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**Joint Assistance to Support Projects in
European Regions**

Sectoral EIA Guidelines

**Wastewater Treatment
Plants and Wastewater
Collection Systems**

ROMANIA





Name of Guideline:

**Sectoral EIA Guidelines for Wastewater Treatment Plants
and Wastewater Collection Systems**



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Preface

This Guidance document is primarily aimed at the EIA practitioners in the Romanian environmental authorities and at consultants. It is also envisaged to be of interest for the other authorities that must be consulted with in accordance with legal provisions, for Non-Governmental Organizations as well as the public and should facilitate their enhanced participation in the EIA process. The contained recommendations will be of practical benefit to those involved in the EIA process for wastewater treatment plant and wastewater collection system projects.

Note: This Guidance document does not attempt to reproduce the work of the statutory EIA Guidance documents that already exist in Romania and so should be read in conjunction with them.



1 BACKGROUND

1.1 INTRODUCTION

The overall objective of this Guidance document is to improve the content of the environmental reports carried out for projects in the water sector (in particular wastewater projects) prepared for EU funding and in this respect to ensure that those responsible for carrying out the assessment and preparing the EIA Report are fully aware of the key issues for the sector and address these issues adequately

1.2 LEGISLATIVE CONTEXT

This Guidance document is prepared for the following type of projects as comprised in Annex I and Annex II of the EIA Directive:

- Waste water treatment plants with a capacity exceeding 150000 population equivalent: Annex I 13
- Waste water treatment plants (projects not included in Annex I): Annex II 11 (c)
- Wastewater collection system (construction of sewerage) – as suggested in the document “*Interpretation of definitions of certain project categories of annex I and II of the EIA Directive*”, prepared by the Environment Directorate-General of the European Commission, projects which may be included in Annex II 10(b) Urban development projects

This Guidance document is applicable also for rehabilitation or extension of the above mentioned projects, which may be included in Annex II, 13 of EIA Directive.

1.3 MAIN PRINCIPLES

The governing principles in preparation of this Guidance document can be found in its specific purposes:

- to support the relevant environmental authorities when preparing the guideline regarding the information to be included in the report, so-called scoping report (in Romanian so-called “indrumar”);
- to support the final beneficiaries/project developers to draft the terms of reference for the external support (EIA Consultants in Romanian so-called “evaluatori de mediu”).

This guidance document comprises concise but tailored standardized recommendations regarding the content of the environment reports and should be read in conjunction with National Romanian Guidelines and methodology for EIA;

The overall purpose of this guideline document is to ensure that those responsible for actually carrying out the assessment and preparing the Report are fully aware of key issues for wastewater sector and that all specific issues are addressed adequately. Furthermore, after compilation and the formal submission of the report, the guidance document should also be used by the relevant environmental authorities to review the quality of the information, in particular to ensure that none of the key issues have been overlooked.

The structure of the Guidance document follows, to a large extent, the requirements provided in Annex IV of the EIA Directive with respect to the information referred to in article 5 (1), i.e. the information which the developer has to supply to the competent authority or authorities for projects subjected to an environmental impact assessment.

This guidance document is not exhaustive. Thus, some issues common to all type of projects may not be mentioned or addressed.

The guideline addresses all three type of projects mentioned in section 1.2 in a unique document commenting on those issues which are specific to one or another type.



2 DESCRIPTION OF PROJECT

The purpose of this section is to highlight the main issues to be addressed for each of the sub-sections below when describing a project prepared for a wastewater treatment plant & wastewater collection system and for the modernisation and/or extension of this type of project

- **Sub-Section 2.1:** a description of the physical characteristics of the whole project and the land-use requirements during the construction and operational phases,
- **Sub-Section 2.2:** a description of the main characteristics of the production processes (e.g. wastewater collection, wastewater treatment), for instance, nature and quantity of the materials used, and an estimate, by type and quantity, of expected residues and emissions (water, air and soil pollution, noise, vibration, light, heat, radiation, etc.) resulting from the operation of the proposed project.
- **Sub-Section 2.3:** an outline of the main alternatives studied by the developer and an indication of the main reasons for this choice, taking into account the environmental effects.

Note: *The first two sub-sections will cover only the selected alternative.*

2.1 PHYSICAL CHARACTERISTICS OF THE PROJECT & LAND USE REQUIREMENTS

2.1.1 Description of Site Layout

- A general description of project location
- Description of agglomerations and, localities within agglomeration; administrative area covered; agglomerations' borders
- Locations of the works envisaged by the project: wastewater treatment plant (WWTP), wastewater pumping station (WWPS), storm overflow basins, main collectors, networks;
- Locations of the work sites related with the works envisaged by the project; if the locations have not been established yet, the EIA Report will contain proposals for the work sites. The proposals will be done considering the size and the type of works envisaged by the project
- Land use in proposed area of the works envisaged by the project: wastewater treatment plant (WWTP), wastewater pumping stations (WWPS), storm overflow basins, networks; land area for proposed works; size of works area required for the main components of the project;
- Land use in proposed area of the work sites; the extend of work sites
- Vicinities of the works and work sites locations: land use (agricultural, residential, commercial, recreation, industrial areas, tourist areas, institutions; distances of project location(s) to these areas
- Design limitations imposed by site characteristics (including adjacent land use)

Detailed map containing administrative borders of localities, agglomerations' borders and main project works locations must be provided.

2.1.2 Description of Design including Size or Scale

The basic data for the project design must be the requirements of Directive 91/271/EEC transposed into Romanian legislation by GD 188/2002 and GD 352/2005, compliance with Accession Treaty deadlines/transition periods (related to wastewater collection and wastewater treatment) and the



provisions related to quality targets for groundwater and surface water bodies set by River Basin Management Plan (consultation with water management authorities it is recommended)

For each project component (new WWTP and collecting system, extension/rehabilitation of existing WWTP and collecting system) the following information will be provided in the EIA Report:

Agglomeration design:

- Settlement areas covered by agglomeration and afferent inhabitants
- The load of agglomeration expressed in P.E. (according the provisions of GD 188/2002, modified by GD 352/2005) considering decrease/increase load in the future; anticipation of future loads will take into consideration the development of the areas from the urban development point of view and the possible changes of industrial discharges (reduction or increase of flows and specific pollutants)

Where two or more individual agglomerations can be jointed together in such way as the wastewater collected to be treated in a single WWTP, the data will provided for each agglomeration and for the group of agglomerations

Wastewater collecting system:

- Specification related to wastewater network: separate or combined
- Type of works proposed on wastewater network: new network, existing network rehabilitation or extension, conversion of a unitary system into separate or combined in a certain area, collectors (gravitational or vacuum), WWPS, storm overflow basins.
- It should be noted that the unitary wastewater/storm water networks or combined wastewater network implies that storm overflows will need to be used in order to redirect surplus water directly to the rivers during periods of high flow (i.e. heavy rainfall or snowmelt). The treatment facilities will, however, be designed in order to ensure that the effluent quality conforms to value limits
- Technical characteristics of the works:
 - main collectors, secondary wastewater network, storm water network: routes and area served, length, diameters, type of material; flows
 - storm overflow structures: location, size (*LENGTH*, height, depth)
 - WWPS: location, pumps technical characteristics : P (kW), Q (m³/h), H (m)
- Connection rate to wastewater collecting system
- Type of works for envisaged for wastewater network construction (e.g. open trenches, horizontal drilling) or for wastewater network construction rehabilitation or extension (e.g. open trenches, relining, punctual rehabilitation)

WWTP:

- Designed capacity (P.E)
- Flows: dry weather/ rain flow
- Wastewater balance for the proposed WWTP: domestic, industrial and non domestic and run-off (m³/day, m³/year)
- Main quality parameters for urban wastewater received into the WWTP (BOD, COD, SSM, pH, N, P,TDS)
- Urban wastewater treatment process:
 - Pre-treatment: screening, grit removal
 - Primary treatment: sludge settling and grease removal
 - Secondary treatment: wastewater biological treatment and secondary sedimentation
 - Tertiary treatment: nitrogen and phosphorus removal and additionally, if it is required by local conditions, disinfection
- Technology for WWTP – installations, equipment and its main characteristics: no. of units, capacity per unit, total capacity



- Wastewater treatment performance, including treatment performance for each wastewater treatment stage (pre-treatment, primary, secondary and if the case, tertiary treatment)
- Septic tank; the design of the wastewater treatment will consider, according anticipated loading, the way of integrate septic into the treatment process
- Treated wastewater outlet pipe/channel : material, route, size, treated wastewater receiver; additional works needed for outlet pipe placement, especially on river bed/river bank
- Flow diagram for wastewater treatment

Sludge treatment:

- Works/equipment for sludge treatment
- Treatment process: thickening, anaerobic stabilisation (digestion), dewatering, filters, centrifugation
- Sludge quantity resulted form wastewater treatment; humidity (Dry matter)
- Storage facilities for sludge; on the assumption of agriculture disposal, the storage capacity must ensure the storage for the periods when land spreading is not indicate
- Flow diagram for sludge treatment

Road construction and outdoor installations (e.g. biogas heating plant)

Decommissioning and demolition works (e.g. existing WWTP, WWPS):

- Overview of structures and facilities to be decommissioned/demolished at the WWTP: structures that will be demolished (e.g. the wastewater treatment plant) or the equipment, installations to be decommissioned
- Overview of parts of the existing wastewater network to be decommissioned/demolished: sewer pipes, WWPS
- Land area covered by each of the permanent project components and land area temporarily required for construction (including maps)
- For extension and rehabilitation of wastewater systems, project description will draw attention to the integration of existing installations in future systems

Land use overview before and after project implementation

Drawings, plans, containing project design features must be provided. For wastewater treatment facilities and wastewater treatment plant recommended scales for maps and drawings are between 1: 10.000 and 1:2.000 while the drawings for cross and longitudinal sections, for the main works, the recommended scales are between 1:500 and 1:100

2.1.3 Description of Existing Development

- *Existing wastewater infrastructure in project area:*
 - Brief description of existing collecting system
 - Agglomeration/s, boundaries of the agglomeration/s
 - The load of agglomeration/s expressed in P.E.
 - Mains collectors
 - Pumping stations
 - Data related to current wastewater collecting system: combined system/separate system including storm overflow structures, network, WWPS (length, materials, diameters, capacities, location etc.)
 - Data related to existing WWTP: inlet pumping station, pre-treatment, primary sedimentation, biological treatment, secondary clarifier, sludge treatment, other components (e.g. treated wastewater outlet pipeline); evaluation of treatment performance
 - Physical condition of infrastructure, including references to civil structures



- *Main deficiencies identified in wastewater system:*
 - Limited supply area – percent of covered population
 - Inadequate design of sewer lines
 - Wastewater loss: networks, main collectors
 - Reduced efficiency of wastewater treatment plant
 - High energy consumption
 - Inadequate management of the waste resulted from WWTP and collecting system operation, particularly the sludge resulted from WWTP operation

A map containing the above mentioned main characteristics of existing wastewater infrastructure must be provided.

