Matrix of Comments and Team Responses for MEWF and MEF's comments for Output 2 of the RO UWWTD RAS received on December 04 and December 06, 2019

MoEWF's Comments	Team Response
 In Abbreviations Sections (Page 9), for CB05, we believe that it would be appropriate to replace the explanation "5-day biochemical oxygen demand" with "5-day biochemical oxygen use". Similarly, for OPEX, it would be equally appropriate to replace "Operational expense" with "Operation expenses or Operating and maintenance expenses". 	Thank you for the comments. The Romanian translation will be reviewed and corrected where necessary.
 Chapter 2. Methodology applied to set the limits of agglomerations (page 15) We assess the approach to delimiting the agglomerations based on quantitative criteria and their inner zoning within the main area as appropriate for development of the centralized sewerage system and in appropriate areas for individual and other appropriate systems, but have not been yet able to identify in either the report or the algorithm proposed which are the stakeholders of urban planning due to apply this methodology after completion of this project. Also, the internal zoning of the locality (or of the agglomeration formed by merging more municipalities) would require local approval and acceptance, most likely the approval of the local public authority or their association, but the report remains silent in this regard. Thus, the approved General Urban Plan (PUG) and the Zonal Urban Plan (PUZ) should be somehow correlated. As regards the methodology applied to set the limits of the agglomerations, we believe that revision of the agglomeration limits is more appropriate for small agglomerations, between 2,000 and 5,000 PE, where there is neither a centralized collection system, nor a treatment station, and it is thus proven that the current delimitation is not "an area sufficiently concentrated" for building a centralized sewerage system. In these cases, as it follows also from the report, it would be more cost-effective to consider another technical solution than the centralized sewerage system. 	 Implementation support is not part of the Bank technical assistance. However, based on experience in delivering a similar assignment we can say the following: 1) The Romanian Government is best positioned to decide on how to implement the proposed methodologies; 2) in other countries similar methodologies have been used for programming of financing for WSS sector investments and reporting on UWWTD compliance. Local approvals (if required), PUG and PUZ update should be separate administrative procedures, which the methodologies have no effect on. Nevertheless, compliance with UWWTD and with its transposition in the local legislation is mandatory, hence if legislative and administrative changes are required, they should be initiated by the Romanian Government. The application of proposed national methodologies require that a new delineation of agglomeration boundaries is performed to comply with the new approach. The lack of or the existence of centralized collection system is not determining the delineation of an agglomeration boundaries. Activities that should be performed at Feasibility Study (FS) stage are clearly outside of the scope of this assignment. We agree with the comments for the IAS. Indeed, this is in line with the proposal for establishing a process to ensure that such systems provide "the same level of environmental protection" as required by the Directive.

 introduction of "individual and other appropriate system" (IAS). In order to determine the one suitable "individual collecting system", which meets the environmental requirements/restrictions, each situation (each new resulted aggiomeration) should be approached on a case-by-case basis. Because, for the time being, there is no well-structured IAS recording system in place, in order to track and record such, a systemic approach should be adopted for the receipt and review of the information. Both the existing and new MS should be recorded, and an adequate planning of the inspection of these systems should be deviced, and an adequate planning of the inspection of these systems should be deviced and an AG of the type leak-proof borehole/septic tank/cesspol be chosen, the onoitoring regime, the emptying records and the delivery to the treatment plant should be also considered and tracked. This is critical for compliance with the environmental requirements of the MS standards aready adopted by the Romanian Standardization Associations and insofar as this is found to be more cost-effective, and which, for the time being, are provided with neither a centralized severage system, nor a treatment plant. It is important that feasibility studies are drawn up to determine the best IAS for this yead aggiomerations, the watershed (the hydrographic network), where the land allows it, with a view to facilitating the sizing/positioning in a system result due to the cliciting system. Delineation of aggiomeration boundaries does not depend on engineering solutions for deligning the agalomerations, the watershed (the hydrographic network), where the land allows it, with a view to facilitating the sizing/positioning that agalomerations boundaries are determined the next stage is the preparation of a FS should be the sets and the complexance. 				
 We recommend looking into the possibility of including, as a criterion delimiting the agglomerations, the watershed (the hydrographic network), where the land allows it, with a view to facilitating the sizing/positioning of a wastewater collecting system. Delineation of agglomeration boundaries does not depend on engineering solutions for design and construction of a collecting system. In line with the UWWTD and published guidance documents it should be based on "sufficiently concentrated" area criteria. Once the agglomeration boundaries are determined the next stage is the preparation of a FS to collect specific data, including hydro-geological data. Based on the collected 		order to determine the most suitable "individual collecting system", which meets the environmental requirements/restrictions, each situation (each new resulted agglomeration) should be approached on a case-by-case basis, depending on the specific conditions in place. A "Feasibility Report/Study" should be prepared, on a case-by- case basis. Because, for the time being, there is no well-structured IAS recording system in place, in order to track and record such, a systemic approach should be adopted for the receipt and review of the information. Both the existing and new IAS should be recorded, and an adequate planning of the inspection of these systems should be devised. Should an IAS of the type leak-proof borehole/septic tank/cesspool be chosen, the monitoring regime, the emptying records and the delivery to the treatment plant should be also considered and tracked. This is critical for compliance with the environmental requirements/restrictions, and to avoid the water table and soil pollution. For a correct IAS implementation, in smaller agglomerations and insofar as this is found to be more cost-effective, these systems should be regulated in terms of design, execution and maintenance. For this reason, we agree to the proposal already made in the report, to the effect that the requirements of the IAS standards already adopted by the Romanian Standardization Association are taken-over also in the domestic legislation. The methodology employed to set the agglomeration limits could address the compliance with the requirements of Directive 91/271/EEC, for small agglomerations between 2.000 and 5,000 PE, and which, for the time being, are provided with neither a centralized sewerage system, nor a treatment plant. It is important that		
sizing/positioning of a wastewater collecting system.Once the agglomeration boundaries are determined the next stage is the preparation of a FS to collect specific data, including hydro-geological data. Based on the collected	•	type of agglomeration. We recommend looking into the possibility of including, as a criterion		
		network), where the land allows it, with a view to facilitating the	1 (guidance documents it should be based on "sufficiently concentrated" area criteria. Once the agglomeration boundaries are determined the next stage is the preparation of a FS to collect specific data, including hydro-geological data. Based on the collected

