On the e-Reporting of air quality data (schema for new reporting system)

European Environment Agency

Impacts
on Air Quality e-Reporting

Impacts on Air Quality e-Reporting

There are two major events, which will soon impact the AQ reporting in Europe:

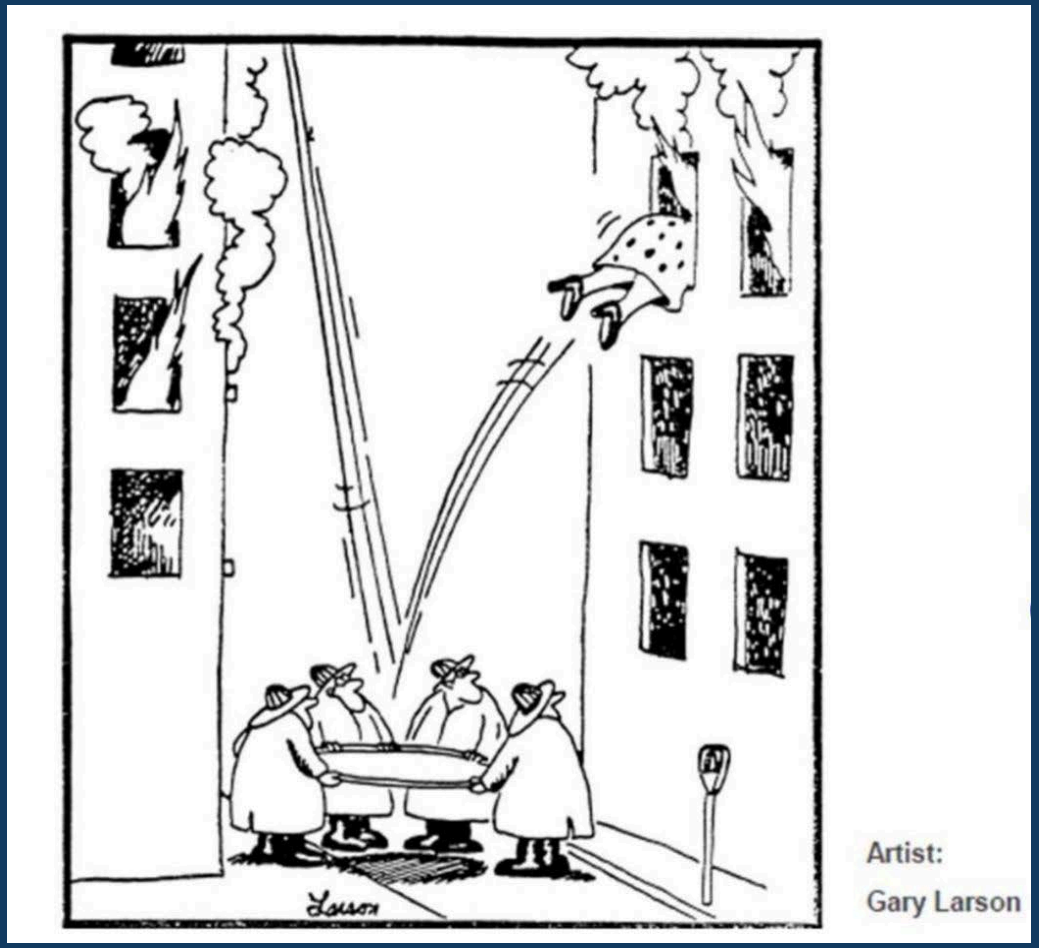
1. *Changes in the Air Quality Directive,*
2. *Migration of AQ e-Reporting to a new reporting system (ReportNet3) with deadline in 2027.*

They were not meant to be related but they will be:
all the modifications due to revised AQD are going to happen
in the ReportNet3 implementation of AQ e-Reporting

Incoming changes:

Opportunity to correct some of the issues induced by the previous transition…

… and to avoid or at least minimise new troubles.*



Artist:
Gary Larson

** …possibly also "unintended consequences".*

EEA's new reporting system
ReportNet3

ReportNet3 - EEA's new reporting system

For the last 4-5 years EEA has been developing new system replacing ReportNet2

The main features of the ReportNet3:

Focus on data instead of files, i.e. XML not driving the reporting processes anymore,

Co-creation of reporting data models (schemas),

More flexibility in data management (e.g. allowing management by change),

QC built in the system (Dremio SQL),

Use of reference data (e.g. external data sets),

...