- *Ongoing projects (e.g. water distribution networks, wastewater network rehabilitation, road construction, gas works etc)*
 - Brief project description
 - Commissioning date of ongoing project/s

2.2 THE EXISTENCE OF THE PROJECT – MAIN PROCESSES

2.2.1 Description of Construction

- Investigations preliminary to the construction phase (e.g. soil tests)
- Works involved by site preparation will refer to any of the following, as applicable:
 - Clearing the existent land of vegetation; in the case, there are vegetation areas included in any designated or proposed Natura 2000 sites, this will be mentioned separately; loss of certain native species or genetic diversity, if any, should also be mentioned
 - Topsoil removal, excavation works, transport and disposal of surplus excavated material;
- If any decommissioning or demolition activities are needed for project implementation: decommissioning/demolition methods, main equipment, installations, civil structures, concrete sewer pipes, asbestos pipes etc. proposed for decommissioning/demolition
- The anticipatable characteristics of the works in terms of workforce and sites
- Accommodation facilities for the work sites: water supply (domestic and technological if any) , discharge of wastewater and installations for treatment and/ or removal of liquid effluents, where appropriate, electric supply)
- Parking and storage facilities for building materials
- Sequence of activities, taking into account the type of works in project area and different type of construction activities – this is of particular relevance to construction of collection systems
- The approximate duration of the construction period; if staged, the order of each stage and its approximate duration – this is of particular relevance to construction of collection systems
- Equipment, and construction procedures to be used to construct the major features of the project
- Materials used on construction stage of the project (including those that may be harmful for the health of the population or the environment): type, quantity, storage locations, storage and handling and conditions

2.2.2 Description of main Residues and Emissions from Construction

Actual residues and emissions (including their estimated volumes/ quantities) expected to be generated due to the development of the project with respect to: works, actions, equipment, materials, climatic/ seasonal meteorological conditions, construction methods and mitigation measures envisaged to be taken or applied. Reporter should avoid mentioning the residues and emissions in general terms, i.e. those *potential* to be generated during works construction.



The following types of waste can be generated during construction: material resulted from excavation/dredging not being used for backfilling, humus layer, contaminated soils or other materials, domestic waste, hazardous waste, waste resulted from construction or demolition, equipment resulting from dismantling/decommissioning, pipes. Where on the proposed WWTP's location there is sludge from previous WWTP operation, its quantity will be also estimated. For all the types of wastes resulted on this stage detailed information will be provided:

- An inventory of the types and quantities of waste to be produced, including their hazard class;
- An assessment of any opportunities for reducing solid waste generation, in particular of hazardous (persistent and non-reusable) types of wastes;
- For each type of waste, the most appropriate waste management approach will be identified. This would generally include details on (temporary) storage, transport and final destination of the waste. With regards to the latter, the most appropriate way would be reuse, followed by recycling/recovery and finally disposal and/or incineration

2.2.3 Description of Operation of the Project

The description of operation of the project will be done for each components covered by the project

- Main specific actions on WWTP and wastewater network operation
 - technological operations required for the WWTP operation
 - technological operations required for the sludge facilities operation
 - quality control - the efficiency of wastewater and sludge treatment processes
 - maintenance operations on WWTP
 - maintenance operations on sewage network (pipelines, WWPS, storm overflow basins)
 - transport, storage and handling of sludge, grit, screenings, grease and other wastes resulted from WWTP operation
- Materials used: type and quantity of materials, storage and handling locations and conditions (including hazardous substances)

Drawings and flow diagrams of the WWTP and sludge treatment installations must be provided.

2.2.4 Description of main Residues and Emissions from Operations

- WWTP effluent : flows, (annual) volumes, pollutants' concentrations, pollutants' loads
- Methane and carbon dioxide emissions resulted from sludge digestion
- Wastes resulted from WWTP and wastewater network operation: grit, grease and sludge resulted from the different stages of wastewater treatment, sludge and sediment collected from the wastewater network and other facilities, as part of the cleaning process, sludge generated by septic tanks (from individual treatment); for each type of sludge the main characteristics will be provided: daily and annually production, humidity.
- If any other waste is anticipated, its quantity will be estimated and appropriate storage and final destination will be indicated
- Final destination of sludge and other wastes resulted from WWTP operation: land spreading agriculture/forestry reuse, composting, landfilling, incineration
- Pest and odour
- Noise and vibration

2.2.5 Description of Changes to the Project

- Future incorporation of other localities to agglomeration or wastewater network extension (increased wastewater flows) where the WWTP extension (upgrading) will be needed
- Additional treated sludge storage facilities if proposed elimination methods will be ineffective



- Ageing of civil works

2.3 MAIN ALTERNATIVES STUDIED

The presentation and consideration of the various alternatives investigated by the applicant is an important requirement of the EIA process.

Annex IV paragraph (2) of the EIA Directive specifically asks that the information supplied by the developer according to the Article 5(1) of that Directive (i.e. the EIA Report) should comprise “*an outline of the main alternatives studied by the developer and an indication of the main reasons for this choice, taking into account the environmental effects.*”

Thus, an outline of the main alternatives examined throughout the design and consultation process need to be described. This serves to indicate the main reasons for choosing a particular WWTP location, piping network etc., taking into consideration the environmental effects. For the purposes of these guidelines therefore, alternatives may be described at three levels:

- Alternative locations, routing of piping etc.
- Alternative designs
- Alternative processes

However, as part of the EIA process with regards WWTPs and wastewater collection systems, it is recommended that an assessment, as required under Article 6 of the Habitats Directive 92/43/EEC (refer to box 1 below), is carried out when analyzing main alternatives as required by the EIA Directive.

2.3.1 Description of alternative locations (including summary of assessment as required by Article 6 of the Habitats Directive – 92/43/EEC)

It is recommended that alternative locations are examined in early stages of planning, recognizing that the avoidance of impacts through the early consideration of alternatives may be the most important and effective mitigation strategy.

This should include a description of the main alternatives considered, the criteria used for comparing and choosing between alternatives and the main reason for the choice of the preferred location.

Usually the alternative locations for some works (e.g. WWTP) are analyzed on Strategic Environmental Assessment carried out for Urban Planning (Zonal Urban Planning, Locality/Municipality General Urban Planning) - reference to this aspect should be made.

The EIA Report will describe the alternative locations for all main components of the project and will refer to:

- Pipeline routes
- Main collectors routes
- WWTP location (existing location for WWTP or others)
- Locations for WWPS, storm overflow basins
- Treated wastewater discharge point into receiving river (including treated wastewater outlet pipeline route)

A map containing the alternative locations for project components must be provided.

Projects which these guidelines address may impact upon protected areas as outlined in Articles 3 and 4 of the Habitats Directive – Natura 2000 sites. For this reason it is recommended that when describing alternative locations in the EIA report that such alternatives include all findings and recommendations provided under the assessment required by Article 6 of the Habitats Directive.



In choosing the final location, a range of criteria may impact upon the final decision including physical constraints - proximity to rivers, proximity to towns, site topography etc. Furthermore, engineering and economic criteria may also influence the decision, both of which must be clearly highlighted.

However, it is also clear from the above that any assessment carried out as a requirement under Article 6 of the Habitats Directive may also provide a number of constraints when determining the most suitable location, criteria that may not necessarily arise as part of an assessment of potential physical, engineering and economic constraints.

Thus, when presenting the findings of the alternative location assessment, it is recommended that the results of the assessment as required under Article 5 (1) of the EIA Directive i.e. *an outline of the main alternatives studied by the developer and an indication of the main reasons for this choice* (including physical, environmental, and financial constraints) are presented in conjunction with the conclusions of the assessment that is required under article 6 of the Habitats Directive, the details of this assessment which is outlined in Box 1 below. The reasoning and rationale of the conclusions both from the analysis under Article 5 (1) of the EIA Directive and those conclusions as a result of the assessment as required under Article 6 of the Habitats Directive should be presented in a clear concise and above all, an integrated fashion.

Box 1 Addressing the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC

In order to assist Member States in interpreting the requirements of Article 6 of the Habitats Directive and to provide guidance in carrying out the assessment required by Article 6 of the Habitats Directive, the document entitled **“Assessment of plans and projects significantly affecting Natura 2000 Sites – Methodological guidance on the provisions of Article 6 (3) and (4) of the Habitats Directive 92/43/EEC”** has been published by the European Commission (DG Environment). The document proposes the assessment as a four stage process:

1. **Stage One: Screening** — the process which identifies the likely impacts upon a Natura 2000 site of a project or plan, either alone or in combination with other projects or plans, and considers whether these impacts are likely to be significant;
2. **Stage Two: Appropriate assessment** — the consideration of the impact on the integrity of the Natura 2000 site of the project or plan, either alone or in combination with other projects or plans, with respect to the site’s structure and function and its conservation objectives. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts;
3. **Stage Three: Assessment of alternative solutions** — the process which examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the Natura 2000 site;
4. **Stage Four: Assessment where no alternative solutions exist and where adverse impacts remain** — an assessment of compensatory measures where, in the light of an assessment of imperative reasons of overriding public interest (IROPI), it is deemed that the project or plan should proceed (it is important to note that this guidance does not deal with the assessment of imperative reasons of overriding public interest).