 Sub-Chapter 2.1 - EU and domestic requirements, item 5, page 16 - Please explain whether the agglomeration delimitation was applied also the requirement laid down in the Document "UWWTD Terms and Definitions" as regards "The possibility of dividing one single "sufficiently concentrated" settlement into two different agglomerations, as long as this does not reduce the collecting and treatment requirements", in particular as regards compliance with the collecting and treatment requirements. 	 options. Thus, hydro-geological considerations are not subject to the methodology for determination of agglomeration boundaries. Yes, indeed, it was applied in rare cases where we've found evidences to justify it. However, based on the feedback received on the methodology for delineation of agglomeration boundaries, changes are incorporated in the final methodology (Output 2) version. The criteria used to delineate the agglomeration boundaries was modified and more clearly described. Dividing one settlement into two different agglomerations will only occur in rare cases, when, for example, there is a significant distance between "sufficiently concentrated" areas, while at the same time the settlement is one administrative territory.
• Sub-Chapter 2.3 Proposed approach (page 19) - we believe that, as long as stage C (Application of other criteria) is not analysed, no relevant decisions can be made as regards the accurate determination of the two types of zones: (1) suitable for sewerage system, and (2) where a sewerage system would generate excessive costs, considering that the entire territory of Romania was qualified as area sensitive to nutrient pollution, based on the identification criteria in the Annex II of Directive no. 91/271/EEC concerning urban waste water treatment. Consequently, there is a risk that the delimitation proposed further to application of the methodology would not be validated in the feasibility study! This could prove particularly disturbing for agglomerations considered to be larger than 10,000 population equivalents, or already compliant agglomerations.	• We disagree with such an arbitrary statement. The methodology for delineation of agglomeration boundaries is very logical and aligned with international good practices. Environmental considerations are to be performed at FS stage as mentioned above. So, the methodology advises for the application of IAS only in "small" agglomerations (below 5,000 p.e.) when during the FS it is verified that there is no existing WWTP with a capacity to treat the wastewater or environmental requirements do not allow application of IAS (water protection zone, impermeable soil etc.). The methodology is not advising for the use of IAS in agglomerations above 5,000 p.e.
 Sub-Chapter 2.4 Stage A: setting the agglomeration limits, item 11 (page 20) - Perhaps a time reference should be set, a time horizon for the built-up areas where residential development is permitted, given that, lately, increasingly more land has been requalified as built-up area. At page 21 "Satellite image (provided by Google)" - the Google images cannot be considered as reference images because they are not formal documents, but only for guidance. For a consistent analysis, we recommend that satellite images/orthoimagery from official sources are used, in their latest variants and at the best possible resolution. 	 Following the recent discussions with MoEWF and MoEUF we are adjusting the methodology and will not use built-up area for delineation of agglomeration boundary. We agree with the comment about using Google satellite images – the report will be revised to reflect that the team is using Google satellite images only when they are more updated than the received ortho-photo maps. All maps are checked against official data from the received ortho-photo maps by MoEWF.

boxes in census", after the there a develop sites an generall no longe the 201: up their to reflec (e.g. th municip should b	Figure 8 - please no e last cens re munici ment had d operatio y migrated er to be fou 1 Census. N Romanian et the curre ne use of alities, the pe looked in		from the cone imp county of ose when activitie and the if these y that the g abroad, 11 popula nsequent e service ministrati	e 2011 national ortant changes Caras-Severin, re their initial es, were mining population has individuals are by are appear in have not given tion count fails ital implications es). For these we units (ATUs)	•	The population density grid is developed by NSI following the Census in 2011 and this is the latest available data. It is used just as an indicative parameter when delineating agglomeration boundaries. For the purpose of boundaries delineation and agglomerations' size determination we are trying to determine pollution from the population that physically live at a given settlement in year 2018. It is estimated (see Chapter 3.5) based on: - the NSI parameter "usual resident population" in year 2011; - the total number of resident population in urban areas/rural areas in the county in 2018 and - the percent contribution of the given settlement to the total population in the urban area of the county or in the rural area of the county in 2011 (depending on the settlement's affiliation). The percentage of contribution from a settlement to the population in urban/rural area is not changing that abruptly within a 10 years period, except for specific situations, which should be regarded as exceptions. Any concrete information about such exceptional cases that was provided to the team are analysed and reflected when delineating the agglomeration boundaries and determining the agglomeration size in p.e. It is not recommended to use ATUs local data on the permanent residents, since they are based on administrative address registration and do not reflect properly the people that physically live in a given place, at a given period of time. More details are provided in the answers below.	
At page 26, T derived equa		PEX determined for the tr	reatment	plans using the	•	Thank you for the comment. The data base was extended with a set of additional data, taken from the updated FS, which were provided by the MEUF. We'll reflect the changes	
PE	Cost per PE	UWWTD total cost	% ERROR	ERROR % recalculated considering the data in Annex 2 - page		in the final version of the report.	