ReportNet3 - EEA's new reporting system

https://reportnet.europa.eu

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Reportnet — Login

The next generation for e-Reporting environmental and climate data

Reportnet 3 is the new e-Reporting platform for reporting environmental and climate data to the European Environment Agency (EEA). The platform embraces the strategic goals of the European Commission's Green Deal and Digital Strategy and hosts reporting tasks on behalf of EEA and the Commission.

The transition of reporting obligations from Reportnet 2 to Reportnet 3 will take a number of years. Therefore, Reportnet 2 will remain operational until all data flows are migrated and will then become an archive.

Reportnet 2 can be accessed here: http://cdr.eionet.europa.eu/

Need any help?

Please contact us at helpdesk@reportnet.europa.eu

Supporting documents:

- Login
- Reporter
- Requester
- Webforms
- API

Dataflow status

View by obligation dataflow status and download reported data

View by country dataflow status and download reported data

External portals

Reportnet 2

Reportnet is Eionet's infrastructure for supporting and improving data and information flows.

ROD 3

EEA's reporting obligations database

European Environment Agency — Reportnet — helpdesk@reportnet.europa.eu

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Main concepts
for the AQ e-Reporting in ReportNet3

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Main concepts

These are the concepts which seem to be the most important for successful transition of AQ e-Reporting to ReportNet3:

Reference Data Flows,

(Re)submission control,

Flat tables (denormalized)

Common grid system,

Optimized data model & data management,

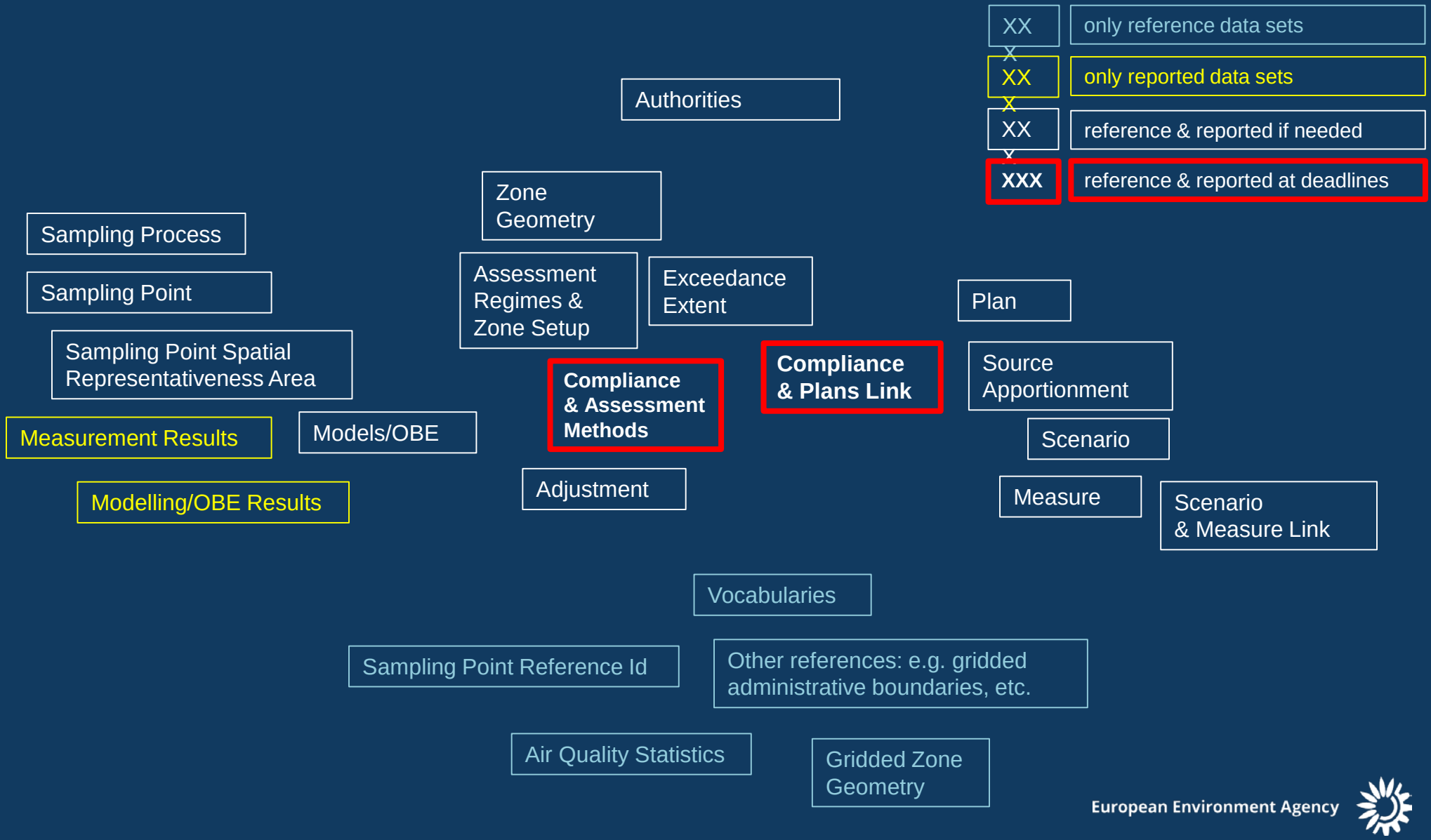
Supporting tool.