Each stage determines whether a further stage in the process is required. If, for example, the conclusions of stage 1 are that there will be no significant impacts on Natura sites, there is no requirement to proceed further.

However, if, based on the screening decision, appropriate assessment is required (stage 2), the results of the appropriate assessment results may illustrate the necessity to carry out the Assessment of alternative solutions (stage three). In this stage, the alternative solutions are tested against their implication for the Natura 2000 site and, as stated in the Methodological guidance, “the conservation objectives and status of the Natura 2000 site will outweigh any consideration of costs, delays or other aspects of an alternative solution” i.e. “other assessment criteria, such as economic criteria, cannot be seen as overruling ecological criteria”.



2.3.2 Description of Alternative Design and Alternative Processes

Alternatives will take into account the environmental aspects (minimisation of environmental impacts due to emissions, noise, odour and wastes), existing water supply and wastewater collection infrastructure, design flexibility for future extension, investment and operation costs.

The following provides relevant examples of alternative design and processes:

WWTP

- Rehabilitation of existing WWTP, sludge treatment facilities (civil structures, equipment) versus new one
- Single WWTP for all agglomerations versus WWTPs for each agglomeration
- Construction of WWTP versus use of compact WWTP
- Technological processes :
 - Wastewater treatment (depending on WWTP capacity): as for primary treatment usually sedimentation is common, for secondary and tertiary treatment there can be more alternatives; activated sludge, fixed film systems (bio-filters, rotating biological contactor, and biological aerated filters used for secondary treatment and nitrification/denitrification and phosphorus chemical removal for tertiary treatment. If local conditions impose restrictions (e.g. water use downstream of the WWTP) tertiary treatment should be completed with disinfection(chlorine, ozone, UV)
 - Sludge treatment: drying, digestion (aerobic or anaerobic), filtering, centrifugation
- Sludge treatment in each WWTPs` location versus only in a central facility

Wastewater collecting system

- Rehabilitation of existing pipes versus new pipes
- Combined sewer network versus separated sewer network; for combined wastewater network – depending on locations of storm overflow basins, corresponding technical characteristics
- Rehabilitation of the existing WWPS (civil structures, equipment) versus new one
- Deep sewer trenches and low number of pumping stations versus shallow sewer trenches and high number of pumping stations
- Pressure mains collectors versus gravity main collectors

2.3.3 Alternative selection

A summary of the analysis used to compare the different options/ alternatives technically identified in order to select the best one should be presented in a dedicated sub-section. It should provide the reviewers with the main elements necessary to follow the selection process. Reference should be made to the detailed analysis (performed within the process of carrying out the Feasibility study) as comprised in a separate document (attached to the EIA Report or otherwise made available to any interested party).

The study of alternatives must include also *“Do nothing” option*.

Generally, several technical options – considering different locations, processes and /or design - are compared taking into account financial and economic assessments (both, for the investments and for the operation costs). In presenting the information, a matrix may be used to demonstrate how each alternative performed against each selection criteria. While this may be a simplification of the selection process, it provides a useful aid to the reader of the EIA in understanding how the chosen location & design was arrived at and the range of environmental factors considered.



3 DESCRIPTION OF EXISTING ENVIRONMENT

This section should highlight key issues as regards carrying out baseline assessment (description of the aspects of the environment likely to be significantly affected by the proposed project, including, in particular, population, fauna, flora, soil, water, air, climatic factors, material assets, including the architectural and archaeological heritage, landscape and the inter-relationship between the above factors.)

3.1 CONTEXT

- The baseline conditions will be presented considering the integration and possible interactions of the works proposed by the project in defined and structured environment.
- Both the natural and the constructed & inhabited receiving environment should be addressed.

3.2 CHARACTER

- When describing the physical environmental components: of great importance is selection and presentation of data relevant for the location of each project component, not only those general for the project area.
- An adequate evaluation and prediction of potential environmental effects of the proposed development presume the detailed consideration of the baseline conditions. The data considered should provide a sound basis for assessment, and in a further stage, for monitoring.
- The focus should be on the analysis of significance and sensitivity of the site in relation with the impact assessment not on the pure description. Some recommendations in this respect are given below:

Water & Groundwater

- Surface water (rivers, streams, dry washes that may become regular creeks during the rainy and snow melting seasons, lakes, canals) in project area and neighborhoods: distances to project location/s;
- Tributaries and confluences of receiving water body with other surface water bodies
- River's basin catchments map
- Identification of the rivers, streams etc. crossed by sewage collectors or sewage pipes (existing or proposed within the project); location description of the crossings
- Data on water quality of receiving river of treated wastewater: physical and chemical parameters, nutrients, pH etc.
- Wastewater receiver - river's flow (minimum, average, maximum), the extent and maximum levels of any recorded flooding
- For projects related to WWTP and wastewater collecting system rehabilitation/extension: actual wastewater discharged flows and key parameters of wastewater– e.g.: SSM, BOD, COD, N, P, TDSS)
- Groundwater and surface water bodies quality targets set by River Basin Management Plans, for project area
- Relevant information from strategies/plans on national or regional level (River Basin Flood Strategy, River Basin Development Plan, River Basin Management Plan)
- Bank river stability in the WWTP outlet pipeline section
- The nature and location of the aquifers in the project area; water movement direction on groundwater
- Data on groundwater quality; aquifer vulnerability
- Drainage in project area; includes the location and capacity, canals, drains and rivers; identification of areas prone to flash floods



- Water use of the receiving water body in project area and downstream :source of drinking water, as source of industrial water supply, irrigation, fishing, recreation
- Discharge points into the receiver water body of other water polluters or potential polluters: industrial, non-treated water, farming etc
- Sanitary restricted area in the vicinity or on proposed routes of wastewater network, WWTP, WWPS, overflow basins locations
- Dilution capacity of receiving water body
- Predictions of overflow/flooding events (frequency and volume); current overflow/flooding events (frequency and volume)

Box 2 Relevant baseline data - receiving water body

- Pollutants' concentrations in receiving water body - the data provided should be the result of recent sampling campaigns, including critical conditions (summer, minimal flow).
- The sampling positions must be located in the upstream and downstream (from the WWTP existing or proposed location)
- The main parameters for sampling and analyses will include:
 - Physical and chemical parameters: pH, Total suspended solids (TSS), Biological oxygen demand (BOD), Chemical oxygen demand (COD), Total dissolved solids (TDS)
 - Eutrophication parameters: Dissolved oxygen (DO), nutrients as Total Nitrogen (TKN)), Total phosphorus (P)
 - Harmful substances concentrations: heavy metals, PCB, PAH, pesticides
 - Pathogenic micro-organisms and viruses indicators -e.g. E.coli;
- Relevant rivers' flows: average dry flow, peak/wet weather flow
- reference to River Basin Management Plan's provisions related to:
 - the quality objectives, in terms of concentration for the various parameters (at least COB, COD, TSS, N, P)
 - targeted reduction of polluting flows, for the river basin and for the receiving water body; also
 - data regarding targeted reduction of polluting flows in the area covered by the project (concerning WWTP)

Soils and geology

- Topography, geomorphology
- Pedological features of project area
- Geotechnical features of project area;
- Soil contamination in project area, especially on WWTP location; any previous or recent investigations, comparison with land use requirements.
- Types of soil degradation in project area: surface erosion, depth erosion, landslides, soil settlement – compacting

Air quality

- Sensitive locations to air quality in project area and neighbourhoods
- Relevant climate and atmospheric conditions: precipitation, evaporation, wind directions and frequency of occurrence, temperature, seasonal variability
- Data on existing air quality in project area (data related nuisance caused by odours and recorded complaints from public regarding odours)
- In the case of WWTP or WWPS rehabilitation: if there were any complaints related to odours and if there are any records of exceeded concentrations of hydrogen sulphide an/or ammoniac (sampling and analyses -diffuse emissions sources)

Human beings

- Administrative locations and general features of project location



- Geographical location
- Current and future settlement areas (as stated in Urban Development Plan)
- Distances from main proposed works to residential, commercial recreational, area institutions and other sensitive receptors
- Disease rate related to water use in project area, risks on human health
- Sensitive locations to noise in project area and main works vicinity

Noise and vibration

- Sensitive locations to noise and vibration in project area and neighbourhoods
- Data on existing noise level in works locations

Flora and Fauna

- Flora description in project area and neighbourhoods: existing habitats or plant communities, locations of sensitive or rare species, protected sites
- Fauna description in project area and neighbourhoods: principal habitats, species, significant locations for breeding, sites for survey/trapping,
- Special requirements of fauna species in project area and neighbourhoods: territory size, habitat quality, current management, lack of disturbance
- Flora in project area and neighbourhoods: dominant species, species diversity, dependence on particular environmental factors, existing management
- Diversity, population size or density of fauna
- The importance of water as a habitat in the area
- The presence of any habitat, plant or fauna species that is internationally, nationally, regionally or locally rare, especially species that are protected
- Clearly identify the natural protected areas other than Natura 2000 sites and, separately, the already designated or proposed Natura 2000 sites

Landscape

- Characteristics and geomorphology of the relief in works locations
- The landscape on project locations and in the surrounding area;
- view of the sites from adjacent properties and public areas particularly where these are sensitive, e.g. residential, recreational or tourist areas

Material assets & Cultural Heritage (archaeological and architectural heritage)

- Cities, towns, villages and settlements
- Utilities in project area (water supplies, power systems, canals etc).
- Industry, economic objectives
- Architectural, archaeological heritage in project area or in the vicinity. If important architectural or archaeological objectives are located the vicinity of works proposed by project; distances to these objectives will be specified.