94

17

7

10

4

2,173,821 6

2,458,800 9

2,000

2,500

3,000

3,500

4,000

5,000

6,000

802

731

678

636

602

548

509

1,604,463

1,828,193

2,033,963

2,225,907

2,406,757

2,742,361

3,051,024

In our opinion, with a view to determining the IAS CAPEX and OPEX (page 26, items 18 and 19), the use of the construction, operation and maintenance costs for IAS-1 Septic tank plus soil infiltration system is not correct because this solution is not representative for the situation in Romania. Considering the Law no. 107/199, as subsequently amended, prohibits "discharging the treated and/or not treated wastewater into groundwater or on land" (art. 16 d^1), the individual systems most widely used in Romania are cesspools.	solutions than the currently allowed very expensive water tight tank, which are very rear in Romania due to high operational costs.
• Sub-Chapter 2.6 Stage C: Environmental and other criteria (page 29) Regarding the statement reading that "Consideration of environmental requirements/restrictions and other matters, as discussed above, should be addressed in the Feasibility Report phase", we emphasize that environmental requirements and restrictions reference is made to at 2.6 (items 22 and 23) would have to be considered as early as the phase of the General Urban Plan (PUG) and the Zonal Urban Plan (PUZ).	This comment was addressed above.
 Sub-Chapter 2.7 Decision-making structure for determination of the areas for sewerage systems and IAS. Figure 13 (page 30) According to Fig. 13: "Decision-making structure for determination of the areas for sewerage systems and IAS", where there is no treatment plant available in the agglomeration, and the sewerage system would imply excessive costs, the IAS solution shall be adopted. Reading this conclusion in connection with the information provided in Table 7, at page 65, and considering that it is prohibited to discharge wastewater into the soil in Romania, IAS 1 and IAS 2 in Table 7 are excluded. When there is no surface waterway in the proximity, IAS 3 and 4 are excluded, too. The only solution that remains is IAS 5 - watertight borehole. In this case, where would the wastewater be treated, considering that the agglomeration is not provided with a treatment plant? Should the legislation be amended so as to allow discharging of the IAS water into the soil, we will still be left with the problem of the availability to have such IAS built with infiltration systems (at least 72 m for a family with 4 members - only necessary for IAS 1 infiltration system). 	 We'd like to clarify yet again that the team is fully aware of the legal framework in Romania, however, we advise on changing the legislation to allow IAS that are widely used in other European Member States. We do not fully understand the comment about availability of necessary land for IAS. As clarified above the team recommends the use of IAS only in agglomerations below 5,000 p.e. 72m is the total length of the necessary trench, but there is no individual trench of more than 18m, as explained in Annex 6 of the final report. Most of the plots in Romania in peri-urban areas are around 1,000 m2 and the proposed system would require an area of around 150 m².

 Sub-Chapter 2.8 Delimitation of agglomeration limits (page 30) The agglomeration delimitation process should consider, in addition to the information already listed as GIS layers that show the delimitation of the surface water bodies, also the criterion of the water status (the system for classification of the surface/underground water bodies, as well as the new Atlas of Romanian rivers drying up - 2016), in order to capture the provisions of the Water Framework Directive and the environmental protection matters, too. 	• As clarified above, delineation of the agglomeration boundaries is based on the requirement of the UWWTD for "sufficiently concentrated" area. Once the agglomeration boundaries are set, the next stage is the engineering solutions for the optimal ways in collecting and treating wastewater (FS and preliminary design). The engineering solution should consider all local conditions and limitations, including possibilities for discharge of treated wastewater (water body, dry gulley, etc.) as well as the requirements for the treatment level.
 Sub-Chapter 2.8 Delimitation of agglomeration limits The last sentence at page 31, "Reviewing the population data, manually marking the houses outside areas with sufficient concentration () and the data received are presented in Excel format" - the reference to the Excel file (table, annex?) is not clear. At page 32 - ALGORITHM FOR AGGLOMERATION LIMIT DETERMINATION, Figure 14: Algorithm for determination of the agglomeration limits and the areas suitable for sewerage systems, a value of 250 m from which, where there are no built areas, that land is not included in the agglomeration, is proposed. Our request is to explain the baseline used to adopt this figure, or to provide some justification for this proposed figure. At page 39, item 26 - the last phrase concerning application of the methodology in county of Brasov: "The Regional Company of Brasov is currently serving 31 agglomerations () by implementing the methodology, there will be 4 new agglomerations, and 14 will be excluded because they do not meet the criteria to form an agglomerations"; it should be clearly explained that the operator. This means that the regional operator of Brasov will serve 21 new agglomerations"; it should be clearly explained that the operator will continue to provide water and sewerage services in the municipalities deemed excluded from the re-delimitation of the 31. Perhaps, the text should be reworded in the sense that the 31 agglomerations were grouped into 21 new agglomerations, which meant that 14 existing agglomerations were given up, and 4 new agglomerations were formed (the term "exclusion" is confusing).	The value of 250 meters was adopted following existing EU member states experience and discussions with JASPERS. It is considered that higher distance between concentrated areas will result in excessive cost for collecting pipes as well as might result in merging two agglomerations below 10,000 into one of a size above 10,000 where stricter treatment requirements apply, i.e. leading to higher costs. However, it is up to the Romanian authorities to accept the proposed value or not. The team believes that there should be such a national criterion, which of course can be modified or waived if during FS stage there is evidence and rationale that a better environmental option is to link a polluter, which is situated at 255 meters for example. Regarding Brasov, the sentence refers to agglomerations and their reporting and it has nothing to do with service area of the operator. Nevertheless, the text in the report will be changed to become clearer and to limit any misinterpretation as demonstrated by the comment.
Chapter 3 Methodology for determination of the pollutant load In what the methodology for determination of the pollutant load of the agglomeration is concerned, we believe that its application, as described in the report, requires a sufficient database, with	• Reporting on UWWTD requires some level of understanding of Directive requirements as well as information from pre-defined agglomerations. Reporting on agglomerations between 2,000 and 10,000 p.e. is a challenge for most of the European Member States. The new methodologies for delineation of agglomeration boundaries, the newly

