



WORKING DOCUMENT

UPDATED FICHES FOR COMPLEMENTARY RESULT INDICATORS No. 13, 14, 15, 18 AND 19

WORKING PACKAGE 2

THEMATIC WORKING GROUP NO 8

'EX POST EVALUATION OF RDPs 2014-2020: LEARNING FROM
PRACTICE'

OCTOBER 2020

Disclaimer: *This document has been prepared by evaluation experts based on good practice available from the current programming period. The document has been consulted with a Sounding Board including Member States' representatives in September 2020 and has been reviewed in line with the comments received. This document is non-binding and only intended to facilitate the work of evaluators and managing authorities in the context of preparing for the ex post evaluation of the RDPs 2014-2020.*

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The Evaluation Helpdesk is responsible for the evaluation function within the European Network for Rural Development (ENRD) by providing guidance on the evaluation of RDPs and policies falling under the remit and guidance of DG AGRI's Unit C.4 'Monitoring and Evaluation' of the European Commission (EC). In order to improve the evaluation of EU rural development policy the Evaluation Helpdesk supports all evaluation stakeholders, in particular DG AGRI, national authorities, RDP managing authorities and evaluators, through the development and dissemination of appropriate methodologies and tools; the collection and exchange of good practices; capacity building, and communicating with network members on evaluation related topics.

Additional information about the activities of European Evaluation Helpdesk for Rural Development is available on the Internet through the Europa server (<http://enrd.ec.europa.eu>).

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INTRODUCTION

This Working Document is one of the outputs of the Working Package 2 ‘**Assessment of RDP effects on ensuring the sustainable management of natural resources, and climate action**’ which analyses the emerging evaluation issues related to the calculation and reporting of the **Complementary Result Indicators (CRI) 13, 14, 15, 18 and 19** and aims to facilitate the exchange and learning from current practices of the assessment of the environmental complementary result indicators in order to improve the quality of evaluations when preparing for the **ex post evaluation of RDPs 2014-2020**.

This document includes **the updated version of the fiches for Complementary Result Indicators 13, 14, 15, 18 and 19** for the period 2014-2020. This document has been prepared by evaluation experts taking into account various information sources including:

- Annual Implementation Reports submitted in 2019;
- **Synthesis of the Evaluation Components of the Enhanced AIRs 2019**;
- Yearly Capacity Building Events in the Member States;
- Working Document ‘**Evaluation-related Queries**’;
- Technical support documents (e.g. guidelines, indicator fiches).

To improve **reporting on complementary result indicators in the ex post evaluation**, the complementary result indicator fiches have been updated by:

- clarifying definitions of indicators and their units of measurement,
- updating data sources,
- adding additional information where useful,
- proposing simplifications in the methodology.

The drafting of this document has been carried out in the context of the Evaluation Helpdesk’s Thematic Working Group on the ‘**Ex post evaluation of RDPs 2014-2020: Learning from practice**’.

How to read this document

The text which has been added to the complementary result indicator fiches¹ has been marked in *blue italics*.

¹ European Commission (2014): Working Document. **Complementary Result Indicator fiches for Pillar II**.

CRI 13 'INCREASE IN EFFICIENCY OF WATER USE IN AGRICULTURE IN RDP SUPPORTED PROJECTS'

The text which has been added to the fiche² has been marked in *blue italics*.

Indicator Name	Increase in efficiency of water use in agriculture in RDP supported projects
Indicator code	R13
Target indicator	No
The related priority	P5 Promoting resource efficiency and supporting the shift towards a low carbon and climate resilient economy in agriculture, food and forestry sectors
The related focus area	5A Increasing efficiency in water use by agriculture
Definition	<p>Increase in efficiency of water use in agriculture (for irrigation) in RDP supported projects.</p> <p><i>Water efficiency = $\frac{\text{Volume of irrigation water}}{\text{Standard unit of crop output}}$, per year.</i></p> <p><i>Change in water efficiency = water efficiency in irrigation before the implementation of projects (m³/€, per year) – water efficiency after the completion of the projects (m³/€, per year).</i></p> <p><i>A positive change shows an increase in the efficiency of water use in irrigation due to the projects' implementation.</i></p> <p>The indicator is related to AEI 7 (Irrigation) and AEI 20 (water abstraction).</p>
Unit of measurement	<p>Change in water efficiency for irrigation in m³ water per standard unit of output in € in a year (m³/€)</p> <p><i>Water efficiency for irrigation in m³/€, per year</i></p>
Methodology	<p>Evaluators will survey a sample of completed operations <i>contributing</i> to the Focus Area <i>5A both as primary and secondary contributions</i> and establish the changes in water use and output and hence the increase in efficiency of water use, through the implementation of the projects.</p> <p><i>The calculation of the indicator's value in m³/€ may include the following steps:</i></p> <p><i>Step 1:</i> An appropriate sample will be selected based on project and beneficiary characteristics included in the operations database.</p>