In the next slides we will focus on the set of tables proposed for the reporting schema.

Air Quality e-Reporting schema
(proposed for ReportNet3)

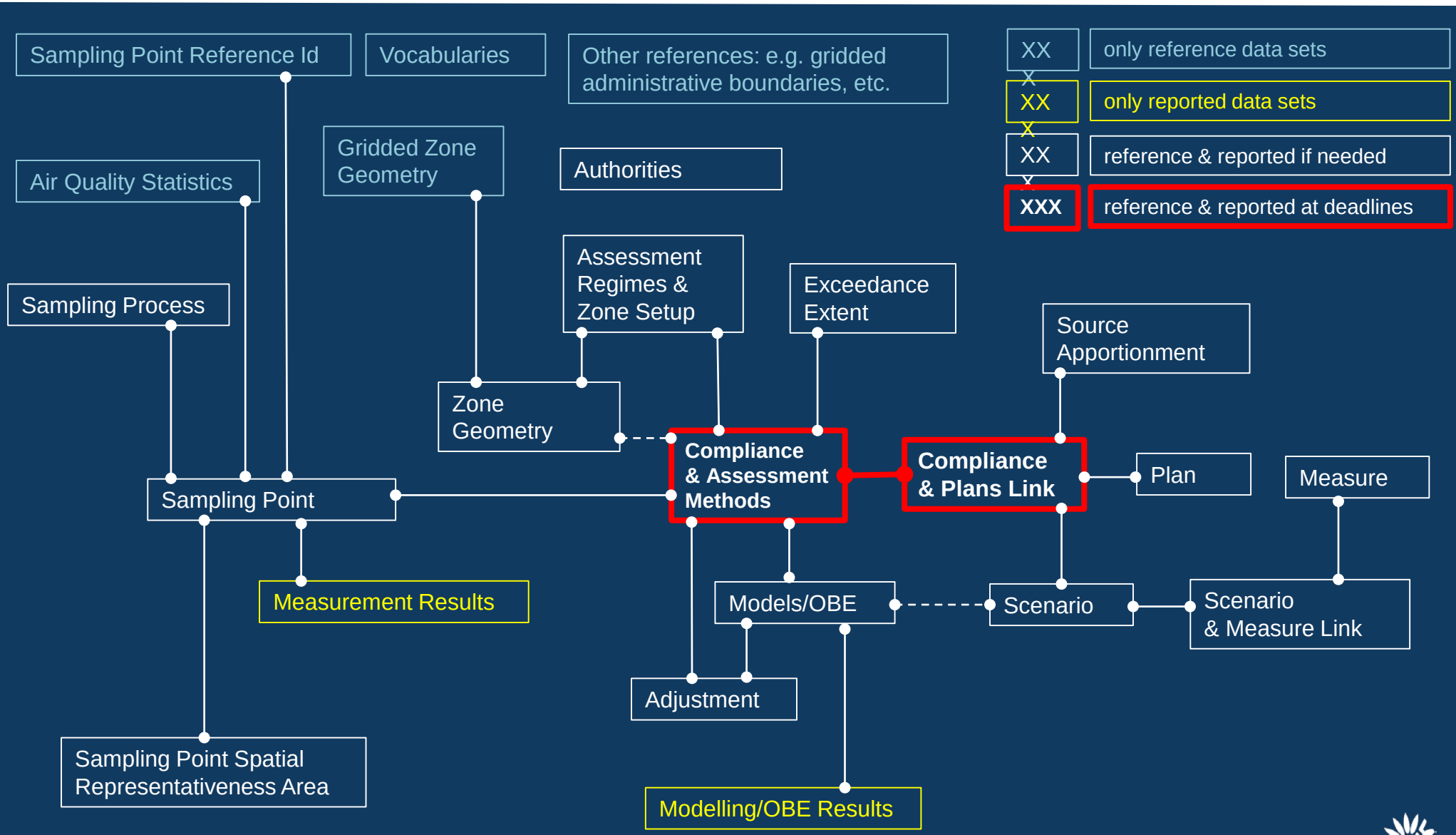
European Environment Agency

AQ e-Reporting ReportNet3 schema: overview



