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LIFE 15 IPE IT 013

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Po Regions Engaged to Policies of Air

Monitoring the air quality plans actions: emissions inventory

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Regione Emilia-Romagna
Regione del Veneto
Regione Lombardia
Regione Piemonte
Regione Autonoma Friuli Venezia Giulia
Provincia Autonoma di Trento
arpae agenzia prevenzione ambiente energia emilia-romagna
arpav Agenzia Regionale per la Prevenzione e Protezione Ambientale del Veneto
Arpa Piemonte Agenzia Regionale per la Protezione Ambientale
ARPA Lombardia Agenzia Regionale per la Protezione dell'Ambiente
ARPA Valle d'Aosta
ARPA FVG Agenzia Regionale per la Protezione dell'Ambiente del Friuli Venezia Giulia
ARSO Environment Slovenian Environment Agency
Comune di Bologna
Comune di Milano
Città di Torino
ERVET Emilia-Romagna Valorizzazione Economica Territorio
FLA Fondazione Lombardia per l'Ambiente

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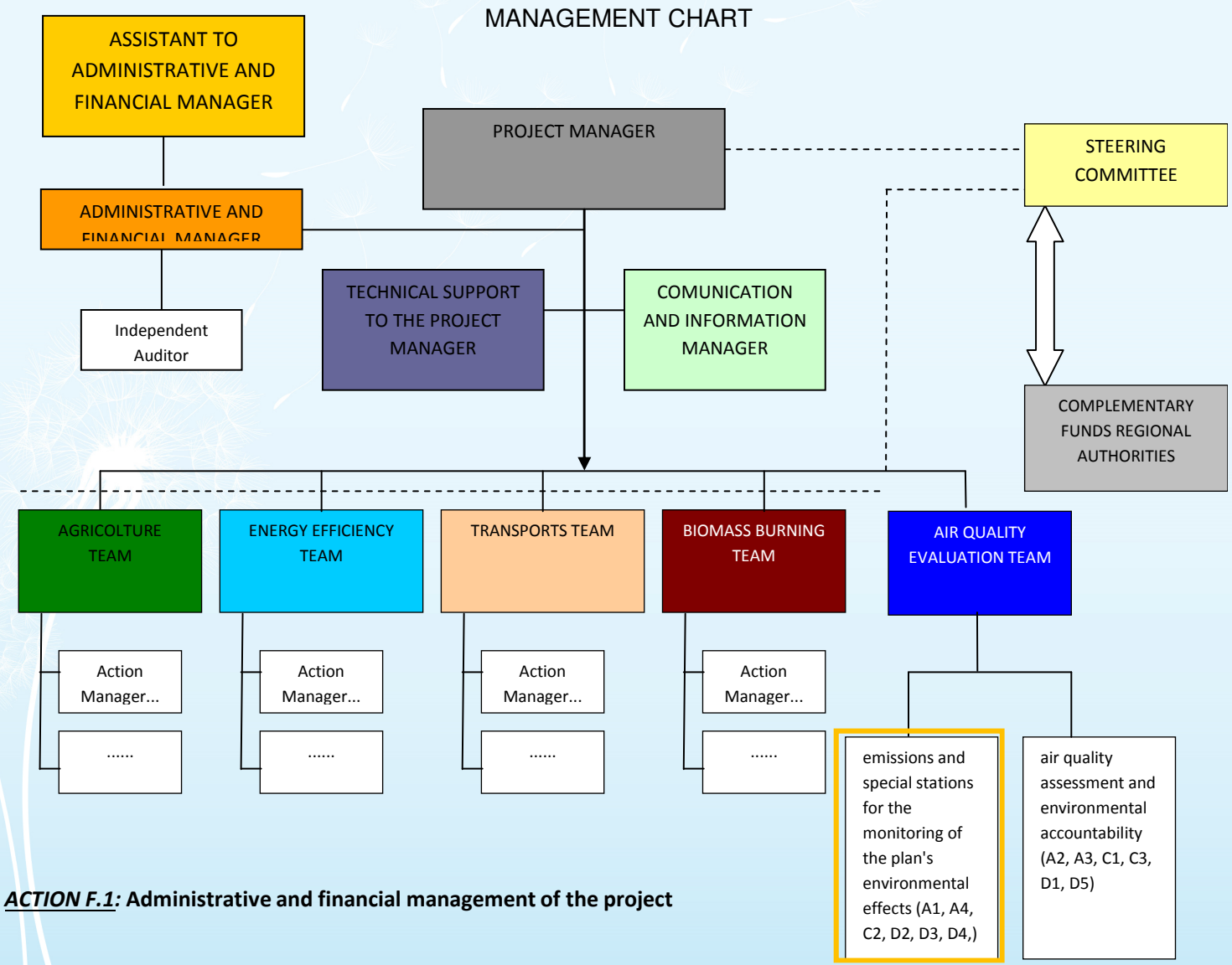
Thematic Pillars