² European Commission (2014): Working Document. [Complementary Result Indicator fiches for Pillar II.](#)

	<p><i>Step 2: Implement the survey and collect the data on water consumption in m³ and standard output in € for before and after all the projects' implementation.</i></p> <p><i>Step 3:</i> The indicator value may be calculated directly from data from the survey (e.g. crop output and water consumption) combined with other information (e.g. standard output values or coefficients for water consumption of different irrigation technologies). The same output values should be used for the before and after calculations to avoid distortions due to commodity price variability.</p> <p>Results obtained from the survey should then be extrapolated to population level in order to calculate the indicator value, i.e. the change in the efficiency of water use.</p> <p>The total value should reflect the result of projects flagged as contributing to the Focus Area both through primary and secondary contributions.</p> <p>Detailed guidance on the methodology to be used is provided in Annex 11 of the Guidelines 'Assessment of RDP results'.</p>
<p>Data required</p>	<p>Identification and basic characteristics (size, type) of projects with a water-saving/efficiency component (operations database).</p> <p>Information from the completed project on the situation before and after project implementation (<i>the volume of water in m³ before and after the project's implementation, the standard crop output in € before and after the project's implementation</i>, the technology used, size of infrastructure).</p> <p><i>Data sources may include the operations database, application forms, IACS/LPIS, the FADN, and databases recording irrigation water consumption.</i></p>
<p>Point of data collection</p>	<p><i>Proposed data should refer to two points in time. One before the project's implementation to establish the situation 'before' and a second at least one year after the project's completion to establish the situation 'after'.</i></p> <p>Relevant projects will be identified from application forms and will be visible in the operations database. Relevant projects fall into two categories:</p> <ol style="list-style-type: none"> 1. Those accepted under Focus Area 5A where the main objective is increasing water efficiency. These are directly linked to P5A. 2. Those whose main objective is linked to another focus area (e.g. farm restructuring) but which also have an impact on water efficiency. These are identifiable from the operations database using the "secondary effects" field. <p>Information on completed projects to be collected from beneficiaries by evaluators.</p>
<p>Frequency</p>	<p>Three times during the programming period: 2016; 2018; ex post</p>

<p>Means of transmission to Commission</p>	<p>Enhanced AIR 2017 Enhanced AIR 2019 Ex post evaluation report</p>
<p>Comments/caveats</p>	<p>It is proposed that the Evaluation Plan, drawn up as part of each RDP, should provide for the results of the RDP to be assessed using this indicator and appropriate methodology (for which guidance is provided) in order to ensure input for the enhanced AIRs in 2017 and 2019 (so that these reports can assess progress towards achieving the objectives of the programme as required by Art. 44(3) and (4) of the CPR), and to provide a final assessment at the end of the programming period.</p> <p><i>CCI39 'Water abstraction in agriculture' is indirectly linked to R13.</i></p> <p><i>The fact that the indicator takes account only of irrigation water may be a caveat especially for RDPs which support water efficiency projects in agricultural activities other than irrigation.</i></p> <p><i>Guidance is provided in Annex 11 of the Guidelines 'Assessment of RDP results'.</i></p>

CRI 14 'INCREASE IN EFFICIENCY OF ENERGY USE IN AGRICULTURE AND FOOD PROCESSING IN RDP SUPPORTED PROJECTS'

The text which has been added to the fiche³ has been marked in *blue italics*.