3.3 SIGNIFICANCE

The significance of the environmental components potentially affected by the project may be the same. However, if some environmental components or issues are perceived as being extremely important, these may be described separately in more detail, for example: water use of the receiving water body in project area and downstream (raw water abstraction for drinking water production, irrigation, fisheries, recreation, receiver of the wastewater from the industries etc.), is very important not only at the region level but even more at the river basin level, considering the population health and economic development.



3.4 SENSITIVITY

What changes could significantly alter the character of this aspect of the environment, e.g.:

- Would any increase in nutrients cause eutrophication?
- Would downstream water users be affected by treated wastewater discharged into receiving river ?

3.5 SUFFICIENCY OF DATA

How can a competent authority or developer be assured that the EIA contains sufficient data? The following criteria can provide useful guidance on this matter:

- Is the information necessary for identification of the main effects available?
- Is the information focused on effects which are *likely* and *significant*?

The certainty or confidence which the information provides is a good basis for evaluating the quality of data. In practice unsatisfactory information is more likely to result from omissions than from inaccuracy.

All information is ultimately used to make decisions about whether to grant or withhold consent to develop. "Sufficiency" may therefore be regarded as enough information upon which to base a decision.

Where it is the case that incomplete information is provided in the Report, it must be made clear that this information has not been withheld intentionally and that all parties are aware of the incompleteness of the information. The resulting decision will usually be qualified or conditional on the information being provided at a later stage.

Box 3 Example of a report on Flora and Fauna which is qualified due to necessity of being carried out at an unsuitable time of year

The site was examined and was deemed to be grassland of a type which is very common throughout the region. It should be noted that the examination was carried out in December when the full range of potential flora and fauna was not evident. A further study will be made, of the damp areas in particular, to determine whether any significant species are present during May – July. The detailed design may need to be altered/adjusted if anything of significance is encountered.

3.6 REGULATORY FRAMEWORK

The purpose of this section is to give an overview of the national and EU legislation that has been taken into consideration in carrying out the environmental impact assessment.

The EU Directives and the international agreements and protocols should be quoted together with the national legislative acts ensuring their transposition and implementation. Simply listing relevant legislation and regulatory acts does not suffice.

A brief description of the content should be given to provide the context as well as the reporters notes or comments on how the requirements of the relevant legislation will be addressed.

Furthermore, it is imperative that all relevant national, regional and local/municipal plans and strategies are clearly highlighted and their relevance and association to the proposed development described. As well as providing the national and regional strategic and planning context of the proposed project, it will also illustrate to the reviewer of the report, the development history of the proposed project.



4 SIGNIFICANT ENVIRONMENTAL EFFECTS; MITIGATION MEASURES

The purpose of this section is to provide recommendations for addressing in the EIA Report the aspects related to :

- the description of the likely significant effects of the proposed project on the environment resulting from:
 - the existence of the project,
 - the use of natural resources,
 - the emission of pollutants, the creation of nuisances and the elimination of waste,
- the description of the forecasting methods used to assess the effects on the environment.
- the generic mitigation measures that should be considered i.e. measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment.

It is important to note that the potential effects and mitigation measures are sector specific. The amount of detail that will be provided in the EIA report will be determined by the circumstances of each individual project.

Description of likely significant impacts

In general, the effects and their sources/ causes (works, actions, materials....) as well as the associated impacts are well known. Each sub-section below covers an environmental factor on which a road project is likely to have significant effects and presents briefly which these might be.

In the spirit of the entire document, the Reporter is recommended to not describe the general potential impacts but rather to present in the EIA Report those effects which have been identified and assessed for the proposed project and the causes for their appearance due to any specific conditions of the site, activity schedule, supply with construction materials and so on as well as due to the characteristics of the receptors previously identified. If any significant effects have been identified in relation with a certain environmental factor, it is strongly recommended to present the similar specific conditions and the mitigation measures taken from the start which make unlikely the appearance of any effects.

The requisite criteria for the presentation of the potential characteristics of potential impacts sets out potential significant effects of the proposed development will be described with regards to:

- the extent of the impact (geographical area and size of the affected population);
- the magnitude and complexity of the impact;
- the probability of the impact;
- the duration, frequency and reversibility of the impact.
- the transfrontier nature of the impact (if applicable)

The description of impacts is usually subjected to closer scrutiny than any other part of the EIA report. Clarity of method, language and meaning are vital to accurately explain the full range of impacts. The description should clearly and consistently identify four key aspects of any impact, namely its character, magnitude, duration and consequence (refer to box 4 for further details).



Box 4 Impacts: key aspects

Character and Duration of Impacts

- Identify the aspect of the environment affected; Identify the receptors which will be affected, indicating their sensitivity and significance;
- Describe whether the impact is positive, neutral or negative; Highlight significant impacts (positive and negative).
- State whether the impact will be continuous, intermittent or occasional;
- Indicate whether the impact will be temporary, short, medium or long-term; Highlight permanent impacts.
- Indicate if the impact is reversible or irreversible

Extension, Magnitude and Complexity

- Quantify the amount or intensity by which the character/quality of any aspect of the environment will change (i.e. how much pollution);
- Indicate the spatial extent of the impact (will some, much or all of the areas be affected);
- Describe the degree of change; (i.e. imperceptible, slight, noticeable or significant);
- Highlight profound (i.e. complete) changes of character.

Consequences

- Indicate whether the impact can be avoided mitigated or remedied; Highlight irreversible impacts
- State whether compensation is available, possible or acceptable;
- Highlight when the consequence cannot be determined

The description of the forecasting methods used to assess the effects on the environment.

For each environmental factor in the case of which does not exist a quality standard against which the impact to be assessed, it is recommended to mention any eventual criteria used to evaluate the impacts that may occur as a result of the proposed project – criteria for the impact significance and nature as well as criteria with respect to the confidence limits to impact predictions. For convenience reasons, these may be presented in tabular format.

Description of Mitigation measures

The central purpose of Environmental Impact Assessment is to identify potentially significant adverse impacts, as outlined above, and to propose measures to mitigate such impacts. There are three established strategies for impact mitigation – avoidance, reduction & remedy. For example:

- Rehabilitation works for river bed or river banks: position, length, type, etc
- Land erosion protective measures: position, length, type, etc.

The general mitigation measures appropriate for each effect/impact are described in each subsection below. The Reporter should select and describe those actually envisaged for the proposed project, as concisely and accurately as possible.



4.1 WATER AND GROUNDWATER

4.1.1 Possible Effects and Impacts

Construction

- Increase pollution on receiving river because by discharging of not treated wastewater or partial treated wastewater
- Change at local level of the hydrodynamic drainage due to underground civil structures or pipes construction operations
- Clearance of sites from vegetation, as well as the execution of excavation works using heavy equipment or inappropriate construction practices and soil protection measures may accelerate erosion, leading to soil instability and landslides in sloped areas, resulting in possible water pollution due to run-off to surface waters (causing increased turbidity)
- River flow sections reduction or obstruction of flow section through soil wash and rocks displacing into the river or brook bed
- Degradation of river banks stability due placement or operation of construction equipment in the vicinity river banks.
- River contamination by uncontrolled surface run-off (accidental spills of wastewater, fuel and lubricants etc)
- Groundwater contamination due to soil infiltration of accidental spills of wastewater, fuel and lubricants etc., improper disposal of construction waste

Operation

- Qualitative and quantitative anticipated changes (positive or negative) on receiving surface water body induced by the treated wastewater discharged by WWTP and, in the case of combined wastewater network, by overflows. The aspects that must be taken into account are related to:
 - additional polluting load
 - additional hydraulic load
 - pollutants` concentration in treated wastewater
 - targeted reduction of polluting loads (kg/day, tonnes/year) and concentrations (mg/l) of water quality parameters (in connection with wastewater treatment requirements), as stated in River Basin Management Plan

In accordance with project's scope, the impact assessment will consider the changes on connection rate and on wastewater treatment process. Also, the impact predictions will considerate the average and the dry weather flow of receiving water body

The above-mentioned changes can induce also modifications on downstream water use.

For impact assessment will be compared the concentrations of pollutants of the wastewater treatment plant effluent and of the receiver water body, under existing and future conditions; comparisons will take into account the limit values set up in River Basin Management Plan.

- Potential contamination with hazardous substances due to drainage water and wastewater (including storm water) from industrial sites
- Surface and groundwater contamination due to sewerage seepage in the case of wastewater collecting system damage;
- Failures of the wastewater collecting system, including ruptures and leakages but also blockages leading to flooding, which may lead to groundwater and surface water pollution
- Receiver water body pollution if significant damage occur on the WWTP and the wastewater is discharged not treated
- Groundwater contamination in the case of sludge drying beds damage (infiltration on groundwater)



4.1.2 Potential Mitigation Measures

Construction

- Excavation works will not be executed under aggressive weather conditions (rains, strong winds).
- Maintaining at least partial operation of existing WWTP in the cases of construction of a new WWTP on the same location with existing WWTP or rehabilitation of existing WWTP
- Use of low quality water for sprinkling for dust prevention on working sites

Operation

- Control and reducing measures for industrial discharge into wastewater collecting system implemented by WWTP and collecting system operator; the framework of these activities will be included in an action plan that will establish the measures for limiting the potential impact of industrial wastewater discharge on WWTP treatment process. The main measures that should be included in the action plan will refer to:
 - A full inventory of industrial effluents as well as drainage systems (quantitative and qualitative); the inventory should be accompanied, where suspiciousness of potential pollution is identified as well as where polluting episodes were recorded, by a sampling and analysis campaign

Where the before-mentioned effluent inventory indicates a risk that the value limits of wastewater parameters might not (or might not at all times) be met, special conditions should be applied by the WWTP operator to the industrial companies (as stated by GD 188/2002)