indicated: the Companies. In this regard, a water and sew from our poin employ skilled professionally. filling such and operators estal staff that are Directive 91/2 that can be use The methodol proposed in th will significant	Institute of Statistics and the Water and Wastewater as regards the questionnaires due to be applied to the verage companies related to Annex 3 of the report, t of view, only the large regional operators, which and specialized staff, will be able to fill them in On the other hand, their complexity could cause d data provision problems for local operators, smaller blished at ATU level, which do not always employ skills well acquainted with the matters regulated under 71/EEC, or have available relevant and reliable data ed to calculate the pollutant load. logy devised to determine the pollutant load, as he report, if applied using relevant and reliable data, ly help a much more accurate determination of the ed by an agglomeration.	created agglomeration maps, as well as the methodology for calculation of pollution load will help operators and local authorities to improve information and reporting. Nevertheless, the capacity of small operators needs to be increased and the methodology should be implemented and followed by national and local authorities.
43) As regards t agglomeration emission source the industrial Directive? What in the Lagg, X emission source regard. Correlating the comments emo Page 43 - Chat item 28 Page 46 - Chap Page 49 - Ch connected to t	5.2 Requirements for the agglomeration load (page the formula used to calculate the load of an : Does Lagg, IND (the load generated by the industrial ces connected to the SS) represent the load in PE for sectors listed found in Annex III of the UWWT at kind of "other industrial sectors" can be integrated parameter (the load generated by other industrial ces)? Please include in this text clarifications in this e information written on the pages hereunder, some erge: pter 3.2 Requirements for the agglomeration load - ter 3.4 Assumptions napter 3.6 Load generated by an agglomeration he sewerage system (LaggC1) - item 33 4. Load calculation in France	• Lagg, IND in equation (1) is defined as "the generated load of industrial emitters connected to CS, in p.e.; i.e. it represents the industrial emitters, pursuant to Art. 11 of the UWWTD; The parameter Lagg, x is defined as "the generated load of other emitters (if any), in p.e.;". It may include small units of the service/public sector for instance that are currently serviced by IAS and which in specific cases may significantly affect the load of agglomeration. In some Member States this parameter refers to the load from cleaning household cattle premises, for which there is information that the wastewater enters the sewer system. Additional clarifications and changes have been made in the report to address the comments.
49, item 33 re	e clarifications provided at page 43, item 28, and page garding "except for unusual situations, such as those ry rainfall", we bring to your attention the fact that the	The information requested from the Operators, i.e. daily data for inlet flow and wastewater quality at the inlet of the UWWTP, allows us to "register" unusual situations when processing the data base. Some examples are presented below:

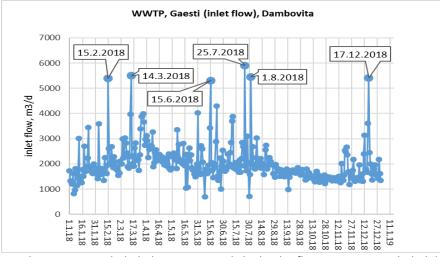
Questionnaire intended to be applied to water and sewerage companies - Tables B2.1 and 4.1 contains no fields (columns) for writing down unusual situations, such as those caused by heavy rainfall, which could be excluded from the assessment of the generated load.

WWTP Gaesti, Dambovita county:

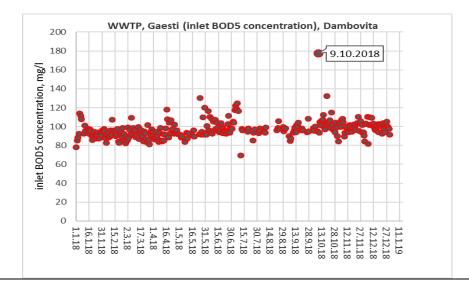
Number of inlet flow samples – 365;

Number of inlet BOD5 samples - 296;

Below the analyzed graphs for the inlet flow, inlet BOD5 concentrations and inlet BOD5 load.



Several points are excluded, due to extremely high inlet flow; 1 point is excluded due to unusually high BOD5 concentration.



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	WWTP, Gaesti (inlet BOD5 load), Dambovita
	600
	500 15.2.2018 15.6.2018 15.6.2018
	15.2.2010
	400 400 100 100 100 100 100 100 100 100
	$\begin{array}{c} 11.1.19\\ 27.12.18\\ 12.7.12.18\\ 12.27.12.18\\ 12.21.1.18\\ 12.11.18\\ 13.0.0.18\\ 13.0.0.18\\ 13.9.18\\ 13.9.18\\ 15.7.18\\ 30.6.18\\ 15.5.18$
	0 0 0 0 0 0 0
	Depending on the specific WWTP, sometimes we also analyze the COD inlet
At page 49, item 33, and at page 191, item 4, the phrase "The	concentration and load, as well as the ratio COD/BOD5. All the information concerning the processing of inlet WWTP monitoring data will be provided in Excel format after
maximum weekly average load during one year" is not in accordance	finalizing the load calculation. These or similar examples will be included in the final
with the wording of the Directive; we believe that the provision of the Directive should be construed as: the load calculated on the	version of the Methodology. The wording will be edited according to the UWWTD definition in the final version of the methodology.
basis of the maximum average weekly load during one year.	
• At Sub-Chapter "3.4 Assumptions. 30. The methodology determines	• We completely agree that the organic load (expressed as BOD5) generated by one
the load generated by the agglomeration based on the following general assumptions":	person during a day is not a constant value and depends to greater extend on people's social and cultural habits.
• "the load generated by one permanent inhabitant is	The value of 60 gBOD5 per capita per day is an estimation, which has been applied in all
 equal to 60 gCB05 /capita/day, i.e. equal to 1 PE". () "the load generated by one tourist is equal to 60 gCB05 	EU Member States. This value is also well accepted by the European Commission. Indeed, this specific load might seem a bit high for some agglomerations in Romania, but it is in
/capita/day, i.e. equal to 1 PE ". ()	line with the precautionary principle, i.e. if there are no plausible data, an estimation
We believe that the assumption considered, namely that one	shall be made.
permanent inhabitant or one tourist (a real inhabitant) is equal to 1 population equivalent, should be tested through case studies, when	Using estimations however, should ensure that the load of the agglomerations is not underestimated , as explained in item 1.4 in "Terms and Definitions of the Urban Waste
sufficient monitoring data is available, because Directive 91/271/CEE	Water Treatment Directive 91/271/EEC" issued January 2007.i.e.:
does not explicitly provide for such an equivalence, meaning that 1 real inhabitants = 1 population equivalent (1 PE),	"The Member States should ensure that the generated load of an agglomeration is not underestimated, or the provisions of the Directive not undermined. The Commission will