Indicator Name	Increase in efficiency of energy use in agriculture and food processing in RDP supported projects
Indicator code	R14
Target indicator	No
The related priority	P5 Promoting resource efficiency and supporting the shift towards a low carbon and climate resilient economy in agriculture, food and forestry sectors
The related focus area	5B Increasing efficiency in energy use by agriculture and food processing
Definition	<p>Increase in efficiency of energy use in agriculture and food processing in RDP supported projects.</p> <p><i>Efficiency = $\frac{\text{Amount of energy used in one year}}{\text{Output in one year}}$.</i></p> <p><i>Amount of energy = the sum of all energy forms consumed in one year.</i></p> <p><i>Output for farms = the standard crop and livestock output according to FADN terminology.</i></p> <p><i>Output for enterprises in the food sector = Gross output = Sales + Changes in Inventories (i.e. ending inventory - beginning inventory).</i></p> <p><i>The change in efficiency = the difference between the efficiency in the baseline (before the project) and after the completion of the project as:</i></p> <p><i>Change in efficiency = Efficiency before – Efficiency after</i></p> <p><i>A positive change shows an increase in the efficiency of energy use in agriculture and food processing due to the project's implementation.</i></p> <p>The indicator is related to AEI 8 (Energy use)</p>
Unit of measurement	<p><i>Energy in Tonnes of Oil Equivalent (T.O.E) per year</i></p> <p><i>Standard output and Gross output in thousand euro per year</i></p> <p><i>Efficiency in T.O.E/ in millions €, per year</i></p> <p><i>Increase in efficiency in T.O.E/ output in millions €, per year</i></p>

³ European Commission (2014): Working Document. [Complementary Result Indicator fiches for Pillar II.](#)

<p>Methodology</p>	<p>Evaluators will survey a sample of completed operations <i>contributing</i> to the Focus Area <i>5B both as primary and secondary contributions</i>, and establish the changes in energy use and output, and hence the increase in efficiency of energy use, through the implementation of the projects.</p> <p><i>The calculation of the indicator's value in T.O.E/ in millions € may include the following steps:</i></p> <p><i>Step 1:</i> An appropriate sample will be selected based on project and beneficiary characteristics included in the operations database.</p> <p><i>Step 2: Conduct a survey to collect the data on energy consumption in T.O.E, standard output for farms and gross output for firms in millions € for before and after all of the projects' implementation.</i></p> <p>Step 3: The indicator value may be calculated directly from data from the survey (e.g. output and energy consumption) combined with other information (e.g. standard output values or coefficients for the energy consumption of different production technologies), in order to calculate indicator values. The same output values should be used for the before and after calculations to avoid distortions due to commodity price variability.</p> <p>Results obtained from the survey should then be extrapolated to population level in order to calculate the indicator value, i.e. the increase in efficiency of energy usage.</p> <p>The total value should reflect the result of projects flagged as contributing to the Focus Area both through primary and secondary contributions.</p> <p>Detailed guidance on the methodology to be used is provided in Annex 11 of the Guidelines 'Assessment of RDP results'.</p>
<p>Data required</p>	<p>Identification and basic characteristics (size, type) of projects with an energy saving/efficiency component (operations database).</p> <p>Information from the completed project on the situation before and after project implementation (<i>Total energy consumption in T.O.E before and after the project's implementation, the standard or gross output in Millions € before and after the project's implementation</i> the technology used).</p> <p><i>Data sources may include the operations database, application forms, the FADN and databases of public financial statements for firms in the food sector.</i></p> <p>Standard output value figures (FADN) <i>per Member State and region:</i></p> <p>http://ec.europa.eu/eurostat/web/agriculture/so-coefficients</p> <p><i>Coefficients for the conversion of energy consumption and savings from various energy units to T.O.E by the International Energy Agency unit converter are available at:</i></p> <p>https://www.iea.org/reports/unit-converter-and-glossary</p>