- Inspection and control programme implementation by the WWTP operator to industrial companies (e.g. pre-treatment facilities, the need of upgrading pre-treatment facilities, wastewater flows metering, self monitoring)
- Emergency plan for accidental pollution events on industrial companies locations
- Regular inspections of the sewage collecting system in order to timely detect any failures, and take appropriate remedial action.
- Implementation of an operational monitoring programme for WWTP (see Section 4.12. Monitoring) and procedures for WWTP operation
- Implementation of a monitoring programme for groundwater (water table) in WWTP's area for timely identification of qualitative changes that can be induced by any leaks on WWTP location; generally it is recommended to have at least 2 monitoring wells, placed up and downstream WWTP location, considering water movement direction on groundwater
- Emergency plan for accidental pollution events and damages on wastewater system

4.2 SOILS & GEOLOGY

4.2.1 Possible Effects and Impacts

Construction

- Soil degradation due to stripping and removal of humus layer
- Temporary land use change
- Temporary increase in soil erosion, on the locations of excavation works on the pipelines routes and on WWTP, WWPS, storm overflow basins locations etc., leading to soil instability and landslides in sloppy areas
- Erosion due to removal of vegetation, earth works and the use of heavy machinery during construction activities in or close to the river bed
- Soil pollution by accidental spillage of fuels, lubricants and chemicals (e.g. detergents and paints), by spreading of cement milk and suspensions from the platforms of concrete preparation or from the locations where concrete is used



- Soil contamination by infiltration of leachate from uncontrolled deposits of wastes and construction materials
- Spills from the existing sewage during rehabilitation works

Operation

- Permanent change of land use
- Erosion phenomena, soil instability and landslides in hilly areas, due to run-off to surface waters; the effects may be accentuate on period until revegetation has occurred
- Leakages and infiltrations of the leachate from the temporary storage location of the sludge resulted from wastewater treatment
- Degradation of agricultural soil features due to land spreading of the sludge resulted from WWTP operation which may contain high concentration of pollutants or in the case of inappropriate evaluation of soil suitability to receive sludge resulted from wastewater treatment

4.2.2 Potential Mitigation Measures

Construction

- Topsoil removal and storage in separate piles and reinstallation after refilling of trenches, to enable natural revegetation;
- Proper maintenance of transport and construction equipment
- Tanks for fuel storages leak-proofed and installed on impermeable surface; in case of incidental spills collecting recipients, absorbent material and fire fighting equipment shall be provided
- Procedures for storage and handling of waste, hazardous wastes and raw material (e.g. batteries, chemicals, fuel)
- Parking area arrangements for equipment and vehicles involved in construction activities (e.g. impermeable surface)
- Application of appropriate erosion-protection measures such as silt screens, in particular where it concerns works on slopes and in stream beddings.
- Implementation of active revegetation programme on works sites, including in particular erosion-prone areas (e.g. hill sides and river banks)
- Temporary storage of stripped humus layer only in the special designed areas and in proper conditions, and reinstallation after refilling of trenches, to enable natural revegetation.
- Maintenance, fuelling and cleaning of vehicles and equipment done at workshops/sites with adequate leakage prevention

Operation

- Implementation of inspection and control programme for the works from wastewater system with the aim of rapid and efficient remediation interventions
- Implementing of procedures for storage and handling hazardous substances, including procedures for limitation of contamination of soil
- Compliance with the construction requirements for the sludge storing location, especially related to water impermeable basis
- Control sludge quality through specific analyses
- Pedological and agrochemical studies for the land areas where treated sludge resulted from wastewater treatment will be deposited or on which will be spread



4.3 AIR QUALITY

4.3.1 Possible Effects and Impacts

Construction

- Atmospheric pollution due to:
 - Dust possibly contaminated with other air pollutants resulting from earthworks, load and unload of raw materials, etc.
 - Emissions of air pollutants from transport and construction motor equipment; include particulate emissions from diesel engines, NO_x, volatile organic compounds, Carbon monoxide and various other hazardous air pollutants including benzene.
- Odour generated on existing WWTP due to sludge and other wastes removal and transport for final disposal

Operation

- Odour generated by WWTP and WWPSs operation
- Odour generated on transport routes of sludge and the wastes resulted from wastewater system operation
- If biogas generator and/or heating plant is envisaged, emissions of air pollutants resulted from their operation: NO_x, CO, SO_x, particulate matter
- Ammoniac (NH₃) and Hydrogen sulphide (H₂S) emissions due inappropriate maintenance operations or dysfunctions on wastewater collecting system

4.3.2 Potential Mitigation Measures

Construction

- Reduction of overall harmful gaseous emissions and dust, by:
 - Prevention of dust through sprinkling during periods of dry weather
 - Limitation of work sites and duration of works
 - Daily cleaning of access ways in the neighbourhood of work sites (removal of earth and sand) to prevent dust
 - Control and clearing of loose materials in vehicles and sites for storage of excavated material

Operation

- Planting of vegetation (trees/bushes) on borders of WWTP site
- Regular inspections and declogging operations on wastewater network, especially on gravity sewers to prevent hydrogen sulphide emissions
- Control sludge treatment process and monitoring treatment process parameters
- Covered wastewater basins or covered structures for the sludge treatment and storage
- Avoidance of crossing urban area – alternative routes for sludge transport (final destination)
- Regular inspections of the sewage collecting system in order to timely detect any failures, and take appropriate remedial action.



4.4 NOISE AND VIBRATION

4.4.1 Possible Effects and Impacts

Construction

- Construction equipment and activity will generate noise which can affect workers, population and animals living or moving in the vicinity of working points
- Vibration generated during construction from activities can:
 - cause varying degrees of cosmetic and/ or structural damages in buildings
 - affect vibration-sensitive machinery or equipment
 - cause disturbance or annoyance on people or, at higher levels, affect a person's ability to work
 - cause damages on civil works placed in immediate proximity of works

Operation

- Disturbance to neighbourhoods (residential, schools, hospitals, recreational area etc)
- Damages (because of vibration) on civil works

4.4.2 Potential Mitigation Measures

Construction

- Interdiction of construction activities at night and restrictions on limits on hours of rest in sensitive neighbourhoods (e.g. hospitals etc)
- Identification of vulnerable civil works placed in immediate proximity of construction sites and use of safety methods and equipment; if case, elimination the use of equipment that may generate dangerous vibrations

Operation

- Insulating the pump houses
- Use of low noise and vibration installations and equipment

4.5 CLIMATE

4.5.1 Possible Effects and Impacts

- Green house gas contribution both from construction and operation

4.5.2 Potential Mitigation Measures

- High standard of construction management
- High standard of operational management

4.6 FLORA AND FAUNA

4.6.1 Possible Effects

Construction

- Affecting the fauna species that has a seasonally variable vulnerability due, for example, to breeding, critical feeding times or migratory passage



- Low ability to recover of fauna species (either naturally or with assistance) from disturbance of the habitat
- Fauna species with habitat in the area determined to change the places of covert and food
- Disturbance whether at the local level the habitat is an ecological corridor between other isolated habitats of ecological importance
- Water pollution and groundwater contamination altering the water's physical, chemical and biological qualities, due to the same causes described above for soils and to similar ones which affect directly the water; this further affect the aquatic environment
- Changes of aquatic and/ or terrestrial habitats due to pollution or morphological effects

Operation

- Modification or destruction of migration routes
- Destruction or alteration of the habitats of the flora and fauna species
- Degradation of the flora caused by physical factors (soil treading, modification of the hydrological conditions)

4.6.2 Potential Mitigation Measures

Construction

- Manual execution of works through elimination of using any equipment and vehicles in protected sites or sensitive area
- Removal of trees and arbutuses as more as possible instead of cutting. Clearing and cutting of trees shall only occur with the appropriate authority's consent. An inventory of trees to be cut shall be made and a plan for replanting will be developed and implemented
- After any intervention that may disturb natural sites: ecological restoration through environmental engineering (restorations, rehabilitation) shall be undertaken, including restoration of top soils and (re-) introduction of genetic species to re-establish the natural local ecology
- Monitoring the affected protected area for a certain period (2-3 years), recommended at the beginning and at the end of vegetation period; if any restoration of flora elements failed corrections and additional planting plan should be started

Operation

- Compensatory planting or restocking of indigenous species
- Limiting animals access to the locations that might consist a risk
- Provision of new appropriate habitat
- Creating opportunities for fauna migration
- Specific water parameters monitoring (e.g. water quality, flow) so as to detect in real time any malfunctions on WWTP operation and quick intervention for remediation, for example, dilution of not treated or partially treated wastewater discharged into receiving water body

4.7 PROTECTED AREAS, NATURA 2000 SITES

- When natural protected areas do exist in the project "zone of influence" the effects on habitats and on protected species of flora and fauna will be presented.
- Based on the assessment required under Article 6 of the Habitats Directive (refer to Section 2.3.1), resulting from stage 1 (screening process) - if the project is deemed to have potential impacts on Natura 2000 sites , recommendations of stage 2 – *appropriate assessment* – and stages 3 & 4 (*assessment of alternative solutions* and *Assessment where no alternative solutions exist and where adverse impacts remain*) will be clearly presented as to how such recommendations are being integrated into mitigation measures outlined throughout the EIA report (in particular under section 4.6 Flora and Fauna, outlined above).



This is in conjunction with Article 9(1) of the MO 135/76/84/1284 from 2010, if the project was initially evaluated as falling under the scope of Article 28 of Emergency Ordinance of the Government no. 57/2007 regarding natural protected areas, conservation of natural habitats and of wild flora and fauna.

