

Environment impact indicators

SOP ENVIRONMENT

1) NOX EMISSIONS (KT)

Relevance	++	The main polluting sources of NOx are represented by the combustion from energy sector and from processing industry (approximately 39%). The effect of the operation is the reduction of the NOx emissions and improving the air quality. According to EC Directive 2001/80/CE and GD no. 440/2010 for measures need to be taken in order to limit the emissions of certain pollutants from large combustion plants (LCP), so that the scales and so their concentrations to be below critical loads and levels, and also to reduce particulate emissions. Restrictive measures should be taken for large new combustion type III, which is applicable to Section B of Annexes 3-7 of the legislative acts mentioned above. The indicator is suitable to measure the impact on environment for rehabilitation of municipal heating systems (KAI 3.1)
Sensitivity	++	The variable to be measured by this indicator refers to air quality and fully registers the changes occurred in NOx emissions by heating systems.
Availability	++	Data is available at project level; this should be reported by the project beneficiaries to the MA through the regular project reports (PPRs).
Cost	++	No additional cost is needed.

2) SO2 EMISSIONS (KT)

Relevance	++	The main sources of SO2 pollution are combustion in the activities of energy and processing industries (with a contribution of approximately 75% in 2003). The indicator is suitable to measure the impact on environment for rehabilitation of municipal heating systems (KAI 3.1)
Sensitivity	++	The variable to be measured by this indicator refers to air quality and fully registers the changes occurred in SO2 emissions by heating systems.
Availability	++	Data is available at project level; this should be reported by the project beneficiaries to the MA through the regular project reports (PPRs).
Cost	++	No additional cost is needed.

3) VOLATILE ORGANIC COMPOUNDS -VOCS EMISSIONS (KT)

Relevance	++	VOC is one of the sources of atmospheric pollution generated by LCPs. The effect of the interventions financed under KAI 3.1 is a decrease of the VOC emissions of the heating system rehabilitated. In this sense, this indicator fully captures the effect of these interventions.
Sensitivity	++	The variable to be measured by this indicator refers to air quality and fully registers the changes occurred in VOC emissions by heating systems.

Availability	++	Data is available at project level; this should be reported by the project beneficiaries to the MA through the regular project reports (PPRs).
Cost	++	No additional cost is needed.

4) PARTICULATE MATTERS - PM10 EMISSIONS (KT)

Relevance	++	<p>Particulates matters are the main pollutants in Romania for which the exceeding of the maximum admissible concentration (MAC) is significant. Air pollution with particulates matter has many sources: thermal power plants using solid fuels, metallurgic and steel industries which release into atmosphere significant quantities of particulates, the cement factories, road transport, the waste dumps and deposits, etc.</p> <p>The indicator is suitable to measure the impact on environment for rehabilitation of municipal heating systems (KAI 3.1). The effect of this operation is reducing the PM10 emissions into atmosphere including in some of the cities with exceeded levels as mentioned by the Annual Report on Environment published by NEPA (e.g. Iasi).</p>
Sensitivity	++	The variable to be measured by this indicator refers to air quality and fully registers the changes occurred in PM10 emissions by heating systems.
Availability	++	Data is available at project level; this should be reported by the project beneficiaries to the MA through the regular project reports (PPRs).
Cost	++	No additional cost is needed.

5) GHG EMISSIONS: CO2 EQUIVALENT (KT)

Relevance	++	This indicator is very important as it points out the greenhouse gas (GHG) emissions which are measured in CO2 equivalent. The heating systems are the major source of GHG emissions in the urban areas. Therefore, the rehabilitation of old heating systems under KAY 3.1 will lead to a decrease in GHG emissions by implementing new technologies environmental friendly.
Sensitivity	++	The variable to be measured by this indicator refers to air quality and fully registers the changes occurred in GHG emissions by heating systems.
Availability	++	Data is available at project level (Iasi, AF, page 22 The CO2 emissions are decreasing from about 500.000 t/year until 2012 to about 300.000 t/year in 2013, when the new configuration of CET Iasi will be totally in operation.)
Cost	+	Data collection involves additional costs of authorised services for measurement of emissions level on site.