European Environment Agency

AQ e-Reporting ReportNet3 schema: overview



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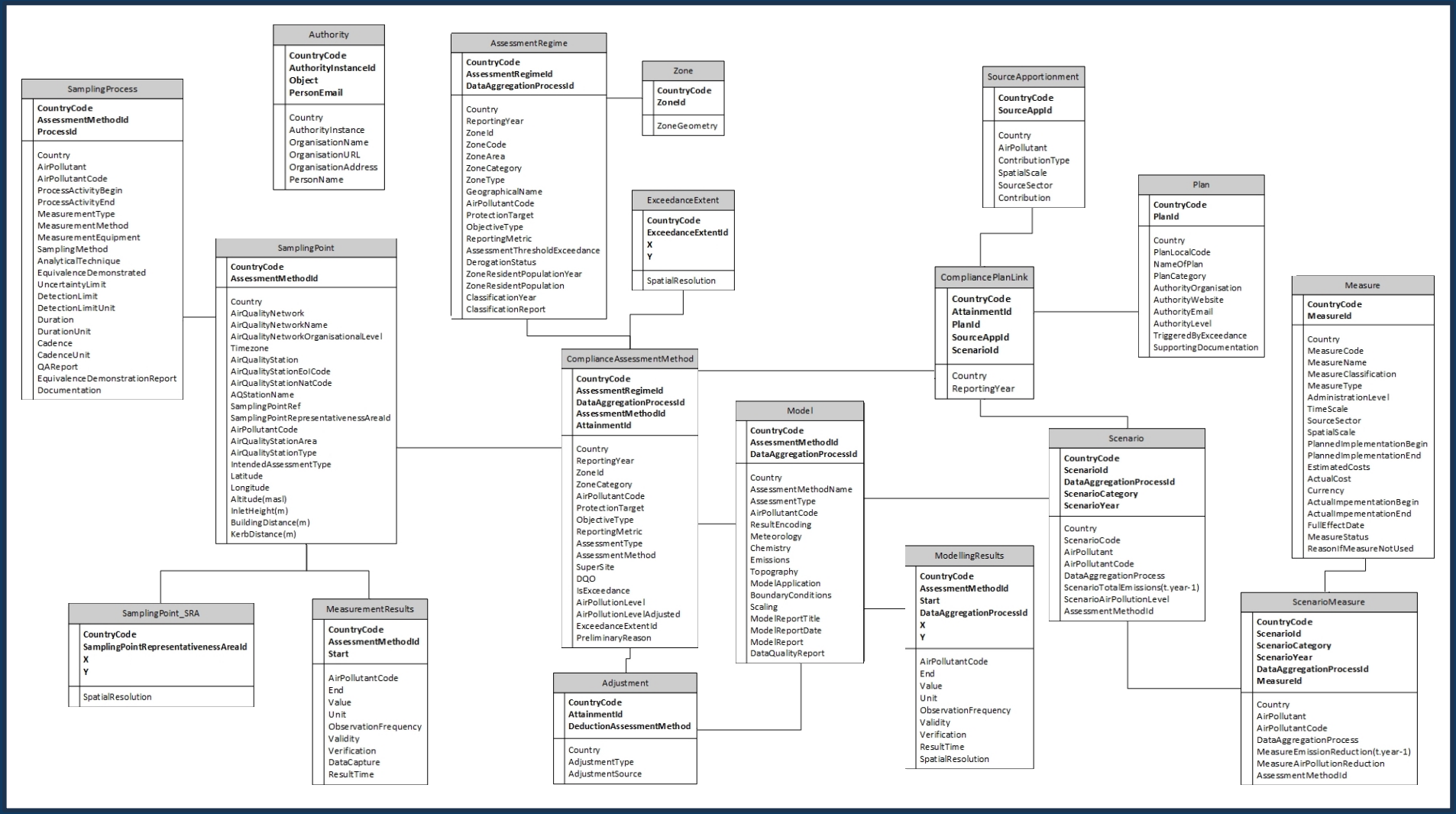
Overview of the data sets
(proposed for ReportNet3)

