
- the effectiveness of control facilities.

6.2.2 Air

The following aspects must be described:

- quantity and composition of the methane gas that be formed in the course of the years, as well as the quantities that may escape under normal circumstances and in case of calamities;
- occurrence of emissions among which scent, soil dust, asbestos dust and ammoniac during waste transport, landfilling and compacting and at the storage and transshipment of GFG waste. Magnitude and spreading of the emissions must be indicated.

Stench in the surroundings must be mapped with the help of a model and verified against the relevant computable marginal values.

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5 Including schematizations and other peripheral conditions for the model.

It must be clearly indicated which objects in the surroundings are in particular sensitive to air pollution (residential buildings, nature reserves, recreation areas etcetera).

6.2.3 Noise and vibrations

The EIS must include:
- an indication of the emission relevant continuous and incidental noise sources;
- a quantitative description of the noise of the landfill and the traffic from and to the landfill for sounds ensitive destinations in the area of study;
- accumulation of noise impacts of all activities and the background level, taking into account the expected development thereof.

6.3 Biotic aspects

The EIS must indicate what the impact is for flora, fauna and ecosystems as a result of:
- biotope loss through the construction of the landfill;
- pollution of soil, ground and surface water;
- air pollution (for instance through change of dust concentrations);
- change of groundwater levels/groundwater flows;
- disturbance of quietness in the area;
- change of design of the area;
- disturbance off of mutual relations between biotopes of animal species (resting, breeding and forage area).

In addition, the measures directed at nature development after finishing of the landfill must be listed.

6.4 Landscape and cultural heritage

The EIS must discuss:
- The loss of geomorphological values and cultural-historical patterns and elements (including archaeological elements);
- design and finishing after termination of the use as landfill.

6.5 Residential and social environment and external safety

The EIS must address:
- nuisance and risk through transport along supply and removal routes;
- nuisance for the public health and surrounding industries (in particular recreation businesses) through attraction of birds (and other animals) and litter;
- health risks as a result of the presence of a landfill whether or not finished.

7. COMPARISON OF ALTERNATIVES

Environmental Protection Act, section 7.10, subsection 1, sub f:
An EIS shall contain at least: *"a comparison of the expected developments in the environment, as described under d, with the described effects of the proposed activity on the environment and with the described effects on the environment of each of the alternatives considered".*

The EIS must make a comparison between the impacts of the developed alternatives. A comparison with the current situation of the environment (including autonomous development) must also be made. On the basis of the comparison the eventual preferred alternative can be determined.
The comparison must (also) be based on the existing standards and target values of the environmental policy. A sensitivity analysis must be executed with respect to the review criteria used.

8. GAPS IN KNOWLEDGE

Environmental Protection Act, section 7.10, subsection 1, sub g:
An EIS shall contain at least: *"a review of the omissions in the description referred to under d and e, due to lack of the necessary information".*

It must be indicated in the EIS which of the required information cannot be provided and why. Also the significance of these gaps for the decision-making process must be indicated.

9. POST PROJECT EVALUATION

Environmental Protection Act, section 7.39:
"The competent authority that has taken a decision, in the preparation of which an environmental impact statement was drawn up, shall investigate the effects of the activity concerned on the environment, either during or after its completion".

The competent authority should draw up an evaluation programme in order to be able to compare the predicted impacts with the actually occurring impacts. Primarily it should be examined whether the actual environmental impacts are more positive/more serious or less positive/less serious than the predicted environmental impacts and whether further measures must be taken.
Secondly, it must be investigated whether the gaps in knowledge and information mentioned in the EIS can meanwhile be filled in.

10. EIS STYLE AND PRESENTATION

Environmental Protection Act, section 7.10, subsection 1, sub h:
An EIS shall contain at least: *"a summary providing sufficient information for the general public to be able to evaluate the environmental impact statement and the effects on the environment of the proposed activity and of the alternatives described therein".*

The EIS must contain a summary that is separately readable. It must be comprehensible for the public at large and be a correct reflection of the contents of the EIS. Special attention must be paid to the presentation (in a map) of the initiative and the major alternatives, and to the comparison of the alternatives.

Furthermore it is recommended:

- to keep the EIS concise;
- to give the maps a well readable topographical basis and to provide them with clear legends and topographical names;
- to clearly justify the choices relevant in the writing of the EIS;
- to account for possible deviations from the guidelines;
- to record background data (as the baseline for conclusions, predictions and choices) not in the EIS itself, but in appendices;
- to include in the EIS an explanatory list of terms, a list of abbreviations used and a literature list.

ANNEX

Outline of the EIA procedure on landfill 'Braambergen' at Almere

Outline of the EIA procedure on landfill 'Braambergen' at Almere

Introduction

In 1982 a para-statal organisation was granted a licence to establish and exploit a site near Almere in Flevoland for disposal of household and industrial waste. The waste disposal site consists of a series of waste-heaps. No special provisions were required for sealing off the underlying soil layers. A top sealing with non-polluted material should, however, be placed within a month after reaching the intended fill level. As formulation of a request for a new licence was delayed and as the licence was due to expire, the licensing of a temporary facility was decided. This facility did require, amongst other preventive measures, a bottom sealing of the disposal site. A request for a regular licence to extend the disposal site to a capacity of about 2 million cubic metres has been submitted. In relation to this request an EIA procedure has been started in October 1993 with the publication of the notification of intent.

In 1993 new legislation with regard to waste disposal facilities came into effect. High level environmental standards were imposed to protect soils and ground-water under and around landfills.
Environmental standards and requirements relate to:

- suitability of the location of the landfill (soil stability, presence of impermeable soil layers, presence of drinking water extraction areas)
- technical design (bottom sealing, percolation water treatment)
- after-care (inspection, institutional and financial responsibility after the completion of the landfilling).

Although the regulations with regard to the physical design of the disposal site are rather strict (only with application of the best technical means the requirements can be met) there is some margin left for creativity in the design. This creativity is expressed the multitude of ways in which alternatives for design items can be formulated. With regard to alternative formulation, the advice for guidelines gives clear indications.

Advice for guidelines

The licence is requested for the waste disposal site as a whole. This implicates that the EIA procedure will have to cover the landfilling activities of the past as well as future landfilling. For the existing part of the disposal site, this opens up the possibility to mitigate existing, and to prevent future pollution that has or might have occurred as a consequence of insufficient protective means formerly provided.

Alternatives
In its advice the Commission for EIA recommends to describe alternative methods for this rationalisation of the existing parts of the disposal site. These alternatives vary from complete reconstruction according to presently applicable standards to the installation of additional protective means.

For the disposal compartments to be developed in new parts of the disposal site, the Commission considers the initiative in time perspective. It distinguishes the following phases:
- design and construction
- exploitation
- finishing
- supervision after closure

Each of these phases present specific activities with specific environmental hazards that might need description in the EIS.
In the advice, the Commission asks for identification of variants for every activity which might have adverse environmental effects. Preferably variants are asked to be identified that might prevent occurrence of environmental hazards. These variants may relate to design (lay out, engineering, monitoring facilities), construction (materials), alternative means of transport etcetera. Mitigating measures are asked to be developed for environmental effects that cannot be prevented. Having identified environmental relevant variants, the essential step concerns the combination of variants into consistent implementation alternatives.
The competent authority accepted the advice of the Commission and established the specific guidelines for the project without alterations.

EIS
The EIS has not yet been completed.

Special features
Although environmental regulations and standards in the Netherlands impose strict requirements on the design, lay out and completion of the disposal site the EIA can still contribute to the consideration of the environmental interest in matters of important details.