Improvement of ambient air quality

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General aspects

Improving the ambient air quality by reducing the quantities of PM_{10} and NO_X is the primary objective of priority axis 5 of the Operational Programme Environment (OPE) 2014-2020 in Republic of Bulgaria [1]. Therefore, the most appropriate result indicators, reporting the progress on the implementation of the considered measures, are the quantities of PM_{10} and NO_X in tones per year.

Determination of baseline and target values of the quantity of PM_{10} and NO_X

Studying the role of different pollutants, their sources and the alteration of the pollutants concentration helps building adequate policy and legislation, towards achieving effective emission reduction and environment preservation. Recent reporting of the ambient air quality [2-4] showed that the emissions of harmful substances like NO_X and PM_{10} exceed the limits prescribed by the European and the national legislation [5 and 6]. Investigations of atmospheric emissions in the polluted regions and some socioeconomic analyses for year 2013 [3] presumed that the major part of these pollutants is formed in combustion processes. For instance, the domestic heating facilities, operating with solid fuels account for about 59 % of the PM_{10} emissions, the rest comes from power generation industry and local transport, whereas less than 25 % is produced by other industrial sectors or location specific activities that do not comprise combustion [3 and 4].
Thus, a methodology has to be developed, establishing efficient and reliable approach for validation and representation of the ambient air quality in accordance with the relevant legislation. On the other hand, it will facilitate the specification of eligible measures in the framework of the OPE 2014-2020, which is focused generally on the combustion related sources of pollutants.
Of particular importance, are the baseline and the target values of the above described result indicators. Presumably, their baseline value could be determined based on the quantity of emissions before the implementation of the prescribed measures to the sector (or subsector) covered by the intervention. Nevertheless, the quality of air in concrete settlement is usually influenced by numerous factors - contribution of local pollution sources, transfer from other places, meteorology, topography etc. Thus, improving the air quality within a territory requires consideration of diverse activities, addressing primarily the contribution of local sources and the related location specific circumstance.
Therefore, the methodology has to contribute for data mining, analyses and assessment, as well as interpretation and reporting of the quantitative measurements of NO_X and PM_{10}, which should be carried out on a regular base for monitoring and control purposes. It should also allow determining lack of data, discrepancies and inaccuracies in the currently applied approaches. In this way, it will prescribe the procedure for determination of baseline and target values of the two result indicators (quantity of NO_X and PM_{10}) and for

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reporting the progress of the indicator's evolution from the municipal authorities, implementing pilot projects under the OPE 2014-2020.

References

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[3] Executive Environment Agency, Emissions of harmful substances in the air, (http://eea.government.bg/bg/soer/2013/air/emisii-na-vredni-veshtestva-vav-vazduha).
[4] National Statistical Institute, Brochure "Environment 2013" from 30.04.2015 (http://www.nsi.bg/bg/content/13078/публикация/околна-среда-2013).
[5] Directive 2008/50/EC on ambient air quality and cleaner air for Europe.
[6] Ordinance of MOEW and MH of RB 12/15.07.2010 for limits of sulfur dioxide, nitrogen dioxide, particulate matter, lead, benzene, carbon dioxide and ozone in the atmospheric air.