Adapted From: ***ACTION F.1:*** **Administrative and financial management of the project**

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The Actions by pillars

Emissions and special stations (ARPA Lombardy)

- A – Preparatory
  - **A1 Emissions data set**
  - **A4 Setting the measuring protocols for special stations**
- C - Concrete
  - **C2 Implementing the emission data warehouse**
- D - monitoring the impact of project actions
  - **D2 Periodic update of emission data**
  - **D3 Focus on wood consumption**
  - **D4 Focus on traffic flow**
  - **D6 Monitoring of the environmental effects of the plan by special stations**

- Air quality assessment and environmental accountability (Arpae)
- A – Preparatory
  - A2 the "actions and measures" data set and web based platform for collecting data
  - A3 preliminary assessment of the AQ plans impact on air quality
- C - Concrete
  - C1 Implementing the data sharing infrastructure
  - C1 Implementing the Air Quality models
  - C3 Implementing the Integrated Assessment model
- D - monitoring the impact of project actions
  - D1 Periodical collection of the application rate of measures already planned
  - D5 Regular assessment (monthly/yearly) of the air quality of the Po basin

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PREPARATORY PHASE: ACTION A1 – Emission data set

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Emissions

Coordinator: Arpa Lombardia
Area of implementation:
Emilia-Romagna, Piedmont, Lombardy, Veneto, Valle d'Aosta, Friuli Venezia Giulia, Trento, Bolzano and Slovenia
Participants:
Environmental Agencies of the regions involved

Action:

- A first common emission dataset will be built by combining the existing emission inventories in the Po Valley and Slovenia
- Data analysis will provide information on the largest discontinuities among inventories in the Po Valley and support the identification of possible ways to reduce them as input for action D2

Deliverables:

•N.1 data set of emissions for the Po Valley and Slovenia in the reference year (31/01/2018);
•N.1 Report on data flow definition, quantification of the main divergences and procedures for their reduction (31/10/2018).

Timetable

The action will last from February 2017 and December 2018

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PREPARATORY PHASE: ACTION A1 – Emission data set Milestone

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Emissions

Milestone

- Start up meeting within responsible of actions A.1, A.2 and A.3 for coordinate the actions (30/04/2017);
- Identification of local sources (31/08/2017);
- Delivery of the data set for the reference year with the existing emission inventories in the Po Valley and Slovenia (input for action A3) (30/01/2018);
- joint meeting within coordinators of actions A.1, A.2 and A.3 for checking the data and define evaluation method (31/01/2018);
- Quantification of the main divergences of diffuse emission sources among existing emission inventories (30/04/2018);
- Definition procedure for the preparation of emission scenarios according to future trend analysis provided by external sources and in collaboration with action A.2 (31/10/2018);
- Delivery of final report (31/10/2018)

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CONCRETE PHASE: ACTION C2 – Tool for improved emission inventory on the Po basin and emission data warehouse

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Emissions

Coordinator: Arpa Lombardia
Area of implementation:
Emilia-Romagna, Piedmont, Lombardy, Veneto, Valle d'Aosta, Friuli Venezia Giulia, Trento, Bolzano
Participants:
Environmental Agencies of the regions involved

Action:

- A tool for collecting the data necessary to build up a common emission data on the Po Valley to be used as input for emission first scenarios development (interface action C3 RIAT+)
- Algorithms for common run for emission from road traffic and biomass burning on Po basin

Deliverables:

- Report: definition of format specifications for data exchange: precise definition of which data and metadata will be exchanged (31/07/2018);
- Informative platform for collecting emission data (31/01/2020).

Milestones:

- Availability of data relative to existing emission inventories by all partners according to standards defined in deliverable 1 (31/10/2018);
- Delivery of the informative platform (31/01/2020).