as, in our view, the Directive refers to a measurement unit standardizing the organic load through CB05, which is quantified at 60 grams of oxygen per day, expressed as a measurement unit through 1 population equivalent.	assess whether a Member State's approach and/or its verification is appropriate. In case of doubts it may request further information." In other words, the estimation tends to consider the highest expected load. In this context, usually the loads calculated based on estimates are higher than the corresponding loads calculated based on the inlet monitoring data (i.e. according to Art 4(4) of the UWWTD).
The wording of the Directive is "population equivalent (PE)" means the organic biodegradable load having a five-day biochemical oxygen demand (BOD5) of 60 g of oxygen per day", with no explicit reference to per "capita". Currently, there are agglomerations the number of real inhabitants of which is higher than the number of population equivalents. Considering the practical experiences with the formula 1 PE = 60gCB05/day, we recommend an analysis of the possibility of determining a range between 40 and 60gCB05/day, depending on the particulars of each agglomeration. Different results are obtained when applying the method of determining the load generated on a calculation basis (load calculated based on the maximum average weekly concentration during a 1-year period and the amount of wastewater entering the treatment plant), and when applying the evaluation method based on the data about the resident population and industrial emissions for the same agglomeration we hold data about But what if the load connected to the centralized sewerage system, evaluated to be equal to the "load generated by permanent residents + non-permanent residents + industrial emission sources" is different from the monitoring data concerning the treatment plant load (which are significantly lower).	 So far, we have not discovered sufficient data from Romania, which could prove that the overall BOD5 load produced by one resident is less than 60 g BOD5 per day, e.g.: In most of the agglomerations there is no up to date information on the number of households (or residents) connected to sewer system and UWWTP, which is a critical issue when determining specific loads; In the smaller agglomerations with predominantly domestic load and existing UWWTPs the provided inlet monitoring data are too scarce (e.g. no flow data, or BOD5 inlet samples less than 24 per annum); No information on the existence/non-existence of industrial emitters in the smaller agglomerations has been provided for most of the agglomerations; The inlet monitoring data of some UWWTPs prompt for significant amount of extraneous water (e.g. infiltration) that may lead to loss of organic load through exfiltration in other parts of the sewer system on the way to the UWWTP; These drawbacks of the existing data base do not allow to reach a sound conclusion concerning the specific BOD5 load per capita per day. As emphasized in the Methodology, the estimation that the load from 1 person is equal to 60 gBOD5 per day is used only "<i>in case the generated load of the resident population is not connected to an existing UWWTP or there is no sufficient monitoring data concerning the loads entering the existing UWWTP.</i>" For tourists the same assumption is applied "<i>in case there is evidence that the generated load of the tourists is not connected to an existing UWWTP or there is no sufficient monitoring data concerning the loads entering the existing UWWTP.</i>" The developed Methodology for determining the agglomerations' loads is a tool for the Romanian government to evaluate the agglomerations' loads pursuant to the requirements of the UWWTD in order to assess and optimize the necessary compliance costs. The Methodology cannot however replace the need of
• Sub-Chapter 3.4 Assumptions - page 46, item 30 "The load generated by one tourist is equal to 60gCB05/capita/day, i.e. equal to 1 PE. This assumption is applied when the load generated by the resident population is not connected to an existing	• We accept the comment and the text of the final report will be revised in the following way: "The load generated by one tourist equals to 60 gBOD5/cap/d, i.e. equals 1 p.e. This assumption is applied in case there is evidence that the generated load of the tourist

treatment plant, or when the monitoring data regarding the loads entering the existing treatment plant is not sufficient." We suggest replacing "resident population" with "units pursuing tourist activities".	accommodation facilities is not connected to an existing UWWTP or there is no sufficient monitoring data concerning the loads entering the existing UWWTP."
• Sub-Chapter 3.5 Determination the resident population in the agglomeration (pages 4, 6-47, item 31) "The National Institute for Statistics (NIS) holds statistical data on the population having their habitual residence (usual residents) in each municipality in 2011, based on the 2011 national census. For more recent years, such information about the resident population is usually available at county level, and includes the total number of residents in the urban area and the total number of residents in the rural area."	 During our discussion with the NSI it was clarified that the statistics does not make annual estimates on the number of population at settlement level for the years between two Censuses. Therefore, the Methodology is developed based on the available information at settlement level for the last Census in 2011 and the data about the population in urban area and rural area at county level. The definition of "usual residents" provided by NSI is: http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table
As regards this statement, a particular attention should be paid to the urban areas where the development of respective municipalities was particularly driven by economic/business activities which have been discontinued/closed down (for instance, mining operations/sites), and from where population have migrated. For these, no unique change percentage (%) can be applied to the residents of the urban area at county level. The resident population is particularly important in the size of the agglomeration, with all consequences stemming from the UWWD. A concrete example comes from the county of Caras-Severin, but similar situations may	"Usually resident population represents all persons of Romanian nationality, foreign or stateless who have their usual residence in Romania. Usual residence is the place where a person normally spends the daily period of rest, regardless of temporary absences for purposes of recreation, holidays, visits to friends and relatives, business, medical treatment or religious pilgrimage. The usual residence may be the same as the domicile or may differ from it, for the persons who choose to establish their usual residence in a locality other than the locality of domicile in the country or abroad. It is considered having their usual residence in a specific geographic area just people who have lived in that usual residence for a continuous period of at least 12 months prior to reference moment. "
be encountered also all over the country. At page 47 - According to the methodology devised by the World Bank, the relationship (3) may lead to errors due to certain demographic phenomena, such as the type of population migration in municipalities in the periurban area. As to the explanations provided for the Calculation formula (3): When calculating the total number of permanent residents of a municipality for 2018 (<i>PR</i> _{s, 2018}), the calculation proposed relies on the total number of permanent residents of that municipality in 2011, multiplied by a ratio between the total number of permanent residents in the urban area (respectively, in the rural area) at county	The definition of "permanent residents" provided by NSI is: http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table "Permanent resident population represents the number of persons with Romanian citizenship and permanent residence on the territory of Romania, delimited by territorial- administrative criteria. The person's permanent residence is the address where he/she declares to have the main dwelling, printed as such on its identity card and registered by the administrative bodies of the State. To set up the value of this indicator, the usual residence is not taken into account as well as the period and/or reason of absence from domicile."
level in 2018 against 2011. When relying on data aggregated at county level, the development gap between municipalities is left out, known being the fact that the municipalities/administrative and territorial units located in the proximity of large urban centres (e.g. county capital cities) are generally more prone to urban development and demographic growth, while those furthermost	During our discussions with local experts, it was clarified that people are not obliged to declare the change of their address of residence when it happens. So they may live many years in some other settlement or even abroad without having actually changed their permanent address in Romania. Therefore, if permanent residence is used, it will lead