4.8 HUMAN BEINGS

4.8.1 Possible Effects and Impacts

Construction

- Traffic disruptions and overcrowding, resulting in nuisance and interruption of commercial and social activities.
- Safety problems that may be caused to the general public by excavations, as well as transportation, movement of heavy equipment and obstructions of roads
- Disturbances and nuisances to the population, because of the dust produced on work sites, as well as resulted from the transport of raw and waste materials, but also odour from waste stored on site works.
- Discomfort for the inhabitants due to noise generated by construction activities
- Damage to other infrastructure (roads, water supply pipelines, drains, buildings, utility lines, etc.), and therewith lead to a (temporary) disruption of certain public services

Operation

- Maintenance activities on the sewage system: will have similar potential impacts on human settlement and objects of interest, albeit generally at a much smaller scale. For such activities, the same mitigation strategies therefore apply as during construction.
- Odour
- Operational Noise (e.g. WWPS)
- Disturbance of comfort and general health conditions due to inadequate disposal of waste
- Proper services and wastewater infrastructure, with benefits to living and working in project area or neighbourhoods

4.8.2 Potential Mitigation Measures

Construction

- Preparation of a traffic management plan (of particular relevance to construction of collection systems)
- Daily cleaning of access ways in the neighbourhood of work sites (removed of earth and sand), and maintenance of such roads.
- Construction activities shall not be allowed at night and will be restricted on limits on rest hours in sensitive neighbourhoods (e.g. hospitals)
- Avoidance/limitation of disruption and nuisance
 - Limitation of any temporary interference with private property (e.g. pipeline crossings over private lands) – alternatives studied,
 - The length of trenches at one time will be limited as much as possible - period estimation will be done
 - (Timely) informing the local communities of the construction programme through for example local news papers.
- Protection (fencing) and signalling of work sites (especially excavation works), in particular during the night, with clear marking of the safety border on the works perimeter (specify main locations)



Operation

- WWTP and WWPSs placements at a certain distance from human settlements. Moreover, the location of these works should take into account the prevailing wind direction (to blow away from residential areas).
- Regular inspections of the wastewater system will be undertaken in order to timely detect and failures of the system, and take appropriate remedial action – Environmental Management Plan
- Odour abatement measures
- Monitoring the operation of the WWTP in order to optimize the treatment process and avoid expel of odours
- Alternative routes for sludge transport
- Methods to prevent and control biting insect populations.

4.9 LANDSCAPE

4.9.1 Possible Effects and Impacts

- Impacts on the physical structure and aesthetics of landscape depends on the changes in scale and dimensions, introduced by project structures in comparison with the existing landscape characteristics (height, plan dimensions)
- Impacts on area in particular visibility from viewpoint at recreation area, tourist area, residential area etc.

4.9.2 Potential Mitigation Measures

- Restriction of the size of construction sites
- Conservation of vegetation around construction sites (if present) as much as possible in order to serve as visual shields.
- Adequate organization and maintenance of construction sites through good housekeeping.
- Restoration of construction sites directly upon completion of works (deadline is recommended to be provided)
- Chosen the WWTP location on relative distance to residential or other significant areas, according with the General Urban Development Plan provisions.
- Tree screens on WWPS's and WWTP's location

4.10 CULTURAL HERITAGE (ARCHAEOLOGY & ARCHITECTURE)

4.10.1 Possible Effects and Impacts

- Like in case of other large projects involving earthworks, there is the risk to uncover objects of cultural and archaeological significance not known before
- Vibrations can influence the constructed environment including architectural and archaeological monuments
- Physical damage of historically or archeologically objectives because of water table fluctuation.



For the purposes of the Convention for the Protection of the Architectural Heritage of Europe, Granada, 1985 (ratified by Romania by the Law 157/1997) the expression “architectural heritage” is considered to comprise the following permanent properties:

- **monuments:** all buildings and structures of conspicuous historical, archaeological, artistic, scientific, social or technical interest, including their fixtures and fittings;
- **groups of buildings:** homogeneous groups of urban or rural buildings conspicuous for their historical, archaeological, artistic, scientific, social or technical interest which are sufficiently coherent to form topographically definable units;
- **sites:** the combined works of man and nature, being areas which are partially built upon and sufficiently distinctive and homogeneous to be topographically definable and are of conspicuous historical, archaeological, artistic, scientific, social or technical interest.

4.10.2 Potential Mitigation Measures

- Carry out detailed archaeological survey of site as well as comprehensive desk study to determine level or potential level of cultural or architectural significance of the area
- Include any necessary measure to ensure the protection of such objectives under the legal provisions.

Box 5 Examples of Architectural Heritage

Architectural Type	Examples – illustrative purposes only
Vernacular Rural and Urban	Farm buildings, cottages, houses
Industrial	Mills, breweries, distilleries
Transport	Road bridges, railway bridges, canals, canal locks
Ecclesiastical	Churches, chapels, graveyards
Country estate	Country houses, entrance gates, lodges
Maritime	Harbours, quay walls
Monuments	Roadside memorials, plaques, statues, historic monuments

4.11 MATERIAL ASSETS (OTHERS THAN ARCHITECTURAL HERITAGE)

4.11.1 Possible Effects and Impacts

- Damage to other infrastructure (roads, water supply pipelines, drains, buildings, utility lines, etc.), and therewith lead to a (temporary) disruption of certain public services.
- Temporary interference with private property (e.g. pipeline crossings over private lands).
- Temporary disturbance on residential and other sensitive receptors (hospitals, schools etc)
- Temporary interruption of commercial and social activities
- Traffic disruption during construction (of collection system in particular)

4.11.2 Potential Mitigation Measures

- Avoidance interference with other infrastructure
 - Coordination of work at crossing points with other utility network owners (water, telecom and electricity networks)



- In case of any damage, repair works will be executed as soon as possible (time limits referred to Emergency plan for accidental pollution events, damages on wastewater system)
- If any restriction or limitations are required by other utility network owners, these should be precise scheduled
- Where private land or other property is affected, or where there is loss of income as a result of project activities, agree on mitigation or compensation measures with affected population prior to start of construction

4.12 MONITORING

The EIA Report will contain a monitoring programme, both for construction and operation phase, which will cover the following aspects:

- On site inspections in order to detect any malfunctions or damages on the wastewater collecting system, WWTP
- Pollution emissions (parameters, sampling points, sampling frequency)
- Wastes (types, quantities)
- Institutional capacity to implement the monitoring programme
- Format and frequency of reporting

Construction

A schedule of implementing the measures for reducing or mitigation the environmental effects will be provided.

The proposed monitoring programme for the construction phase is generally limited to air quality and noise level in the working sites, monitoring of the wastes quantities.

In the case of rehabilitation/extension and/or demolition of existing WWTP:

- As the soils at the WWTP location might be polluted from leaching of wastewater (in particular underneath and around the basins), as well possibly from spills of lubricants, fuel and other, taken of samples and analyses to determine the pollutants concentrations will be done
- Influent and effluent quantitative and qualitative monitoring
- Wastewater receiver river qualitative monitoring

Operation

Monitoring activities must be defined for water quality monitoring, wastewater treatment process efficiency, sludge monitoring, air quality and noise etc.

Water

- The specific objectives of water monitoring on WWTP location are:
 - To establish baseline data on the quantity and quality of effluent
 - To check the compliance with regulatory obligation
 - To detect contamination and environmental degradation
 - To take appropriate corrective measures in case of non compliance with legal provisions
 - Water monitoring on WWTP location will include quantitative and qualitative aspects for the influent and the effluent of the WWTP:
- Influent wastewater quantitative parameters:
 - Wastewater flows: influent to WWTP and eventually influent to secondary treatment stage, effluent to secondary treatment stage and eventually influent to tertiary stage, final effluent from WWTP
- Wastewater qualitative parameters:



- WWTP influent: pH, Total suspended solids (TSS), Biological oxygen demand (BOD), Chemical oxygen demand (COD), Total Nitrogen (TKN), Total phosphorus (P), Total dissolved solids (TDS), other parameters depending on activities developed in wastewater collecting system area (e.g. heavy metals, phenol, Extractible compounds with organic solvents, detergent, oil products)
- Wastewater within operational treatment process: pH, Total suspended solids (TSS), Biological oxygen demand (BOD), Chemical oxygen demand (COD), the BOD/COD ratio for biological treatment characterization, Dissolved Oxygen in aeration basins; NO₃ in aeration basins
- WWTP effluent: pH, Total suspended solids (TSS), Biological oxygen demand (BOD), Chemical oxygen demand (COD), Total Nitrogen (TKN), Total phosphorus (P), Total dissolved solids (TDS), other parameters required by receiver water body sensitivity (e.g. bacteriological parameters)

Generally, the WWTPs are equipped with data collecting systems, used for monitoring, automatic control and as a decision base for operational strategies.

The sampling frequency, the number of samples and concerned analyses depend on WWTP's capacity and on potential impact of water discharged into water receiving body.

In addition to the above, the impact of the effluent from the WWTP on receiving river will be monitored by periodically sampling taken up- and downstream of the WWTP. Parameters to be monitored should include at least the monitored parameters of WWTP effluent

Wastewater treatment process efficiency

- The regular operational wastewater treatment process will be monitored on the basis of the key physical and chemical parameters, including pH, alkalinity or acidity, SS, BOD and COD, the BOD/COD ratio for biological treatment characterization, as well as P and N.

Sludge

- Related to the sludge resulted from wastewater treatment (including raw sludge, biological process sludge, and surplus/waste sludge) also quantitative and qualitative monitoring must be done. Parameters monitored as part of process control include the mineralization rate, sludge age, organic substances content, humidity (%), dry substance content (%), temperature, and pH.
- In addition, before sludge is transport to the final destination, analyses must be envisaged to be undertaken in order to determine pollutants content, e.g. heavy metals, residual oil, coliforms etc.

Industrial discharges to sewer

- Is recommended to the operator of WWTP to check the wastewater quality discharged into the sewage network by industries by means of periodical analyses of samples taken from "control points" (located upstream the discharge into sewage collector)

Air quality

- Monitoring of air emissions should be done on WWTP and WWPSs locations, especially as it concerns NH₄ and H₂S.

Noise

- In the cases of WWPSs located in residential area or in the vicinity of other sensitive locations noise levels should be periodically measured.