6) INCREASE IN WASTE WATER TREATED (M3 AND % CHANGE)

Relevance	++	The effect of the operations eligible under KAI 1.1 is a higher quantity of waste water treated due to the rehabilitation of wastewater systems. Significant positive effect is expected due to water pollution reduction from point sources due to indicative operations such as extension/rehabilitation of sewerage networks
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		and the construction and upgrading of wastewater treatment plants and sludge treatment facilities.
Sensitivity	++	The indicator immediately (in time) registers the changes occurred to the quantity of waste water treated in the financed interventions.
Availability	++	Data is available at project level; this should be reported by the beneficiaries to the IB/MA through the regular project progress reports (PPRs).
Cost	++	No additional cost for collecting the data related to this indicator is necessary. The data reported by beneficiaries through PPRs should be taken up in the SMIS for further processing.

7) REDUCTION IN WATER CONSUMPTION PER PERSON DUE TO FINANCED INTERVENTIONS (M3 AND % CHANGE)

Relevance	+	Major problem of the old water infrastructures is related to the water losses occurred between source and the deserved population through the old pipelines. However, this variable is only one of the factors which determine a reduction in water consumption per person (thus a lower relevance). The indicator is suitable to measure the impact on environment for rehabilitation wastewater systems (KAI 1.1)
Sensitivity	++	The indicator immediately (in time) registers the changes occurred to the quantity of water used by the population.
Availability	++	Data is available at project level (even if not even mentioned in the EIA report). The baseline is the water consumption per person before the project is implemented. The reduction needs to be measured once, at the project completion and should be reported by the beneficiaries to the IB/MA in the final project report.
Cost	++	No additional cost for collecting the data related to this indicator is necessary. The data reported by beneficiaries through FR should be taken up in the SMIS for further processing.

8) INCREASE IN CONNECTION RATE OF POPULATION TO SANITARY SERVICES DUE TO FINANCED INTERVENTIONS (%)

Relevance	++	Poor sanitary conditions and mismanagement of human waste causes ground and surface water pollution with nitrates faecal matter and bacteria. The rate of population connected to sanitary services may be increased if the infrastructure is extended. The indicator fully captures in quantitative term this expected effect of the modernization of water and wastewater systems. And is suitable to measure the impact on environment for rehabilitation of wastewater systems (KAI 1.1)
Sensitivity	++	The indicator immediately (in time) registers the changes occurred on the percentage of the population connected to the sanitary services.
Availability	++	Data is available at project level: this should be reported by the beneficiaries to the IB/MA through the regular project progress reports (PPRs).
Cost	++	No additional cost for collecting the data related to this indicator is necessary. The data reported by beneficiaries through PPRs should be taken up in the SMIS for further processing.

9) CONTAMINATED SITES REHABILITATED (HA) **A)**

Relevance	++	This indicator is very relevant considering that SOP Environment/KAI 2.2 is financing only projects that are priorities of the National Strategy for contaminated sites with a higher impact on the human health and on environment. The effect of the operation is the increasing of areas contaminates rehabilitated.
Sensitivity	++	The indicator immediately (in time) registers the changes occurred to the area of old ecological burdens cleaned, revitalised or recovered for reuse.
Availability	++	Data is available at project level. It should be reported by the beneficiary to MA at the end of the project, through the final report.
Cost	++	No additional cost for collecting the data related to this indicator is necessary. The data reported by beneficiaries should be taken up in the SMIS for further processing.

10) WASTE COLLECTED DUE TO FINANCED INTERVENTIONS (% FROM WASTE GENERATED)

Relevance	++	Setting up waste management systems for waste collection, sorting and recycling will have a long term significant positive effect on environment. By implementing KAI 2.1., one of the most significant soil pollution sources will be eliminated for a certain no. of ha of land cleaned. KAY 2.1 objective is the increase the waste collected due to the implementation of this intervention from the total waste generated.
Sensitivity	++	The indicator immediately (in time) registers the changes occurred to the surface of land cleaned from waste.
Availability	++	Data is available at project level and it should be collected by the project beneficiary regularly, according to the requirements of the EIA procedure and of the environmental authorization. The data related to the indicator should be reported to the MA at the end of the project, through the final report.
Cost	++	No additional cost for collecting the data related to this indicator is necessary. The data available should be taken up in the SMIS for further processing.

11) WASTE RECYCLED DUE TO FINANCED INTERVENTIONS (% FROM WASTE COLLECTED)

Relevance	++	Out of the total municipal waste, around 40% of the municipal waste components are recyclable materials out of which about 20% can be recovered, as they are not contaminated. As a result of selective collection through pilot projects, only 2% of the total recyclable materials generated are recovered. The rest is disposed by landfilling, thus losing large quantities of secondary raw materials and energetic resources. The recycling system must be developed in order to increase the rate of waste recycled. The indicator fully manages to capture in quantitative terms the effect of KAY 2.1.
Sensitivity	++	The indicator immediately (in time) registers the changes occurred to the quantity of waste recycled.
Availability	++	Data is available at project level and it should be collected by the project beneficiary regularly, according to the requirements of the EIA procedure and with Environmental authorization. The data can be provided to the MA through the progress reports.