from the urban development poles report decreasing figures. Thus, given the data sets available with NIS - TENPO-online information

http://statistici.insse.ro:8077/tempo-online/#/pages/tables/inssetable,

we believe that the ratio reflecting the 2018/2011 developments in the population could be considered at the level of an administrative-territorial unit by residence, as available in "POP107D - POPULATION BY RESIDENCE as at 1 January, by age bands and age, gender, counties and municipalities". In our view, the 2018/2011 development ratio could be calculated relying on data about population by residence, taking into account the assumption that the geographical positioning against the urban development poles takes precedence.

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significant errors on assessing the number of people that indeed physically live in a given agglomeration.

That's why we recommend for the purpose of calculating the agglomerations' load to use the data about "usual resident population", i.e. people that indeed physically live at a given place, rather than data about "permanent residence" by address registration. The percentage of contribution of a single settlement towards total population in urban areas (or towards total population in rural areas) is rather constant or varies insignificantly between Censuses. If there is data about some exceptional cases, e.g. of massive leave or settling of people in a specific settlement, we will review and reflect in estimating the number of usual resident people for the corresponding agglomeration.

Formula (3) will be slightly edited to emphasize the belonging of the settlement to the urban/rural area, i.e.:

Should this assumption be accepted, the calculation formula would become: $PR_S, 2018 = \frac{POP107D_UAT, 2018}{POP107D_UAT, 2011} \times PR S, 2011$	$PR_{S,2018} =$	$\frac{PR_{U/R,2018}}{PRU/R,2011} x PR_{S,2011} \tag{1}$
PR_S, 2018 total number of permanent residents of the municipality in 2018;	PR s, 2018	total number of usual resident population of the settlement in year 2018;
PR_S, 2011 total number of permanent residents of the municipality in 2011 (source: NIS);	PR _{5, 2011}	total number of usual resident population of the settlement in year 2011 (source: NSI);
POP107D_UAT, 2018 - ATU population by residence in 2018 (source: INS, form POP107D); POP107D_UAT, 2011 - ATU population by residence in 2011 (source: INS, form POP107D).	PR _{U/R, 2018}	total number of usual resident population in urban, respectively rural area of the county in 2018, depending on the settlement affiliation to urban area or rural area, as stated in the data base of Census 2011 (source: NSI);
	PR U/R, 2011	total number of usual resident population in urban, respectively rural area of the county in 2011, depending on the settlement affiliation to urban area or rural area, as stated in the data base of Census 2011 (<i>source: NSI</i>)
Sub-Chapter 3.6 Load generated by an agglomeration connected to the sewerage system (LaggC1) (page 49, item 32) "There are two possible ways of determining the generated load that is connected to the SS, depending on the availability of the treatment plant and the sufficient amount of monitoring data about the input load of the plant, as shown in Figure 23." "Case 1: There is a treatment plant with a database that contains sufficient monitoring data about the input loads - the load connected	-	th the comment. The report will be revised for the paragraph to become ples about sufficient and insufficient data base will be provided in Annex 4 port.
to the SS (LaggC1) is the sum of the treatment plant input load and		

 the load collected via the SS, but not (currently) treated in the treatment plant;" <u>We suggest the rewording</u>: "monitoring data about the input loads. In this case, the load connected to the SS (LaggCl) is the sum of" At page 50 "For each treatment plant, the trend charts regarding the wastewater quantity, the CBO5 concentrations, and the CBO5 loads will be drawn up and analysed to identify: Whether the trends are smooth and imply the monitoring data reliability;" The wording "trends are smooth" is not clear, and should be reworded/completed. At page 53, item 37 - As regards the explanations provided for evaluation of the load generated by the industrial emission sources, we consider that the assessment "of the wastewater quantity (QWW, IND) that exceeds 1% of the total wastewater quantity reported during periods without precipitation in an agglomeration" is difficult to apply in practice as this is merely a theoretical definition. 	This approach will be applied only if there is no WWTP or if there is such but with not sufficient monitoring data at the inlet. In this case, the reason for recommending such "categorization" of the industries is because usually in bigger agglomerations there is plenty (sometimes hundreds) of smaller industrial emitters and just a few bigger. Usually the Operator monitors the wastewater of the relatively bigger ones; how big is an industry however, compared to the size of the agglomeration is very relative. We suggest the delineation line to be 1 percent of the total wastewater flow in dry weather, since the percent contribution of the rest (even in terms of BOD5 load) will be negligible. The percentage flow contribution of a given industry can be calculated, since the Operator has information on all the accounted wastewater flows within the agglomeration (i.e. from population, industry, public services). Depending on the data availability about the industrial emitters other approaches for assessing their loads are also discussed in the Methodology.
• Sub-Chapter 3.10 Examples of pollutant load determination Table 5 (page 59)	• The example will be explained in detail in the final version of the Report. The load calculating Excel file will also be provided.
 The difference between the data reported by ANAR and the data produced relying on the methodology is 31%, according to the calculations: % = ΔPE = (275,208-398,604)/398,604*100=-30.957% The data used in the calculation of agglomeration and its delimitation is not sufficiently clearly exemplified, namely: Brasov agglomeration, which includes the municipality of Brasov, Poiana Brasov and the town of Sacele, according to the methodology, has a total load of 275,208 PE; according to the 2011 census, the real population of the 3 municipalities is 283,998 real inhabitants, and applying the calculation formula provided in the methodology, a real population 289,773 	It is noted in the Report that sufficient data base about the inlet loads of WWTP Brasov was provided by the Operator and the corresponding maximum average weekly load of the WWTP is determined to be 268,637 p.e., which itself is smaller than the total number of residents connected to the WWTP. According to the operator, the following settlements are connected: Brasov, Ghimbav, Rasnov, Sacele, San Petru, Cristian, Harman, Poiana Brasov. The Operator confirmed that all main industries are connected to the WWTP. The connection rate is calculated according to the approach explained in the Methodology. It is considered that all the tourist facilities are connected to the WWTP, since no information has been provided to the contrary.