Timetable

The action will last from January 2018 and December 2019)

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MONITORING PHASE ACTION D.3: Residential wood consumption estimation in the Po Valley

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Emissions

Coordinator: ARPA Veneto
Area of implementation:
Emilia-Romagna, Piedmont, Lombardy, Veneto, Valle d'Aosta, Friuli Venezia Giulia, Trento, Bolzano
Participants: Environmental Agencies of the regions involved

Action:
Provide updated and detailed information concerning the atmospheric emissions from domestic heating sector and promote common policies related to domestic heating sector.

- Estimation of wood consumption with particular focus in the main large cities included in Po Basin;
- Implementation of a domestic heating consumption balance
- The action will be realized by the external assistance of a professional company with consolidated experience in the execution of survey studies.

Deliverables:
- n. 1 report and complete dataset (surveys data, metadata and results) on the use of woody biomass and appliances share at province level with particular focus in the main large cities for domestic heating in the Po Basin, including the territory covered by the regions Valle D'Aosta, Piedmont, Lombardy, Veneto, Friuli Venezia Giulia and Emilia-Romagna and the provinces of Bolzano and Trento (by 31/07/2019);
- n. 1 domestic heating consumption balance as in "expected results" in the household heating sector at Po Basin scale (by 31/01/2020).

Milestones:
- public tender for survey realization (30/09/2018);
- arrangement of the survey questionnaires (31/12/2018);
- public tender for the external assistance for the development of domestic heating consumption balance (31/01/2019);
- elaboration of filled questionnaires (31/05/2019);
- final collection of energy balance data (31/07/2019).

Timetable
The action will last one and half year – from March 2018 to September 2019

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MONITORING PHASE ACTION D4 Traffic flow estimation in the Po Valley

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Emissions

Coordinator: ARPA Piedmont

Area of implementation:

Emilia-Romagna, Piedmont, Lombardy, Veneto, Valle d'Aosta, Friuli Venezia Giulia, Trento, Bolzano

Participants:

Environmental Agencies of the regions involved

Action:

Apply a traffic model over the whole Po Basin, reconstructing vehicular flows on a common road network in order to quantify traffic emissions in the context of regional inventories.

The action will be realized by the external assistance of a professional company with consolidated experience in the transport modelling

Timetable

The action will last four years – from April 2018 to September 2022

Deliverables:

- n. 1 dataset of collected data (graphs, traffic detections, traffic flows) (31/07/2019);
- n. 1 report about collected data and starting framework (31/01/2020);
- n. 1 dataset (metadata and results) of traffic flows assigned on common graph of road network (31/01/2020);
- n. 1 report about assignment methodology, final results and their analysis (31/07/2020);
- at least an update of traffic flows provided by traffic assignment model and the related report (31/12/2022).

Milestones:

- realization of the dataset of collected data (graphs, traffic detections, traffic flows) (31/07/2019);
- realization of the dataset of traffic flows assigned on common graph of road network (31/01/2020);
- at least an update of traffic flows assigned on common graph of road network (31/07/2022).

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MONITORING PHASE: ACTION D.2: Periodic update of emission data

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Emissions

Coordinator: ARPA Lombardia

Area of implementation:

Emilia-Romagna, Piedmont, Lombardy, Veneto, Valle d'Aosta, Friuli Venezia Giulia, Trento, Bolzano

Participants:

Environmental Agencies of the regions involved

Action:

The action will provide a periodic update of emission data according data flow exchange protocol stated in A1 and C2 actions and input data provided by partners. These data will be merged with results form the currently used emission inventory and provided by Slovenia. Will be take into account results from D3 and D4 by the use of the tool developed in C2

Deliverables:

- report on emission dataset (31/12/2020);
- report on emission dataset (31/12/2022).

Milestones:

- implementation of the emission dataset on Po Valley and Slovenia (31/07/2020);
- update emission dataset on Po Valley and Slovenia (31/07/2021);
- update emission scenarios and comparison with previous estimation on Po Valley (31/07/2021);
- update emission dataset on Po Valley and Slovenia (31/07/2022).

