Guidelines for the assessment of plans for monitoring in environmental impact assessments

General part

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Premise

- Document cross-cutting between the different environmental aspects
- ARPA as audit (choice of parameters…)
- Actions to be taken in case of exceeding the reference values

Definitions 1.

- The **monitoring plan (PMP**) is the set of measures planned to monitor the impacts (art. 28 of Legislative Decree 152/2006) and to check what was presented in the EIS as a state of affairs (pre-construction). The monitoring plan is a flexible tool able to adapt to a possible reprogramming or integration of the monitoring points, measurement frequencies and parameters to be searched.

- **Monitoring** refers to the set of measurements of biological, chemical and physical parameters that characterize the sources and / or environmental components impacted by the construction and / or operation of works. Measurements are carried out periodically or continuously, through detections over time.

- **Control** is defined as the set of actions to evaluate and verify the value of a parameter, a physical situation and, if required, adjust the implementation of mitigative measures and countervailing measures, in order to make a comparison with a reference situation or to determine an irregularity.

- For **Inspection body** we mean the competent authority or other authority (eg ARPA FVG) as may be determined by the competent authority (in accordance with art. 29 of Legislative Decree no. 152/06) for the conduct of activities monitoring of the implementation of the provisions of the order for EIA..

Definitions 2.

- The **environmental indicator** is defined as a parameter that identifies an environmental characteristic observable and calculable, which is representative of the phenomenon in question and that it is comparable with the reference values acquired.

- **Reference value** means the value of the environmental indicator to be used as the basis of comparison of the environmental effects related to the implementation of the work. The reference values may be contained in the territorial or sectorial plans.
  The reference values can be standard of law, risk ratings, criteria and recommendations issued by certification bodies of quality and international organizations (eg WHO, ACGIH, EPA ...), the results of studies and research carried out by institutions recognized by the scientific community internationally, such as Universities, National Research Centres, Foundations.

- The **eligibility level** is the value of the parameter characterizing the scenario, obtained by adding the value of the fund and the impact induced by the work, which was considered acceptable at the time of approval of the SIA.

Definitions 3.

The Legislative Decree 152/06 contains the following definition of **environmental impact**:

a change

in qualitative and / or quantitative,
direct and indirect,
short-and long-term,
permanent and temporary,
single and cumulative
positive and negative

environment,

understood as a system of relationships between

human factors,
natural,
chemical-physical,
climate,
landscape,
architectural,
cultural,
agricultural
and economic,

in consequence of the territory of plans or programs or projects

at different stages of their implementation,
operation
and decommissioning,
as well as for any malfunction.

Definitions 3.

A **significant environmental impact** is defined as a definite impact quantitatively

Those impacts are considered significant:

•which provide a high ratio (greater than 0.6) between “levels of eligibility” and values;

•to which is associated a high magnitude of the consequences (for example to the high number of subjects involved by the impact);

•or which the estimated change compared to the pre-operational state is higher than the normal variability of the indicator that describes the impact.

•additional impacts specified in the requirements of environmental impact assessment in art. 26 of D.Lgs152/2006.

Normal variability of the parameter variability of the parameter, described by appropriate statistical magnitude, in the state ante-operam.

Contents of Environmental Impact Study

- Description of the work
- Identification of the simple actions of the work and description through check-list or block diagrams.
- Translation of actions in emission factors (EF)
- Quantification of emissions (pressures) for each environmental component.
- Simulation of the propagation processes by mathematical models or objective estimates.
- Status quo description (ante operam): qualitative and quantitative description of environmental components potentially subjected to the impact of the project.
- Selection of significant environmental impacts which are going to monitor, indication of their levels of eligibility and Monitoring Plan redaction.
- Mitigative and compensatory actions are defined already in the process of elaboration of the project, they are clearly presented in the literature indicating the effectiveness and mode of application. <u>The application of these actions is in fact subject to evaluation within the monitoring plan as well as the controls of the impacts.</u>

Contents of Environmental Impact Study

- **The measure of environmental impact assessment**, as per art. 26 of Legislative Decree 152/2006, contains the conditions for the construction, operation and decommissioning of the works in the project and those relating to any malfunction. It also contains all relevant particulars for the design and implementation of control activities and monitoring of the impacts (Legislative Decree 152/2006, Art. 28).

- The levels of eligibility related to the environmental impacts caused by the implementation are redefined according to the requirements expressed in the measure

- Monitoring plan is a flexible tool able to adapt to a possible reprogramming or integration of the monitoring points, measurement frequencies and parameters to be measured.

Monitoring Plan structure: index

- Target
- Responsibility
- Timescale
- Timesheet:
  - choice of parameters
  - implementation
- Data transmission
- Activities for unforeseen negative impacts

Target

- Verification of compliance with the provisions of impact in relation to the eligibility limits identified in the Environmental Impact Study (EIS) and defined / approved by the measure of environmental impact assessment

- Assessment of the evolution of the environmental situation, correlation of ante-operam, work in progress and post-operam

- Identification of unforeseen negative effects and adoption of appropriate corrective measures;

- Control of the exact fulfilment of the requirements expressed in the measure of environmental compatibility.

Monitoring responsibility

- Environmental Manager

tasks:

- technical and operational coordination of activities of the Plan;
- verification of conformity of the monitoring activity with the Monitoring Plan;
- communication start taking measurements;
- reporting to the Competent Authority and the Entity control of anomalies found during monitoring activities,
- preparation and transmission of documentation for Entity control;
- Definition of corrective action to monitoring activities

Monitoring development

- Ante-operam: monitoring actions that have the end before work beginning. Target of monitoring ante-operam is to verify the description of STATE exposed in the EIS and to describe the beginning situation for comparison

- Work in progress: time between the beginning of the yard and the and of construction. The actions of this phase are different with respect to the post operam. Monitory Plane in “work in progress” phase is different with respect to MP in post operam phase.

- Post-operam: phase of use. Goal of MP is to control the eligibility levels, compare indicators values with respect to that of ante operam and verify the efficiency of mitigation measures

- Future scenarios: this involve works that have a temporal development and changes in impacts. Developments must be described in the EIS and founded the indicators to be controlled in monitoring activities.

How to do monitoring plan in detail:

- ***Procedures for monitoring the significant environmental impacts***

- ***Methods of monitoring the implementation and compensation measures and requirements***

Control of significant environmental impacts

Choice of measuring points, frequency of measures, methods of measurement.

Consider these three targets

1. Validation of impact simulated
   - Input assessment
   - Emission assessment

2. Control of values close to law limits

3. Control of parameters for which the estimated is affected by higher uncertainties.

Methods of monitoring the implementation and compensation measures and requirements

- Monitoring plan documentation must contain the list of mitigation measures and requirements.

- The efficiency of measures must be calculated and monitoring plan must contain the implementation of the measures.

Works with low impacts

- In case of works with low impacts, the Monitoring Plan could contain the necessary actions to control the parameters in input to the models rather then the outputs.

- This is particularly effective in case of yards: the actions of Monitoring Plan may coincide with diary of site

Data transmission

- Computer database for data and metadata
- Timely transmission to the control agency
- Technical report with graphs and tables
  - Expected impact
  - Ante operam data
  - Monitoring data
  - Metadata and any other information
- Non-technical summary

Actions to be undertaken in the event of unforeseen negative impacts

- List of possible actions in detail
  - Timely communication of data to control agency
  - application of additional mitigative actions
  - New evaluation of work impact
  - ….