• At page 65, Table 7: Summary of selected IAS - Regarding the Individual and other Appropriate Systems (IAS) described as suitable for implementation in Romania, pursuant to the provisions of the	• It was already explained that the WB work and proposals are not bound by the existing legislation when it comes to proposals on options for optimization of compliance costs to comply with the UWWTD. The existing situation is well described in the first report
At page 64 - The report advances the IAS discharging into the surface waterways after primary treatment (Figure 29). However, this comes against the Romanian legislation in effect - <i>Government Decision no.</i> <i>188/2002</i> approving rules and conditions for the discharge of wastewater into the aquatic environment, as subsequently amended and supplemented, in the sense that a septic tank/primary treatment will not suffice to provide for the effluent quality required under NTPA 001 (we refer in particular to organic substances and NH4 +).	Figure 29 gives a summary of IAS units and discharge possibilities. However, all IAS proposed to be used in Romania provide at least secondary treatment.
Similarly, Tables B2.1 and 4.1 contains no fields (columns) for writing down unusual situations, such as those caused by heavy precipitation, which could be excluded from the assessment of the generated load, as already explained.	The way unusual situations, such as those caused by heavy precipitations, are registered during the data processing is explained in the comments above.
• Sub-Chapter 3.11 Necessary database (page 62, item 42) As regards "Questionnaires to be applied to water and sewage companies", as a general recommendation, we believe that collection of the data per municipalities should include the SIRUTA code as municipality ID, because there may be municipalities with the same name, but with different SIRUTA codes.	• The SIRUTA codes have been incorporated in our data base.
 inhabitants is obtained for 2018, to which the population equivalents generated by industry and tourists should be added, considering that both the municipality of Brasov and Poiana Brasov are municipalities with a large inflow of tourists; Codlea agglomeration has, according to the census, a real population of 21,708 inhabitants, and applying the calculation formula provided in from the methodology, a real population of 22,149 inhabitants is obtained; it is not clear where 19,517 PE connected to the sewerage system come from? (Where does the connection rate come from?). At page 59, in the example provided for Codlea agglomeration, the contribution from industrial emissions is assessed at 20% of the connected population load, but it is not explained how this 20%, was obtained, considering the statement that the databases were insufficient. 	At the date of preparing the draft version of the report, there was no data on the industrial load of Codlea, so the 20% is an indicative value, which is usually applied for evaluating the industrial load for agglomerations over 10,000 residents. As mentioned in the Methodology, when we receive data for the industrial emitters from the Operators, we will process the data for determining a more precise percent of industrial contribution in cases where there is no available data from WWTP inlet.

Government Emergency Ordinance (GEO) no. 78/2017, art. 16 para. 1 letter d^1, amending and supplementing the Water Law no. 107/1996 for the protection of water resources, <i>it is forbidden to</i> <i>discharge treated/not treated wastewater into groundwater or on</i> <i>land</i> . Thus, the wastewater discharge alternatives for IAS1 and IAS2 (Table 7 and Figure 29 of Chapter 4.2) <u>will be eliminated</u> , pursuant to the provisions of Art.16 of the Water Law no. 107/1996, as subsequently amended and supplemented; in this regard, given that these systems do not discharge treated wastewater into in the groundwater resource, these 2 types do not fall within the scope of art. 48 and art. 54 of the Water Law no. 107/1996, as subsequently amended and supplemented. Certain individual and appropriate systems can be considered alternative solutions to centralized wastewater collecting systems, in terms of both the financial costs and the climate change effects already experienced (drought). Updates of national regulations should be operated for application of the report's recommendations regarding the IAS compliance with Directive 91/271/EEC concerning urban waste water treatment.	under the current technical assistance. Hence, the team is proposing solutions which could help the Romanian Government to accelerate compliance. Therefore, the proposed solutions may require changes to the existing legal framework and alignment with good international practices applied in other EU Member States.
 Sub-Chapter 4.4 Registration and inspection of the existing and new IAS (page 67, item 47 "Registration of the existing IAS is recommended to occur during a certain period of time (meaning 1 year), and be charged a small registration fee of RON 50." We believe that the proposed period is very short, and the registration fee is high for the rural agglomerations, considering the cash flow of a rural family. Owners should be encouraged/stimulated to have their existing IAS registered free of charge, and the proposed fee should be borne from the local budget. Furthermore, charging of a small registration for the efforts required to be deployed for IAS registration management. The number of IAS is expected to be very high (in our assessment, in the range of tens of thousands, even hundreds of thousands at basin level), and all of these would require registration, management of certain data about their type, length of service, etc., inspection and control, monitoring etc.; however, in order to put in place such cost-intensive schemes of activities, important human and material resources would be inspected by the 	 The proposed period of one year is indicative. The MoEWF together with the county and local authorities will have to decide on what period is feasible and appropriate having in mind the local specificities. The period may also vary from county to county, as long as there is an overall deadline at national level. This would be reflected in the report. The proposal of doing the registration of IAS free of charge is a matter of governmental decision which should be made after consultations with all counterparts, including the MoF. This is elaborated in the final report.