4.13 CUMULATIVE ENVIRONMENTAL EFFECTS AND INTERACTION OF THE FOREGOING

4.13.1 Cumulative Effects Assessment

The concept of cumulative effects is related to the previous issue of coordination between schemes. It is argued that environmental assessment of an entire programme, or an entire route corridor, is required in order to fully identify and assess impacts. In particular, this broader level of assessment is required to fully understand impacts that arise through the combination or cumulation of developments.

The most effective way for cumulative impacts to be dealt with in the context of a wastewater scheme EIA is to coordinate the assessment process with provisions and targets of the River Basin Management Plan.

For example, other existing or planned wastewater treatment facilities and effluents discharged into a river from the same river catchment's area – there can be identified cumulative impacts due surplus of effluent nutrients or biosolids. The potential cumulative impact can result also due land spreading of treated sludge from wastewater treatment.

4.13.2 Interaction of the foregoing

Interactions relate to the reactions between impacts within a project and the inter-relationship between impacts identified under one topic with impacts identified under another topic.

The consideration of impact inter-relationships and interactions provides an opportunity to consider the overall impacts of a scheme which might not be immediately apparent particularly when the EIA Report is structured around individual topics. These impacts can be addressed in the EIA Report by including a section at the end of each topic chapter dealing with impact inter-relationships and interactions or by including a separate chapter, normally towards the end of the EIA Report, dealing with the issue.

Examples of impact inter-relationships in a wastewater scheme context include inter-relationships between soil and geology and water and groundwater impact, and community impacts and air quality and noise impacts.

Figure 1 shows an example of how impact interactions can be highlighted in an EIA Report through the use of a matrix.



Figure 1 Sample Impact Inter-relationship Matrix

Inter Relationship Matrix	Soils & geology	Water & Groundwater	Air Quality	Noise & Vibration	Climate	Fauna	Flora	Landscape	Human Beings	Arch Heritage	Material assets
Soils & geology						■	■		■		■
Water & Groundwater	■					■	■		■		■
Air Quality	■				■	■	■		■		■
Noise & Vibration						■	■		■	■	■
Climate			■			■	■		■		■
Fauna							■	■	■		
Flora		■	■			■		■	■		■
Landscape						■	■		■	■	■
Human Beings											■
Arch Heritage								■	■		■
Material assets									■		

An example of how interactions and inter-relationships may be presented is outlined in Box 6 below. Air and noise have been selected as an example to illustrate how interactions and relationships could be summarized in the report.

4.13.3 Summary of Impacts, Mitigation, Residual Impacts

Such a summary is usually presented in tabular format which allows an overview of the impacts on each environmental factor corresponding to each stage of project realization.

The format might be rather simple or more complicated to address also the impact characteristics: magnitude and significance, duration (permanent/ temporary), extent (coverage and receptors), nature (direct/ indirect, adverse /beneficial), reversibility (reversible/ irreversible), sensitivity of receptors, probability of occurrence, confidence limits to prediction, mitigation and monitoring measures, scope of mitigation/ monitoring, residual impact;



Box 6 Example of a Summary of Potential interactions & inter-relationships - Air

Subject	Interaction with	Interactions/relationships
Air	Human beings	Air quality is a major concern both at the local community level and on a broader national/global scale. In terms of the proposed development, dust (both during the construction and operational phases) and emissions and its impact on the communities and residents adjacent to the proposed development will be the main issues.
	Flora and Fauna	Vegetation can act as a purifier for air in absorbing CO ₂ and giving out oxygen. Dust from the proposed development could affect fauna and flora.
	Water	Dust from the proposed development could affect surrounding watercourses
	Geology/Hydrogeology/ Soils	Dust from exposed soils during construction could cause deterioration of air quality in the immediate vicinity of the development.
	Climate	Emissions to the air will potentially effect/impact on air quality. Reduction in air quality caused by dust could impact on agricultural enterprises in the vicinity of the development particularly during construction.
Noise	Human Beings	Sensitive receptors located close to the proposed development may experience some increase in noise particularly during the construction stage of the proposed development.
	Landscape	The construction of landscaping berms and planting will mitigate the effect/impact of noise.
	Flora and Fauna	Construction and operation proposals could result in significant noise disturbance, which may impact on the fauna currently using the area.
	Material Assets	Dairy cattle and other sensitive animals are reputed to be sensitive to sudden noise events that may occur as part of the construction. Any sensitive agricultural enterprise will be facilitated through consultation with landowners.



5 ENVIRONMENTAL MANAGEMENT PLAN

5.1 PURPOSE AND SCOPE OF EM PLANS (EMP)

5.1.1 When an EMP is required?

The EIA Directive does not explicitly require the preparation of an EMP. Nevertheless, its preparation and inclusion is recognized as international best practice. EMP may not occur for small-scale projects; projects in non-sensitive environments; projects where the negative impacts have already been assessed in analogous EIAs and found to be minimal; and/or projects fully aligned with the land use zoning.

5.1.2 Over-arching Objectives of an EMP

The objectives of an EMP should include:

- Ensuring compliance with regulatory authority stipulations and guidelines which may be local, provincial, national and/or international;
- Ensuring that there is sufficient allocation of resources on the project budget so that the scale of EMP-related activities is consistent with the significance of project impacts;
- Verifying environmental performance through information on impacts as they occur;
- Responding to changes in project implementation not considered in the EIA;
- Responding to unforeseen events; and
- Providing feedback for continual improvement in environmental performance.

5.1.3 Generic Scope of an EMP

In order to achieve the above objectives, the generic scope of an EMP should include the following:

- Definition of the environmental management objectives to be realized during the life of a project (i.e. pre-construction, construction, operation and/or decommissioning phases) in order to enhance benefits and minimise adverse environmental impacts.
- Description of the detailed actions needed to achieve these objectives, including how they will be achieved, by whom, by when, with what resources, with what monitoring/verification, and to what target or performance level. Mechanisms must also be provided to address changes in the project implementation, emergencies or unexpected events, and the associated approval processes.
- Clarification of institutional structures, roles, communication and reporting processes required as part of the implementation of the EMP.
- Description of the link between the EMP and associated legislated requirements.
- Description of requirements for record keeping, reporting, review, auditing and updating of the EMP.

5.2 CONTENT AND FORMAT OF EM PLANS

It is widely recognized that there is no standard format for EMPs. The format needs to fit the circumstances in which the EMP is being developed and the requirements that it is designed to meet. The level of detail in the EMP may vary from a few pages for a project with low project-related environmental risks; to a substantial document for a large-scale complex project with potentially high environmental risks.

The following sections provide an overview of information that should be included in an EMP



1. Overview of the proposed activity and the local context

Provide a brief summary of the:

- proposed project and associated construction or operational activities;
- affected biophysical, economic and social environment;
- local environmental management, legal and planning context relevant to the EMP.

2. Summary of impacts associated with the proposed activity

Summarise the predicted negative and positive impacts associated with the proposed project, particularly those presenting impacts of medium to high significance.

3. Project Proponent's environmental management policies and commitments

Summarise the Project Proponent's existing policies, guidelines and commitments relating to health, safety and environment.

4. Institutional arrangements: roles and responsibilities

Clearly define the responsibilities for management actions contained in the EMP and clarify arrangements for coordination among the role players involved in implementation.

5. Legal requirements

Identify the legislation, standards, guidelines and associated permits or licences that apply to the project and are related to management activities specified in the EMP.

6. Implementation programme

Presents the objectives to be achieved through the EMP and the management actions that need to be implemented in order to mitigate the negative impacts and enhance the benefits of the project. Associated responsibilities, monitoring, criteria/targets and timeframes are clearly specified.

The implementation programme provides the core of the EMP and should include a description of the following:

- Objectives
- Management actions
- Responsibilities for the identified actions
- Monitoring
- Performance specifications (i.e. criteria and targets)
- Implementation schedule.

The EMP should provide over-arching objectives to be achieved through the management of project activities and risk sources. These objectives are based on managing the environmental impacts identified *inter alia* through an EIA process; and specify the desired outcomes from effectively minimizing the negative impacts and enhancing the positive impacts.

Management actions are actions that are feasible, practical and cost-effective, and need to be implemented in order to achieve the objectives described above. These actions are based on the mitigation and enhancement actions identified in the EIA, together with additional information that may become available subsequent to completing the EIA. The EMP must specify a programme for implementing the management actions, including: who, when and how; as well as what resources should



be allocated. Enhancing the positive impacts of a project is often overlooked, and it is important that the EMP contains clear actions in this regard, based, for example, on the EIA recommendations.

As part of implementing the management actions, Method Statements should be prepared by the Contractor and/or Sub-contractor. These Method Statements should specify how they will manage potential environmental impacts in line with the requirements of the EMP, and, where relevant, environmental best practice; and how they will practically ensure that the objectives of the EMP are achieved.

Box 7 Requirements for determining whether management actions are clearly defined

To determine whether the management actions are adequately defined they need to satisfy the following key requirements:

- **Written:** Management actions should be stipulated in writing, this forces the formulators to think through each action carefully.
- **Dated:** A management action must indicate a specific time by when the action should be implemented.
- **Risk- or impact-specific:** Each management action must link to a specific impact (either positive or negative) or environmental risk, and should be worded in specific terms rather than in general terms.
- **Time and space specific:** An indication must be given as to the conditions under which the management action applies (continuously or only in the event of contingencies). The time (such as the season or time of day) and location of the application of the management action.
- **Measurable:** Management actions must, where possible, be quantitatively defined. A standard with which performance can be compared, must thus be set. Objectives and targets of the management action must be clearly stated.
- **Achievable:** The management action must be realistic, feasible and hence achievable;
- **Reasonable:** The management action must be readily implementable within the time and budget constraints of a project.
- **Timely:** Measures must be put in place to coincide with specific project activities.
- **Understandable:** Management actions must be described simply, using clear, non-technical language where possible.

Responsibilities must be clearly identified for the different parties involved in implementing the management actions and monitoring.