<p>Point of data collection</p>	<p><i>Proposed data should refer to two points in time. One before the project's implementation to establish the situation 'before' and a second at least one year after the action is fully operational to establish the situation 'after'.</i></p> <p>Relevant projects will be identified from application forms and will be visible in the operations database. Relevant projects fall into two categories:</p> <ol style="list-style-type: none"> 1. Those accepted under Focus Area 5B where the main objective is increasing energy efficiency. These are directly linked to P5B. 2. Those whose main objective is linked to another focus area (e.g. farm restructuring) but which also have an impact on energy efficiency. These are identifiable from the operations database using the "secondary effects" field. <p>Information on completed projects to be collected from beneficiaries by evaluators.</p>
<p>Frequency</p>	<p>Three times during the programming period: 2016; 2018; ex post</p>
<p>Means of transmission to Commission</p>	<p>Enhanced AIR 2017 Enhanced AIR 2019 Ex post evaluation report</p>
<p>Comments/caveats</p>	<p>It is proposed that the Evaluation Plan, drawn up as part of each RDP, should provide for the results of the RDP to be assessed using this indicator and appropriate methodology (for which guidance is provided) in order to ensure input for the enhanced AIRs in 2017 and 2019 (so that these reports can assess progress towards achieving the objectives of the programme as required by Art. 44(3) and (4) of the CPR), and to provide a final assessment at the end of the programming period.</p> <p><i>CCI44 'Energy use in agriculture, forestry and food industry' is indirectly linked to R14.</i></p> <p>This indicator is not intended to capture the production of renewable energy, which is accounted for separately under Priority 5C.</p> <p><i>Guidance is provided in Annex 11 of the Guidelines 'Assessment of RDP results'.</i></p>

CRI 15 'RENEWABLE ENERGY PRODUCTION FROM SUPPORTED PROJECTS'

The text which has been added to the fiche⁴ has been marked in *blue italics*.

Indicator Name	Renewable energy production from supported projects
Indicator code	R15
Target indicator	No
The related priority	P5 Promoting resource efficiency and supporting the shift towards a low carbon and climate resilient economy in agriculture, food and forestry sectors
The related focus area	5C Facilitating the supply and use of renewable sources of energy, of by products, wastes, residues and other non-food raw material for purposes of the bio-economy
Definition	<p>Capacity created and energy generated in RDP supported renewable energy projects, expressed in Tonnes of Oil Equivalent (T.O.E).</p> <p><i>Capacity is the maximum output of energy that a generator has the ability to create. This is usually measured in Megawatts (MW) or Gigawatts (GW).</i></p> <p><i>For the purposes of this indicator capacity is defined as the maximum output of energy that a generator can produce under ideal conditions in an operating hour. This is measured in energy units, usually a Megawatthour (MWh) or Kilowatthour (KWh) for smaller generators, Tonnes of Oil Equivalent (T.O.E), etc.</i></p> <p><i>However, energy generators do not operate all the time or do not operate at maximum output. Energy generated is the amount of energy actually produced over a year by a specific generator.</i></p> <p><i>Example: A photovoltaic installation with 10 KW power has an energy capacity of 10 KWh (0.00086 T.O.E) and, the energy generated in a year will depend on the hours of ideal operation within the year which, in turn, depends on the place it is installed in Europe. For example, it can generate from 9,000 KWh (0.773861 T.O.E) in cold and cloudy climates to 14,000 KWh (1.203783 T.O.E) in temperate and sunny climates in a year.</i></p> <p>The indicator is related to AEI 24 (renewable energy production).</p>
Unit of measurement	<p>Tonnes oil equivalents (T.O.E).</p> <p><i>Capacity in T.O.E.</i></p> <p><i>Energy generated annually in T.O.E from the above capacity.</i></p> <p>All energy units are converted into T.O.E.</p>

⁴ European Commission (2014): Working Document. [Complementary Result Indicator fiches for Pillar II.](#)