Timetable

The action will last one and half year – from March 2018 to September 2022

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LINKS BETWEEN EMISSION ACTIONS (A1-C2-D2) DEADLINES AND PROJECT DURATION

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	TIMETABLE Action Number Name	Code of the associated action	Deadline	Name of the Deliverable	2017				2018				2019				2020				2021				2022			
					I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
	A. Preparatory actions, elaboration of management plans and/or action plans 31/01/2019																											
A1	A1 - Emissions data set	A1	31/01/2018	1 data set of emissions for the Po Valley and Slovenia					31/01																			
		A1	31/10/2018	1 Report on data flow definition, quantification of the main divergences and procedures for their reduction								31/01																
	C. Concrete (conservation/implementation) actions																											
C2	C2 - Tool for improved emission inventory on Po basin and emission data warehouse	C2	31/01/2020	Informative platform for collecting emission data													31/01											
	D. Monitoring of the impact of the project actions																											
D2	D2 - Periodic update of emission data	D2	31/12/2020 and 31/12/2022	Reports on emission dataset																31/12								31/12

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LINKS BETWEEN EMISSION ACTIONS (D2-D3-D4) DEADLINES AND PROJECT DURATION

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	TIMETABLE Action Number Name	Code of the associated action	Deadline	Name of the Deliverable	2017				2018				2019				2020				2021				2022			
					I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
	D. Monitoring of the impact of the project actions																											
D2	D2 - Periodic update of emission data	D2	31/12/2020 and 31/12/2022	Reports on emission dataset																31/12								31/12
D3	D3 - Residential wood consumption estimation in the Po Valley	D3	31/07/2019	n. 1 report and complete dataset on the use of woody biomass and appliances											31/07													
		D3	31/01/2020	n. 1 domestic heating consumption balance													31/01											
D4	D4 - Traffic flow estimation in the Po Valley	D4	31/01/2020	n. 1 dataset (metadata and results) of traffic flows assigned on common graph of road network													31/01											
		D4	31/12/2022	At least an update of traffic flows provided by traffic assignmen.																								

To guarantee that the two emission dataset will be ready for the PREPAIR deadlines, a common effort must be done to synchronize the working program of data collection from all the partners (above all for all the emission sources other than traffic and biomass burning from domestic plants). Type of data (emission, indicator)/format/deadline/exchange protocol ways will be defined.

Reference years for the two D2 dataset (probably 2018, 2020) should be taken into account by all the partners and their emission inventories compilers in planning their medium-long term activities both with frequencies and target years required by Italian Legislation (D.Lgs. 155/2010)

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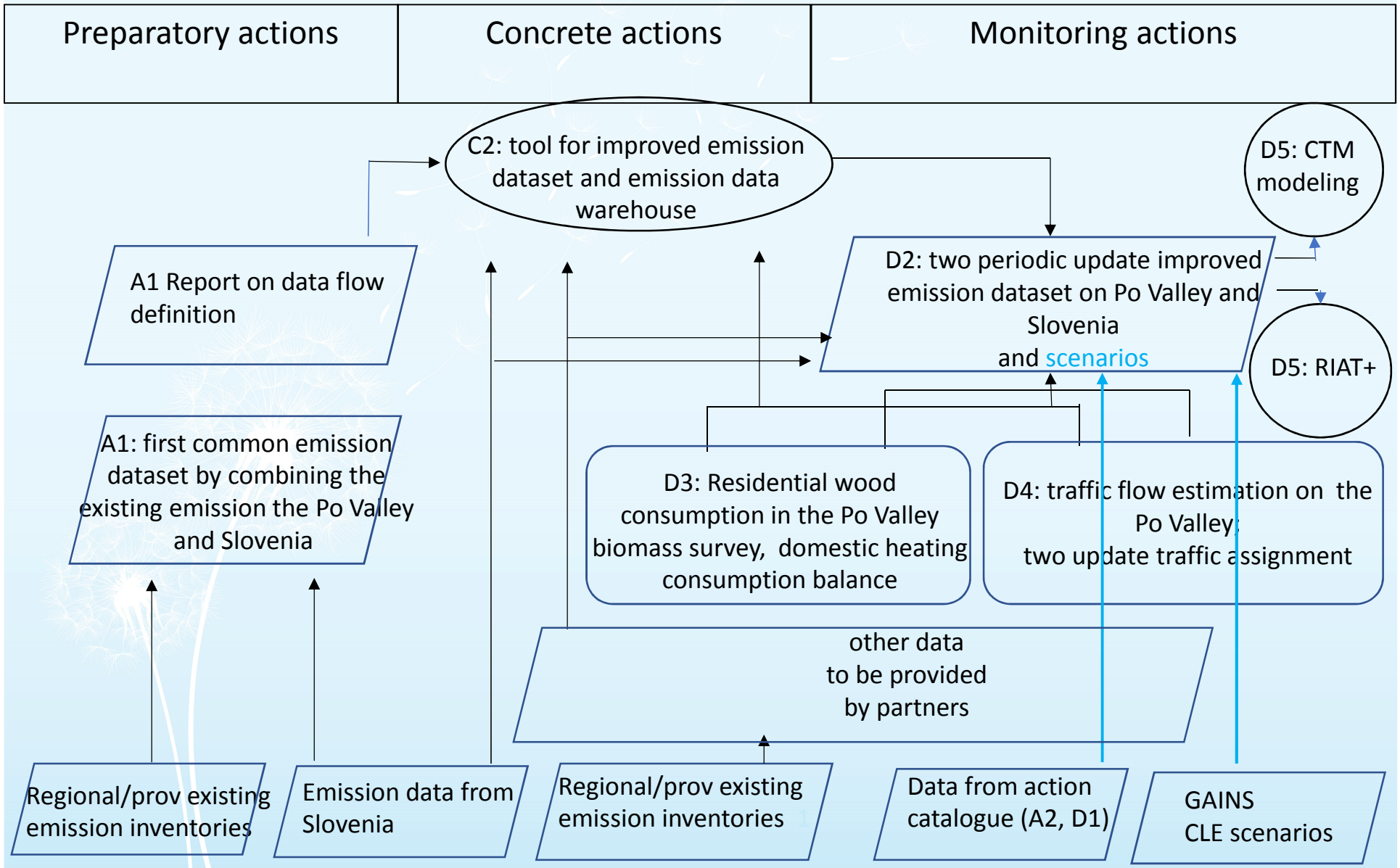
Air quality evaluation actions on emissions: connections with other action