Monitoring programmes should be prepared to determine the effectiveness of the management actions and to understand the actual residual impact of the construction and/or operations on the environment. These monitoring programmes (e.g. soil, surface water or groundwater monitoring) may be designed by specialists in consultation with the Project Proponent and relevant stakeholders, depending on the complexity of the monitoring required. Where monitoring programmes are required, these should be designed to be pragmatic and implementable. As far as possible, measurement parameters should be selected which provide immediate results in order for appropriate management actions to be taken as soon as possible, in the event of an exceedance of guideline values or accepted performance levels.

The monitoring programme could comprise three main aspects:

- **Baseline measuring:** This should occur prior to the start of the project or activity in order to determine the level and status of the environmental parameters prior to any impacts associated with the project or activity.
- **Impact (or performance) monitoring:** This monitoring should be ongoing throughout the project life-cycle and must be implemented to ensure that environmental impacts are within the predicted levels and that specified performance targets are being achieved.



- **Compliance monitoring:** This monitoring should be implemented to ensure that the prescribed mitigation measures are having the predicted and desired effect. This monitoring would be conducted periodically, the timing of which will vary from project to project. It must be used to check that the levels of specific environmental parameters are compliant with laws, regulations, standards or guidelines, as applicable. The programme must make provision for remedial measures to be effectively implemented in the event of non-compliance - i.e. when mitigation measures are inadequate or when impacts have been underestimated in the EIA.

The management actions and monitoring need to take into account the following three scenarios:

- Normal operations
- Abnormal situations (eg. planned shutdown to service equipment)
- Emergency situations (eg. unexpected oil spill).

Performance specifications (eg. criteria or targets) must be provided for each management action or monitoring activity, in order to assess whether the actions have been effective. Performance specifications could be based on the level at which an environmental condition must remain (eg. habitat in a part of the site that must not be disturbed), or the level to which the environmental condition must be restored (eg. habitat rehabilitation), or legislated or agreed limits (eg. air quality standards), or the level of socio-economic benefits to be realized through the project (eg. use of local labour and enterprises). Where possible, these performance specifications should be quantitative. These specifications might be revised during the implementation of the EMP, in the spirit of promoting continuous improvement.

An **implementation schedule** must be prepared showing the sequence and timing (including frequency or duration) of the management actions and monitoring activities of the EMP. Where monitoring reports are produced, the timing of such reports should be indicated. The schedule must be drawn up with the Project Proponent, to ensure necessary links are made between the implementation schedule for the EMP and the overall project schedule.

7. Cost estimates and financial resources

Provide cost estimates for initial and recurring expenses for implementation of the EMP, including provision for: mitigation and enhancement actions; training and environmental awareness requirements; monitoring; auditing; and corrective actions.



Box 8 Environmental Management Plan – Wastewater Treatment Plant

Main contents of a Environmental Management Plan for a WWTP should include but not be limited to:

- **Company (operator) description and site location**
 - Name and Address of the company
 - Company operations
 - Staff numbers
 - Company structure (operational chart is recommended)
 - Site address (details will be provided for all areas where the company is operating)
- **Site Description**
 - Site layout
 - Buildings and civil structures
 - Equipment and installations
- **Regulatory documents – legal agreements, consents and permits**
 - Type of documents already granted or has to apply for (environmental agreement/permit, water agreement/permit, development consent etc.)
 - Specifications related to the provisions of the regulatory documents: location, land area covered, specific wastewater flows; key conditions: performance specifications (e.g. efficiency of wastewater and sludge treatment processes, treated wastewater pollutants value limits, sludge humidity); mitigation measures
 - Required monitoring: environmental factors, sampling points, parameters, frequency, responsibilities
- **Potential impacts of the project and recommended mitigation measures**
 - A brief description of potential impacts of the project and recommended mitigation measures will be presented in a tabular form, containing the following:
 - Project stage: pre-construction, construction and operating phase
 - Activity/operation: working sites preparation, excavation works, wastewater treatment, sludge treatment and disposal etc.
 - Potential environmental impacts associated to the activity/each type of operation
 - Brief description of the mitigation measures recommended/envisaged; implementing schedule and reporting
 - Institutional responsibilities (Contractor, Operator, others)
- **Operational matters**
- Wastewater treatment process description (including sludge treatment); wastewater treatment process diagram and wastewater treatment flow diagram will be attached
- Operational procedures: work instructions for maintenance & operation of the WWTP
- Inspection procedures to determine the current conditions and the necessary maintenance operations (WWTP area, structures, equipment and installations etc., inspections frequency, responsibilities)
- Procedures for storage and handling materials and chemicals on site, for WWTP operation; records of type and quantities of materials and chemicals used
- Procedures for records of wastewater and sludge resulted from treatment process (qualitative and quantitative)
- Environmental monitoring (parameters, sampling points and concentrations): air emissions, groundwater, WWTP influent, WWTP effluent, receiving river, soil, treated sludge, noise levels, type, quantities and final destination of wastes and sludge resulted from wastewater treatment, other wastes etc. (see Section 4.12. Monitoring)
- Operational monitoring:
 - Key operating parameters, e.g. physical and chemical parameters of wastewater in different stages of treatment process, wastewater and sludge flows, liquid levels in the basins from WWTP, pressure in airlines leading into the aeration basins, sludge temperature in the digester, wastewater temperature, biogas pressure, biogas flow, Dissolved Oxygen in aeration basins
 - Materials and chemicals used on wastewater treatment process
 - Wastewater treated volumes/flows
 - Energy consumption
 - Quantities of chemical substances used for wastewater treatment



Box 8

Records of data related to monitoring will be kept on WWTP site and periodically reporting to the environmental and water management authorities will be done, as stated on regulatory documents.

- Identification of risk cases related to the site or the activity (natural disasters as seismic activity, flooding, landslides; fire, explosion; breakdown or failure of processes or facilities; incidents related to hazardous chemicals; occupational health and safety incidents) and procedures for accidents and abnormal events (contingency plans, emergency plans)



6 NON TECHNICAL SUMMARY

6.1 PRINCIPLE

Annex IV of the EIA Directive setting requirements for the information to be supplied to the competent authority by the project developer, mentions in its point 6 “A non-technical summary of the information provided under the above headings.” i.e. of the information contained in the EIA Report.

A NTS is required because one of the fundamental objectives of the EIA process is to ensure that the public are made aware of the environmental implications of any decisions about whether to allow new developments to take place.

It is often useful to prepare a NTS as a separate and self contained document, which can be widely distributed to the public who are likely to be affected by the proposed development.

6.2 STRUCTURE AND CONTENT

The NTS is laid out in a similar, but condensed, format to the main EIA Report. i.e. describing the project, existing environment, impacts (including both negative and positive) and mitigation measures. It should include a site location and site layout plan (showing context) together with easily interpreted graphical representation of the proposed development, such as a perspective drawing.

Also it should contain an overview of the approach to the assessment and some brief explanations related to the development consent process for the project and the role of EIA in this process; It is recommended to include in the NTS data about stage's sequence of EIA procedure for the project component accomplished so far and foreseen (Screening and Scoping Decisions of EPA, previous public consultation).

6.3 PURPOSE AND LANGUAGE

As stated above, the main purpose of the NTS is to communicate to the public the EIA Report findings.

To achieve this goal, it should use a language easy understandable, without a scientific and technical jargon. In this respect, the copy and paste exercise by which some entire paragraphs are transferred from the EIA Report itself into NTS, is contra-productive and should be avoided. Instead, the text needs to be rephrased.

The NTS length should not be a matter of concern. Examples are available of short but intelligent prepared NTS (23 pages including 6 with photos and diagrams for a 280 pages coordinated EIA Report), in comparison with a long but fluffy NTS (about 100 pages for a 300 pages coordinated EIA Report).

Recommendation is to attach the tables with Summary of Impacts, Mitigation, Residual Impacts to the NTS when made available to the public.



ANNEX 1 – Relevant legislation for the present guidance document

European legislation

- Urban Wastewater Treatment Directive (Directive 91/271/EEC)
- Water Framework Directive (Directive 2000/60/EC)
- Directive 86/278/CCE on the protection of the environment, and in particular of the soil, when sewage sludge is used in agriculture
- Groundwater Directive (Directive 2006/118/CE)

National EIA legislation

- Government Decision 445/2009 on the assessment of certain public and private projects on the environment;
- Order 135/2010 of the Minister of Environment and Forests to approve the application methodology of environmental impact assessment for public and private projects;
- Order 863/2002 of the Minister of Water and Environment Protection to approve the methodological guidelines that apply to different steps of the environmental assessment framework procedures.

National legislation on Nature Protection

- Emergency Government Ordinance 57/2007 for nature protected area, conservation of natural habitats, fauna and flora wild species
- Order 19/2010 of the Minister of Environment and Forests for approval the methodological guidance regarding the assessment on the effects of the plans/projects on Natura 2000 sites

National legislation related to wastewater treatment

- Water Law 107/1996, modified and completed by Law 310/2004, Law 112/2006 and Emergency Government Ordinance no. 3/2010
- Government Decision 188/2002 for the approval of norms regarding the conditions for the release in the aquatic environment of the wastewater, modified by Government Decision 352/2005:
 - Normative NTPA-001/2002 regarding the establishment of pollutants charging limits of industrial and urban waste water at release into the natural receptors;
 - Normative NTPA-002/2002 regarding the conditions for evacuating waste water into the local sewerage networks and directly into the treatment stations;
 - Technical standards NTPA-011/2002 regarding the collection, the treatment and the release of urban water and the Annex: Action Plan regarding the collection, the treatment and the release of urban waste water.
- Order 344/2004 of the Minister of Water and Environment Protection regarding environmental protection and in particular soils when sewage sludge is used in agriculture
- Government Decision 53/2009 for the approval of National Plan for the protection of groundwater against pollution and deterioration
- Government Decision 930/2005 for approval the Special Norms referring to the character and size of sanitary and hydro-geologically protection zones



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