	<p><i>Conversion may be needed because the units of energy are, usually, reported in Watthour (Kilo or Mega).</i></p>
<p>Methodology</p>	<p>Evaluators will survey a sample of completed operations <i>contributing</i> to the Focus Area <i>5C both as primary and secondary contributions</i>, and establish the renewable energy capacity created, and the renewable energy generated, through the implementation of the projects.</p> <p><i>The calculation of the indicator's value in T.O.E may include the following steps:</i></p> <p><i>Step 1:</i> An appropriate sample will be selected based on project and beneficiary characteristics included in the operations database.</p> <p><i>Step 2: Implement the survey and collect the data on capacity and actual energy generated in T.O.E for before and after the projects' completion.</i></p> <p><i>Step 3:</i> The indicator value may be calculated directly from data from the survey (e.g. actual figures for energy generation) and may be combined with other information (e.g. coefficients such as those included in Directive 2009/28/EC), in order to calculate indicator values.</p> <p>Results obtained from the survey should then be extrapolated to the population <i>of completed operations</i> in order to calculate the indicator value, i.e. <i>the capacity and</i> the amount of renewable energy generated.</p> <p>The total value should reflect the result of projects flagged as contributing to the Focus Area both through primary and secondary contributions.</p> <p>Detailed guidance on the methodology to be used is provided in Annex 11 of the Guidelines 'Assessment of RDP results'.</p>
<p>Data required</p>	<p>Identification and basic characteristics (size, type) of projects with a renewable energy component (operations database).</p> <p>Information from the completed project (technology used, capacity, energy generated). <i>Installed capacity maybe available in the operations database through the certification provided either by the certified installer or seller. This is called nameplate generation capacity.</i></p> <p><i>Coefficients for the conversion of renewable energy from various energy units to T.O.E by the International Energy Agency unit converter at:</i></p> <p>https://www.iea.org/reports/unit-converter-and-glossary</p>
<p>Point of data collection</p>	<p><i>Proposed data should refer to two points in time. One before the project's operation to establish the situation 'before' (capacity created) and a second time, if needed, at one year after the action is fully operational to establish the situation 'after' (energy generated).</i></p> <p>Relevant projects will be identified from application forms, and will be visible in the operations database. Relevant projects fall into two categories:</p> <ol style="list-style-type: none"> 1. Those accepted under Focus Area 5C where the main objective is the creation of renewable energy. These are directly linked to P5C.

	<p>2. Those whose main objective is linked to another focus area (e.g. farm restructuring or energy efficiency) but which include a renewable energy component. These are identifiable from the operations database using the "secondary effects" field.</p> <p>Information on <i>actual energy generation</i> to be collected from beneficiaries by evaluators.</p>
Frequency	<p>Three times during the programming period: 2016; 2018; ex post</p>
Means of transmission to Commission	<p>Enhanced AIR 2017 Enhanced AIR 2019 Ex post evaluation report</p>
Comments/caveats	<p>It is proposed that the Evaluation Plan, drawn up as part of each RDP, should provide for the results of the RDP to be assessed using this indicator and appropriate methodology (for which guidance is provided) in order to ensure input for the enhanced AIRs in 2017 and 2019 (so that these reports can assess progress towards achieving the objectives of the programme as required by Art. 44(3) and (4) of the CPR), and to provide a final assessment at the end of the programming period.</p> <p><i>CCI43 "Production of renewable energy from agriculture and forestry" is indirectly linked to R15.</i></p> <p><i>Guidance is provided in Annex 11 of the Guidelines 'Assessment of RDP results'.</i></p>

CRI 18 'REDUCED EMISSIONS OF METHANE AND NITROUS OXIDE'

The text which has been added to the fiche⁵ has been marked in *blue italics*.

Indicator Name	Reduced emissions of methane and nitrous oxide
Indicator code	R18
Target indicator	No
The related priority	P5 Promoting resource efficiency and supporting the shift towards a low carbon and climate resilient economy in agriculture, food and forestry sectors
The related focus area	5D Reducing GHG and ammonia emissions from agriculture
Definition	Reduced emissions of methane and nitrous oxide from agriculture in RDP supported projects <i>measured in Tonnes of CO₂ equivalent per year</i> . <i>Methane and nitrous oxide are emitted in operations described by Tables 3A, 3B, 3C, 3D, 3E, 3F and 3J of the Common Report Format Tables of the National Inventory Report of each Member State.</i> The indicator is related to AEI 19 (GHG emissions).
Unit measurement	<i>of Tonnes of CO₂ Equivalent</i>
Methodology	Evaluators should survey a sample of completed operations <i>contributing</i> to the Focus Area <i>5D both with primary and secondary contributions</i> and establish the changes in emissions of methane and nitrous oxide due to the implementation of the projects. <i>The calculation of the indicator's value in tonnes of CO₂ equivalent may include the following steps:</i> <i>Step 1:</i> An appropriate sample will be selected based on project and beneficiary characteristics included in the operations database. <i>Step 2: Conduct a survey to collect activity data. Convert this data to GHG emissions for before implementation and after all of the projects' completion. Establish the changes in emissions of methane and nitrous oxide due to the implementation of the projects.</i> <i>Step 3:</i> The indicator value will be calculated using a combination of data from the survey (e.g. changes in livestock numbers, husbandry practices, manure storage/handling technology) and standard emission factors to transform the activity data into emission savings. Results obtained from the

⁵ European Commission (2014): Working Document. [Complementary Result Indicator fiches for Pillar II](#).