RBA. These inspections will give rise to additional personnel and	
material costs.	
For pollution, the following are explained: "The costs incurred with	
such collection of additional samples and water analysis should be	
borne by the polluting IAS owners." How can these costs be	
recovered from individuals? As currently devised, this scheme of	
activities would lead to placing burdensome tasks on ANAR and RBA	
(which, in the initial implementing plan of Directive 91/271/EEC,	
were not distributed as such), with no cost recovery possibilities.	
Please note that, across the RBA, hundreds of direct discharges into	
natural receptors are managed, which are subject to both inspection	
and control, whereas the proposed IAS management alternative, this	
number would most likely increase to tens of thousands or even	
hundreds of thousands across the entire river basin.	
To sum up, we don't agree on the proposal made in Chapter 4	
regarding the task transfer to the RBA, as devised in this document.	
At page 68 - "Based on an application filed by the owner, the town	
councils issue registration certificates and enter the IAS into a	
register, which is proposed to be set up and kept by the River Basin	
Administrations (RBA)."	
When certificates are issued by the town (local) councils where these	
are also entered into a register, the same register cannot be kept also	
by the RBA; these are two different institutions. If this register is to	
be kept by the RBAs, how will the town councils be able to enter the	
future IAS into it? We suggest the following rewording: When issuing	
and entering the certificate into an electronic register, the local	
council shall inform and submit to the RBA the list of certificates	
issued so as to support development of a database, and the	
information the local council holds is available with the RBA, too.	
Thus, our proposal is:	
 Local councils should keep their own register where they will be 	The proposed approach is accepted and will be reflected in the final report.
able to enter IAS in the future, too;	
- Setting up of a Summary IAS Register in each county, to be kept	
by the county council/Inter-Community Development	
Association (ICDA) because these have more authority on the	
ATUs;	
- On a monthly basis, the local councils, relying on the entries	
made in their own register, submit the report on IAS for	
centralization in the county Summary IAS Register.	

- The County Council/ICDA will send, on a quarterly basis, the summary IAS report with a view to have their own register kept by the RBA updated.	
 Sub-Chapter 4.5 IAS design and execution (page 69, item 49) "The requirements of the IAS standards already adopted by the Romanian Standardization Association (ASRO) and CEN/TR 12566-2 - Part 2: Soil infiltration systems, and CEN/TR 12566-5:2010 - Part 5: Pre-treated effluent Filtration systems, are proposed to be embedded into the domestic legislation." Will this type of IAS be permitted, considering that the entire territory of Romania has been qualified as area sensitive to nutrients? For instance, in Banat Hydrographic Space, around 50% of the water abstracted for population comes from underground. Greater importance should be attached to preserving the groundwater quality. For these reasons, it should be thoroughly thought out whether Romania should adopt these systems. 	 The existing unsustainable situation of cesspools and/or latrine pits doesn't provide any environmental protection. The IAS we propose does so and it is a significant improvement. Adoption of Soil infiltration and Pre-treated effluent filtration systems is subject to governmental decision. However, in making this decision the Government of Romania needs to consider if the legislation should allow only the most expensive IAS (watertight tanks and packaged WWTPs), which may not be realistically applied because of affordability issues and thus pollution of the ground waters will continue through the existing open bottom cesspools and/or latrine pits.
• Sub-Chapter 4.6 IAS operation and maintenance (page 71, item 51) <u>We agree to the statement</u> "Often, the owner is not aware that an improper operation poses a risk to human health and the environment". For this reason, we believe that the owner should enter into a contract with a specialized company for the latter to regularly inspect the IAS, and provide adequate execution and maintenance works.	• We acknowledge that the proposed approach is acceptable and if adopted by the government it needs to be introduced in the relevant regulations.
• Sub-Chapter 4.7 IAS monitoring and inspection (page 72, item 54) Pending amendment of the Romanian legislation, all individuals holding IAS are recommended to be party to a domestic wastewater collecting contract executed with the operator serving the respective area. (Then, we will be able to obtain records of all emptying operations from the operator; the individual may submit a copy of the emptying invoice also to the ATU they belong to). Should the IAS with infiltration be adopted, it will become an obligation to impose, as early as the design stage, also a self (direct) monitoring system, which implies also inspection shafts. The operator/ATU providing water supply shall be in charge also of discharging.	• Whether the IAS owner should have a contract with a water operator or with a specialized company (as previously proposed) is subject to a governmental decision after consultations with all counterparts. Both options may also be allowed by the legislation, depending on the IAS type.

MoEUF's Comments	
 The definition of agglomerations and, implicitly, setting the boundaries thereof, shall observe the provisions of sufficiently concentrated area, as stipulated in Directive 91/271/EEC concerning urban waste-water treatment. Consequently, we believe it is appropriate to clarify the fact that: "areas suitable for sewerage systems", as laid down in the draft Guidelines, and illustrated in Figure 19 by visible marking (highlighted in yellow) are, in fact, sufficiently concentrated areas, as defined in the directive and explained in the Commission clarification document "Terms and Definitions of the UWWT Directive 91 /271 /EEC". 	• The proposed methodology for delineation of agglomeration boundaries follows the requirements of Directive 91/271/EEC and adds recent practices, discussions and recommendations from key stakeholders. However, due to the comments received from MoEWF and MoEUF, the methodology will be revised to include only sufficiently concentrated areas.
 The definition of agglomerations should not take into account investment/operating costs or the existence of a waste water treatment plant. Such costs may at most be a means for ascertaining the accuracy of the definition; 	• We fully agree. The definition of the agglomeration boundaries is based on the requirement of the UWWTD, that "agglomeration" means an area where the population and/or economic activities are sufficiently concentrated for urban waste water to be collected and conducted to an urban wastewater treatment plant or to a final discharge point". The methodologies consider that when the distance between houses is high (i.e. insufficiently concentrated), the cost for collecting system will be higher, e.g. a financial criterion is used only to distinguish between sufficiently and not-sufficiently concentrated areas.
 Criterion B – enforcement of financial criteria for avoiding excessive costs – as set out in the draft Guidelines contributes rather to selecting the technical option (individual system vs. centralized system) than to outlining the sufficiently concentrated area. In addition, mention is to be made that, as far as the centralized systems proposed by means of the feasibility studies drafted together with JASPERS in the current programming period are concerned, costs per capita were estimated to a maximum value of EUR 2500; 	 Please, see the answer above. We do not refer to JASPERS cost of 2,500 EUR per capita since we are using data, derived from specific FS, which we consider more precise than a national average indicative figure.
• As regards the appropriate individual systems, we support the importance of a strict monitoring and control system for operators supplying toilet discharge services. Furthermore, it is necessary to determine the position of Romanian authorities in connection with the type of appropriate individual system proposed (AIS 1), both as benchmark for determining	Thank you for agreeing with our proposal.