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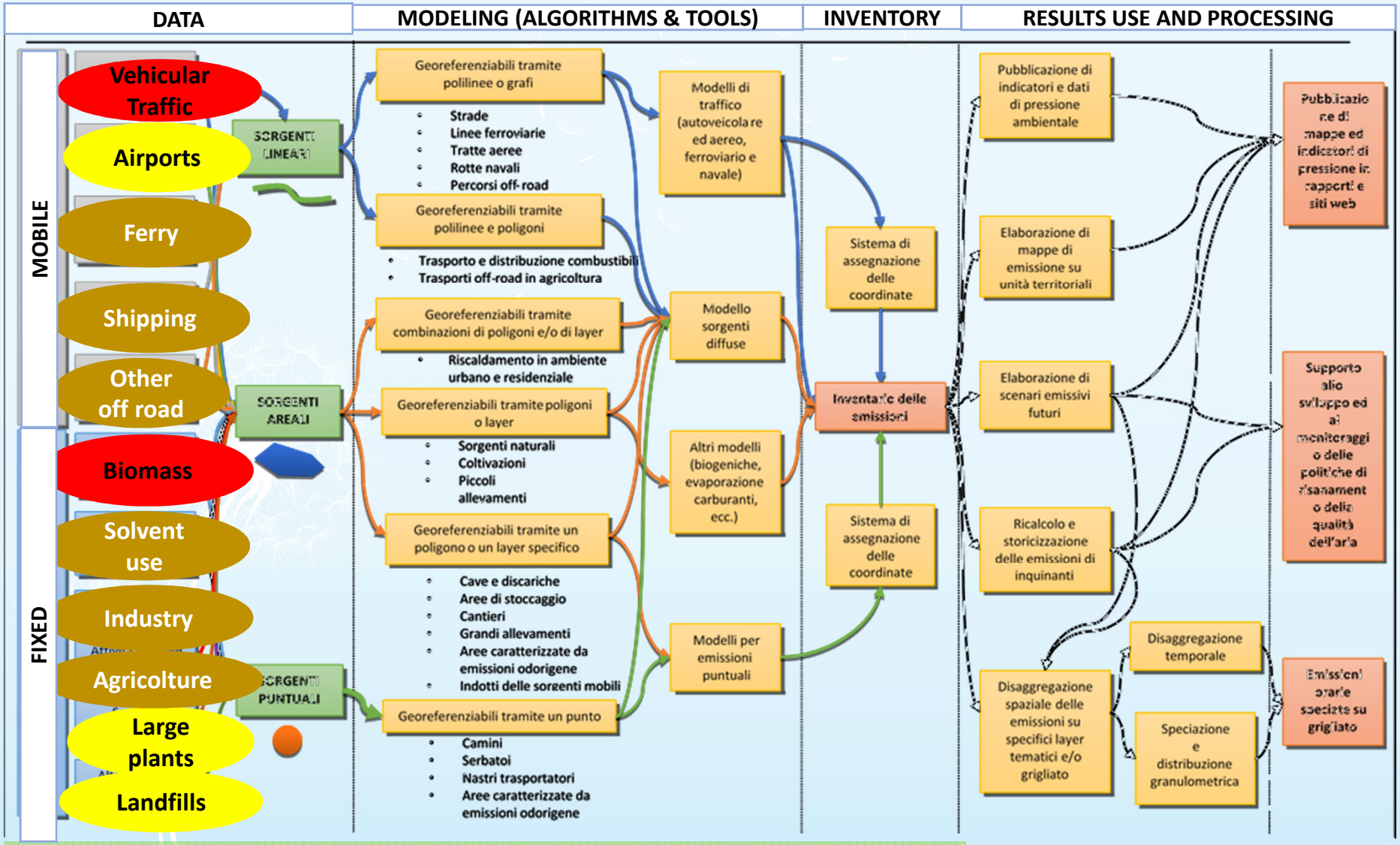