	<p>survey should then be extrapolated to the population <i>of completed projects</i> in order to calculate the indicator value, i.e. the reduction in emissions of methane and nitrous oxide.</p> <p>The total value should reflect the result of projects flagged as contributing to the Focus Area both through primary and secondary contributions.</p> <p>Detailed guidance on the methodology to be used is provided in Annex 11 of the Guidelines 'Assessment of RDP results'.</p>
Data required	<p>Identification and basic characteristics (size, type) of projects with a GHG reduction component (operations database).</p> <p>Information from the completed project on the situation before and after project implementation (scale, management practices, the technology used).</p> <p>Coefficients for GHG emissions related to specific management practices, production technologies, etc.</p> <p><i>Other data to assist the calculation of the indicator's value include:</i></p> <p><i>National methodologies for the estimation of the emissions in the different IPCC chapters (e.g. Tier 1 or Tier 2, or various national average assumed values and adaptations to the methodologies).</i></p> <p><i>Implied emission coefficients for GHG emissions related to specific management practices, production technologies, etc.</i></p> <p>Absolute net GHG emissions (CH₄ and N₂O) are reported in tonnes of CO₂ equivalent. GHG are accounted on the basis of their global warming potential (GWP) over a 100 year period. GWP values are taken from IPCC(2007) CO₂ =1; CH₄ = 25; N₂O=298. IPCC (2007). <i>Changes in Atmospheric Constituents and in Radiative Forcing, Table 2.14, p.212 at:</i></p> <p>https://www.ipcc.ch/site/assets/uploads/2018/02/ar4-wg1-chapter2-1.pdf</p> <p><i>Data and information sources may include the operations database, application forms, IACS/LPIS, the Animal Register, the FADN and FSS, National Inventory Report (NIR) and the latest Common Reporting Format (CRF) tables at:</i></p> <p>https://unfccc.int/ghg-inventories-annex-i-parties/2020</p> <p><i>and the IPCC's Emission Factor Data Base (EFDB) at:</i></p> <p>https://www.ipcc-nggip.iges.or.jp/EFDB/main.php.</p>
Point of data collection	<p><i>Proposed data should refer to two points in time. One before the project's implementation to establish the situation 'before' and a second at one year after the action is fully operational to establish the situation 'after'.</i></p> <p>Relevant projects will be identified from application forms and will be visible in the operations database. Relevant projects fall into two categories:</p> <ol style="list-style-type: none"> 1. Those accepted under Focus Area 5D, where the main objective is reducing GHG and ammonia emissions. These are directly linked to P5D.

	<p>2. Those whose main objective is linked to another focus area (e.g. farm restructuring) but which also have an impact on GHG emissions. These are identifiable from the operations database using the "secondary effects" field.</p> <p>Information <i>on activity data and management practices</i> on completed projects to be collected from beneficiaries by evaluators.</p>
Frequency	<p>Three times during the programming period:</p> <p>2016; 2018; ex post</p>
Means of transmission to Commission	<p>Enhanced AIR 2017</p> <p>Enhanced AIR 2019</p> <p>Ex post evaluation report</p>
Comments/caveats	<p>It is proposed that the Evaluation Plan, drawn up as part of each RDP, should provide for the results of the RDP to be assessed using this indicator and appropriate methodology (for which guidance is provided) in order to ensure input for the enhanced AIRs in 2017 and 2019 (so that these reports can assess progress towards achieving the objectives of the programme as required by Art. 44(3) and (4) of the CPR), and to provide a final assessment at the end of the programming period.</p> <p><i>CCI45 'Emissions from agriculture' is directly linked to R18.</i></p> <p><i>Guidance is provided in Annex 11 of the Guidelines 'Assessment of RDP results'.</i></p>

CRI 19 'REDUCED AMMONIA EMISSIONS'

The text which has been added to the fiche⁶ has been marked in *blue italics*.