Cost	++	No additional cost for collecting the data related to this indicator is necessary. The data reported by beneficiaries through PPRs should be taken up in the SMIS for further processing.
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12) INCREASE IN ENERGY EFFICIENCY IN SUPPORTED HEATING SYSTEMS (%)

Relevance	++	The district heating systems built 40-50 years ago have not been rehabilitated; they have great energy losses and the quality of the services provided to the population is low. The effect of KAY 3.1 should be an increase of the energy efficiency in the supported heating systems.
Sensitivity	++	The indicator responds immediately to changes occurred in energy efficiency of the rehabilitated heating systems.
Availability	+	Data should be available and should be collected at project level (e.g. the Iasi project contributes to an increase of approx. 3% of the energy efficiency in CET (increase of boilers efficiency from 90% to 93%), as well as 3% of the energy efficiency in the transport network (decrease of heat losses in the transport network from 24% to 21%). The project beneficiary (the public administration) should calculate this indicator based on the urban energy consumption. Data collected in this manner (% for each project) might not be agreeable.
Cost	++	No additional cost is needed.

13) AREA OF LAND PROTECTED AGAINST EROSION (HA) **B)**

Relevance	++	This indicator fully captures the effect of the implementation of measures to limit the coastal erosion, respectively KAI 5.2. The effect of the operation is an increase of areas that will benefit of measures against erosion.
Sensitivity	++	The indicator responds immediately to changes occurred in the length of sea shore rehabilitated through the financed projects.
Availability	++	Data is available at project level and it should be reported by the project beneficiary to the MA at the end of the project, through the project final report.
Cost	++	No additional cost is needed.

14) DESIGNATED AREAS AFFECTED (HA) *

Relevance	++	An important number of protected areas and Natura 2000 sites where the ecosystem functions have been degraded as a result of activities, usually anthropogenic (i.e. substitution of natural ecosystems with some artificial – e.g. the draining of wetlands to agriculture) will benefit of restoration functions. Restoration of these functions must lead to maintaining the favourable conservation status of species of flora and fauna and natural habitats. Also a number of areas affected by floods and erosion will benefit of improvement measures from the implementation of KAY 4.1, 5.1 and 5.2.
Sensitivity	++	The indicator responds immediately to changes occurred in the area of protected areas affected by the floods.

Availability	++	Data is available at project level and it should be collected by the project beneficiary and reported to MA in the final report.
Cost	++	No additional cost is needed.

15) DESIGNATED AREAS BENEFITING FROM NATURE CONSERVATION MEASURES (HA) *

Relevance	+	A number of designated areas are affected each year by the coastal erosion. The implementation of KAY 5.2 will lead to a number of conservation measures for the designated areas.
Sensitivity	++	The indicator responds immediately to changes occurred in the area of protected areas affected by the coastal erosion.
Availability	++	Data is available at project level and it should be reported by the project beneficiary to the MA at the end of the project, through the project final report.
Cost	++	No additional cost is needed.

16) NUMBER OF PROJECTS CONTRIBUTING TO PROTECTION AGAINST NATURAL DISASTERS

Relevance	++	Each year in Romania, important areas are affected by the floods. The projects financed under KAI 5.1 will contribute to the protection against natural disasters. The indicator fully manages to capture in quantitative terms the number of projects affected by natural and industrial disasters.
Sensitivity	++	The indicator immediately (in time) registers the changes occurred in the number of projects contributing to protection against natural and industrial disasters.
Availability	++	Practically the value of this indicator is equal with the no. of projects completed under this KAI. Data is available at the programme level and it should be collected and reported by the MA annually, through the Annual Implementation Reports (AIRs).
Cost	++	No additional cost is needed.

17) NUMBER OF PEOPLE BENEFITING FROM FLOOD PROTECTION MEASURES (CORE INDICATOR)

Relevance	++	Each year in Romania, many people are affected by the side effects of floods. This indicator will encounter the number of people that will benefit from the measures implemented by KAY 5.1.
Sensitivity	++	The indicator immediately (in time) registers the changes occurred in the number of projects contributing to protection against natural and industrial disasters.
Availability	+	Data is available at project level and it should be reported by the project beneficiary to the MA at the end of the project, through the project final report.
Cost	++	No additional cost is needed.