Re-elaborated from: http://www.isprambiente.gov.it/files/snpa/consiglio-federale/DOC78_CFInventariemisisoniinatmconallegati.pdf

Local sources | PREPAIR key sources | Other sources

Air quality evaluation actions on emissions

Emission inventory compilation is a **very complex process**. Its final result can strongly be influenced by different aspects: the choice of input data (indicator, emission factors), metadata and working hypotheses introduced, algorithms and software/dbase used for mathematical emission estimates, post processing on the raw results when necessary to be applied (aggregating, reporting purposes etc).

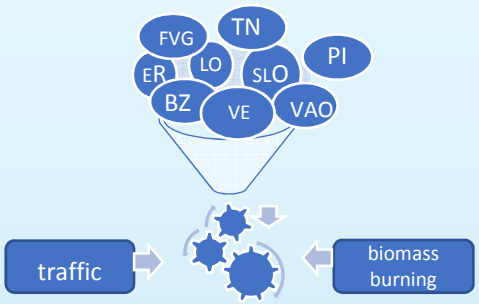
The exit of combination of multiple inventories can be improved with **downstream** discontinuity arrangement by postprcessing their results. However, it is also important to act **upstream**, above all common choice on data and estimation methods in the emission inventory compilation. Acting on both ways can be certainly more effective and guarantees a greater degree of homogeneity of the end result.

Air quality evaluation actions on emissions

The **common traffic graph/flow assignment and residential wood heating consumption** carried on in PREPAIR will be the base for a more coherent and homogeneous emissive estimation on Po basin (C2) from key sources in the frame of the two future emission dataset.

But these dataset will be also built considering local emission sources contribution as developed by local compilers (**large plants, airports, landfills etc.)** as their detailed knowledge will be important to contribute to a more accurate estimation and to a higher quality data for pollutants from local sources on the project domain.

Sources other than biomass burning and road traffic could also require common efforts by partner to smoothing possible divergences that could arise from the analysis of data in the preparatory phase.



Air quality evaluation actions on emissions

One of the goal of the PREPAIR tool is to support the **link between emission data with Integrated Assessment Model (**RIAT+) for scenarios development for defined target years defined by the project.

-> Then the PREPAIR tool output should have the aggregation level/ detail/nomenclature appropriate to be used by IAM or for modeling purposes, not a priori useful for regional emission inventory's ones.

The goal of the PREPAIR tool is to derive a spatial dataset as harmonised as possible over the domain project from regional/provincial emission inventories. It must **include algorithms for common run for emissions from road traffic and biomass burning** on Po basin.

The estimation models used for all the other sources in the frame of routine local emission inventories activities should be also harmonised (same database, as was for some PREPAIR partners with INEMAR system) as much as possible; then additional efforts beyond PREPAIR actions to reach better results.

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thank you for your attention