Indicator Name	Reduced ammonia emissions
Indicator code	R19
Target indicator	No
The related priority	P5 Promoting resource efficiency and supporting the shift towards a low carbon and climate resilient economy in agriculture, food and forestry sectors.
The related focus area	5D Reducing greenhouse gas and ammonia emissions from agriculture.
Definition	Reduced emissions of ammonia from agriculture in RDP supported projects. <i>Ammonia, according to the National Emission Ceiling Directive (NECD) and the National emission inventories is emitted from the agricultural activities of Sector K AgriLivestock (NFR Code 3B) and Sector L_AgriOther (NFR Code 3D).</i> The indicator is related to AEI 18 (Ammonia emissions from agriculture).
Unit measurement of	Tonnes of ammonia
Methodology	Evaluators will survey a sample of completed operations <i>contributing</i> to the Focus Area <i>5D both as primary and secondary contributions</i> , and establish the changes in emissions of ammonia due to the implementation of the projects. <i>The calculation of the indicator's value in tonnes of ammonia may include the following steps:</i> <i>Step 1:</i> An appropriate sample will be selected based on project and beneficiary characteristics included in the operations database. <i>Step 2: Conduct a survey and collect the activity data. Convert this data to ammonia emissions for both before and after all of the projects' implementation.</i> <i>Step 3:</i> The indicator value will be calculated using a combination of data from the survey (e.g. changes in livestock numbers, husbandry practices, manure storage/handling technology) and standard emission factors/coefficients to transform the activity data into emission savings. Results obtained from the survey should then be extrapolated to the

⁶ European Commission (2014): Working Document. [Complementary Result Indicator fiches for Pillar II.](#)

	<p>population <i>of completed operation</i> in order to calculate the indicator value (i.e. the reduction in emissions of ammonia).</p> <p>The total value should reflect the result of projects flagged as contributing to the Focus Area both through primary and secondary contributions.</p> <p>Detailed guidance on the methodology to be used is provided in Annex 11 of the Guidelines 'Assessment of RDP results'.</p>
Data required	<p>Identification and basic characteristics (size, type) of projects with an ammonia reduction component (operations database).</p> <p>Information from the completed project on the situation before and after project implementation (scale, management practices, the technology used).</p> <p>Standard emission factors are obtained from guidance sources such as the EMEP/EEA Air Pollutant Emission Inventory Guidebook <i>specifically for agriculture at EEA's website</i>:</p> <p>https://www.eea.europa.eu/publications/emep-eea-guidebook-2019/part-b-sectoral-guidance-chapters/4-agriculture</p> <p><i>National methodologies for the estimation of emissions for each of the NECD sectors are detailed in the National 'Informative Inventory Report' accessible on the EEA's website or obtained directly from the national reporter.</i></p>
Point of data collection	<p><i>Proposed data should refer to two points in time. One before the project's implementation to establish the situation 'before' and a second at least one year after the action is fully operational to establish the situation 'after'.</i></p> <p>Relevant projects will be identified from application forms and will be visible in the operations database. Relevant projects fall into two categories:</p> <ol style="list-style-type: none"> 1. Those accepted under Focus Area 5D where the main objective is reducing GHG and ammonia emissions. These are directly linked to P5D. 2. Those whose main objective is linked to another focus area (e.g. farm restructuring) but which also have an impact on ammonia emissions. These are identifiable from the operations database using the "secondary effects" field. <p>Information on completed projects to be collected from beneficiaries by evaluators.</p>
Frequency	<p>Three times during the programming period:</p> <p>2016,2018, ex post</p>
Means of transmission to Commission	<p>Enhanced AIR 2017</p> <p>Enhanced AIR 2019</p> <p>Ex post evaluation report</p>

Comments	<p>It is proposed that the Evaluation Plan, drawn up as part of each RDP, should provide for the results of the RDP to be assessed using this indicator and appropriate methodology (for which guidance is provided) in order to ensure input for the enhanced AIRs in 2017 and 2019 (so that these reports can assess progress towards achieving the objectives of the programme as required by Art. 44(3) and (4) of the CPR), and to provide a final assessment at the end of the programming period.</p> <p><i>CCI45 'Emissions from agriculture' is directly linked to R19.</i></p> <p><i>Guidance is provided in Annex 11 of the Guidelines 'Assessment of RDP results'.</i></p>
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