AQ e-Reporting ReportNet3 schema: overview



AQ e-Reporting ReportNet3 schema: Model & OBE

Current AQ e-Reporting data flow D/E1b

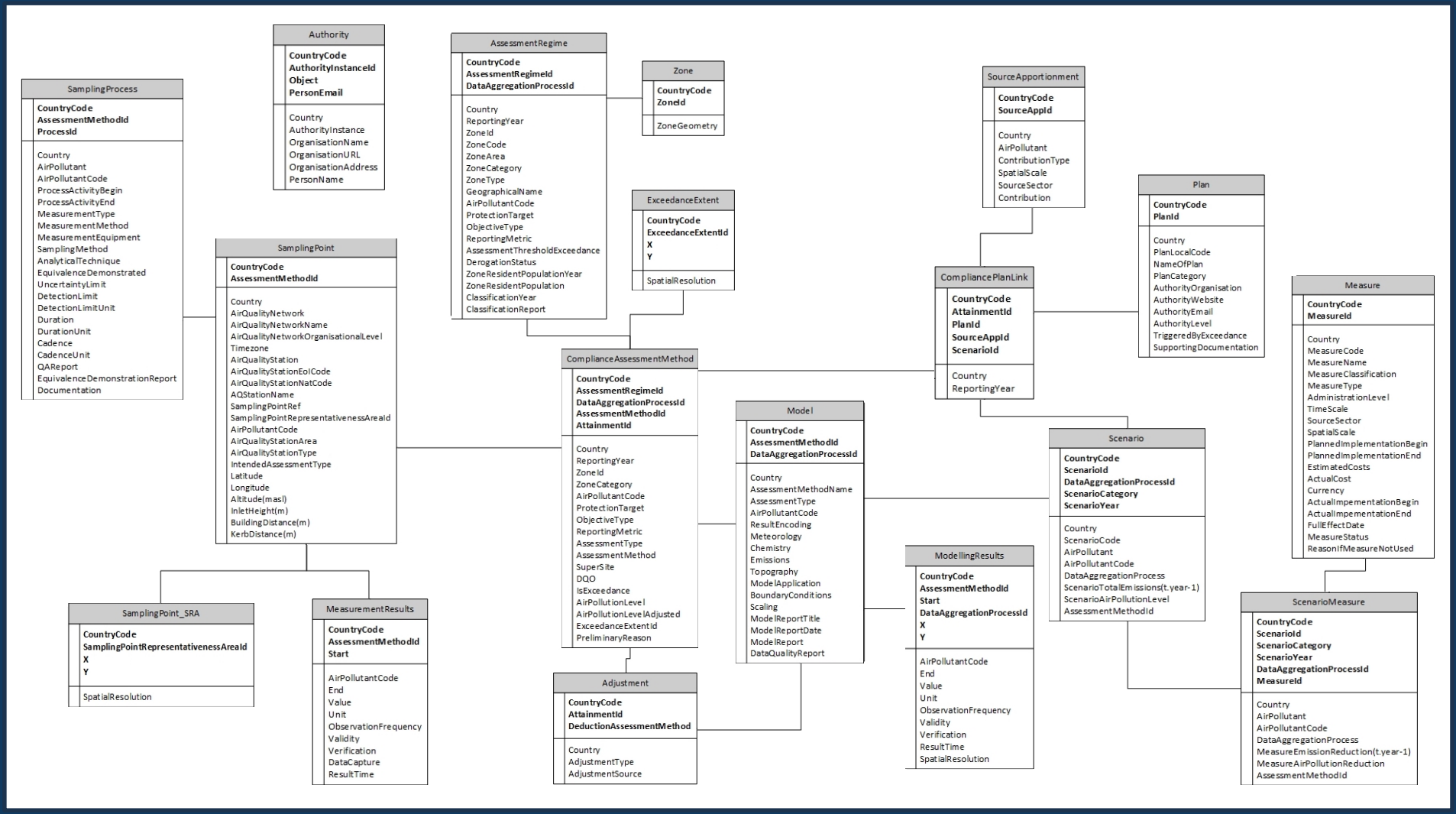
Main features:

- *Description of model application,*
- *Most of meta-data should be code-listed (open code lists),*
- *Documentation expected as attachment,*
- *It may have to be reported every year.*

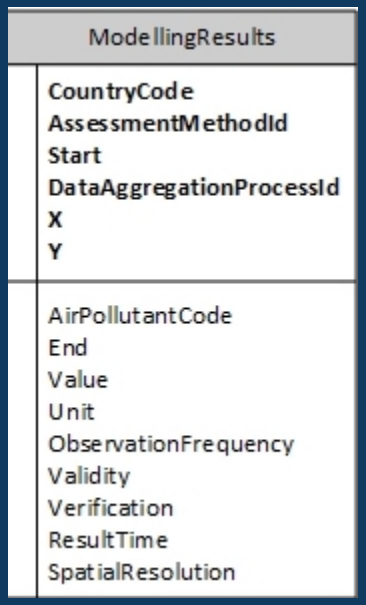
Questions/comments:

- *Code lists have to be improved/modified,*
- *'AssessmentMethodName', e.g.: WRF-Chem, CHIMERE, etc.*
- *'ResultEncoding': 'zone' (for OBE and one value per zone), 'internal' (tabular), 'external file' (when tabular data > 1 mln records).*

AQ e-Reporting ReportNet3 schema: overview



AQ e-Reporting ReportNet3 schema: Modelling Results



Current AQ e-Reporting data flow E1b

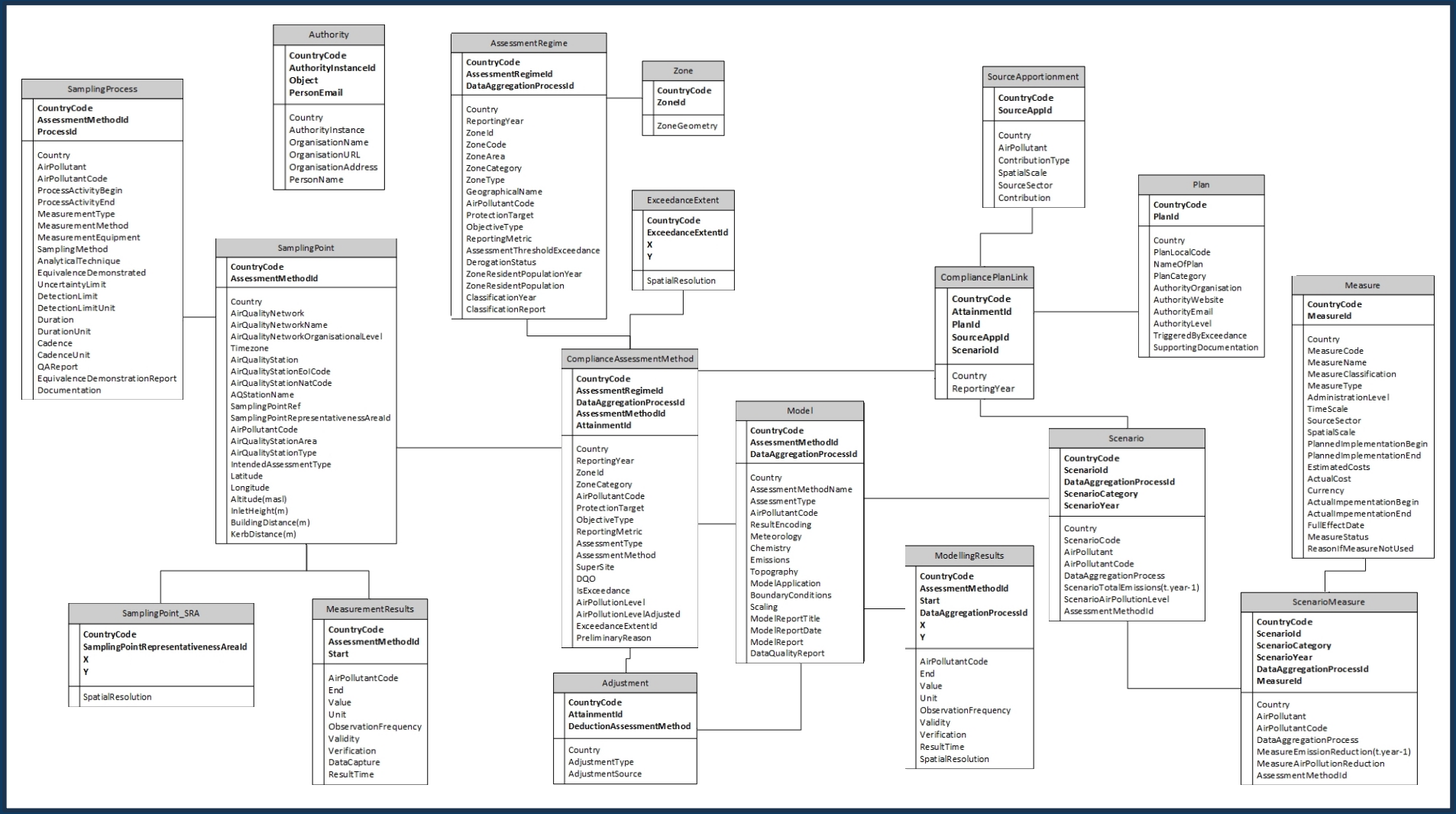
Main features:

- *Modelling results on the EEA grid,*
- *Expected projection: SRID3035 as for the EEA grid,*
- *Spatial resolution: 10, 100, 1000 or 10000 m,*
- *It has to be reported every year when models/OBE declared for compliance.*

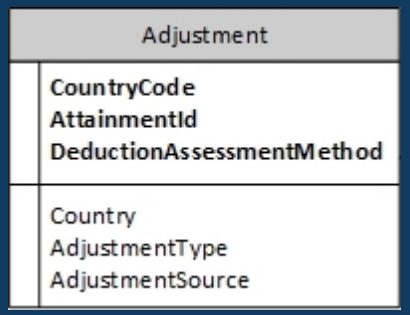
Questions/comments:

- *Tabular format compatible with time series reporting,*
- *Model 'verification' probably not needed.*
- *If 'ResultEncoding' = 'zone' then one value per zone with zone centroid X,Y; if 'internal' then flat table; if 'external file' then geotiff attached (value can be null and X,Y can be a point anywhere in the modelled area).*

AQ e-Reporting ReportNet3 schema: overview



AQ e-Reporting ReportNet3 schema: Adjustment



Current AQ e-Reporting data flow G

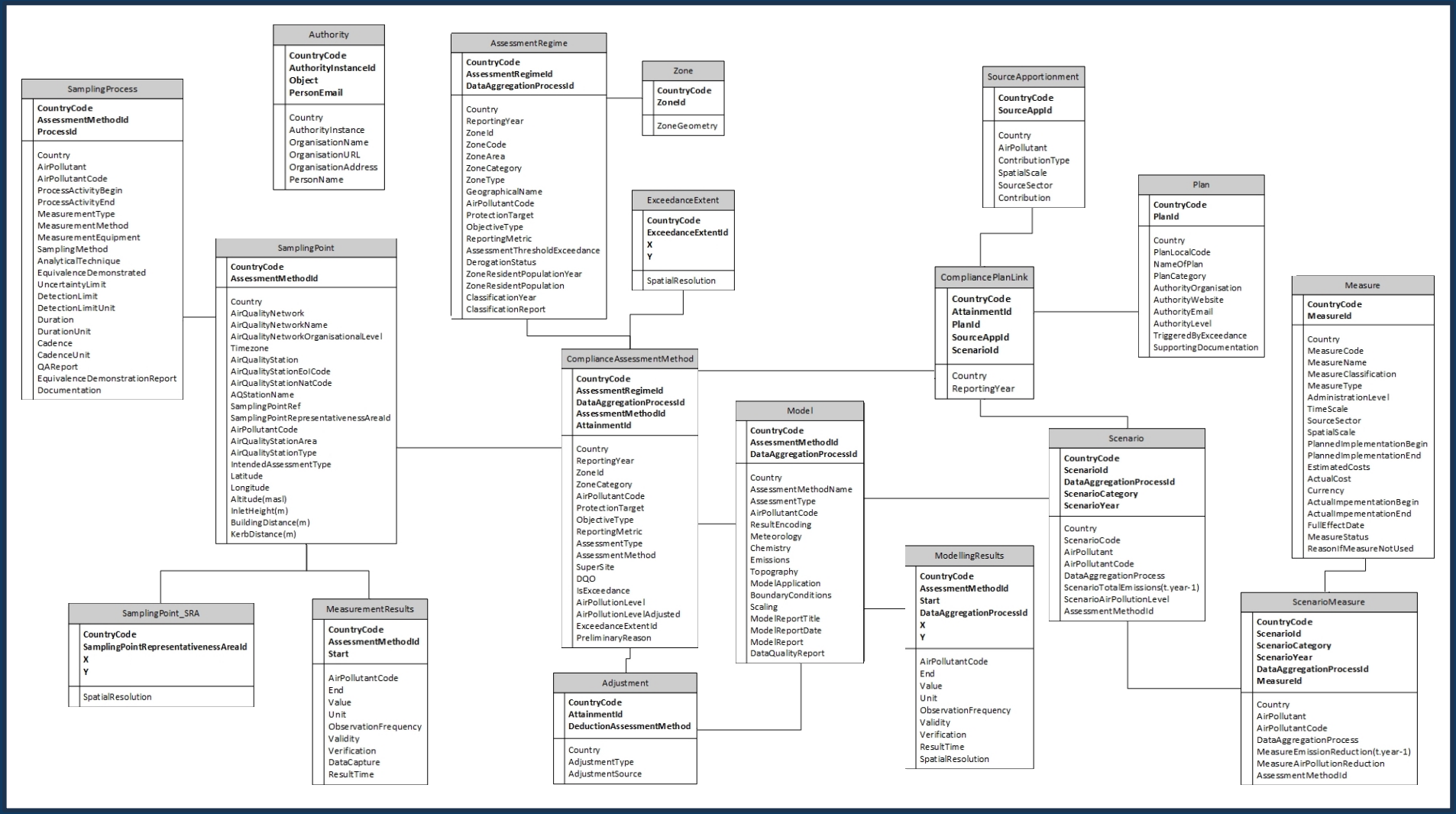
Main features:

- *Description of adjustment type and source,*
- *Identification of assessment method used for adjustment (model/OBE),*
- *'DeductionAssessmentMethod' → 'AssessmentMethodId' in Model*
- *It may have to be reported every year.*

Questions/comments:

- *Allows different deduction methods for different adjustment sources,*
- *AdjustmentType' may be redundant if 'AdjustmentSource' used properly (code list extension?)*

AQ e-Reporting ReportNet3 schema: overview

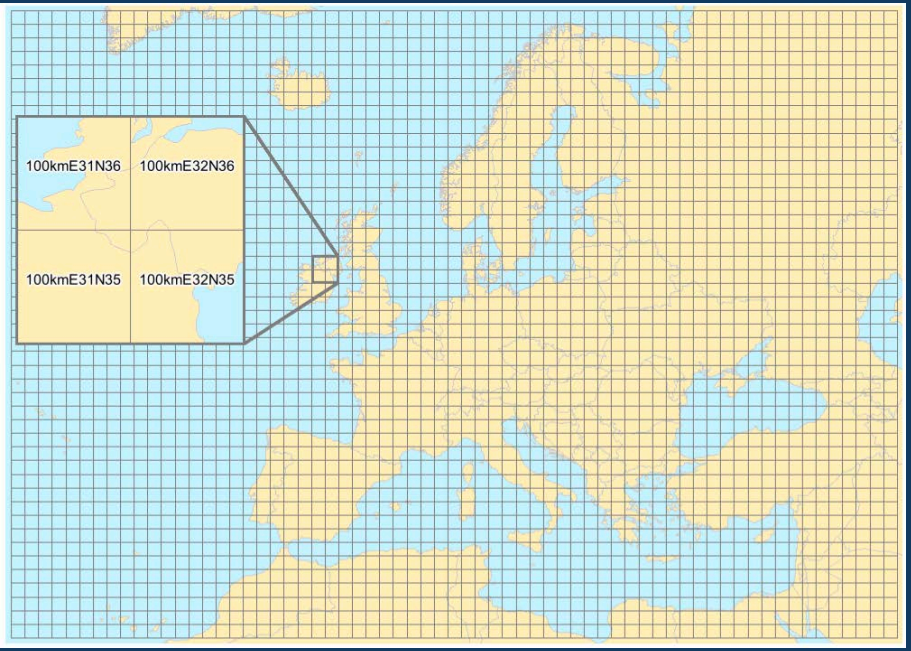


Common
grid system

Common grid system

EEA Reference Grid

ETRS89-LAEA Europe (SRID 3035), recommended resolutions: 100m, 1km, 10km, 100km



Sampling points (SPOs) locations

Zones (100m & 1km)

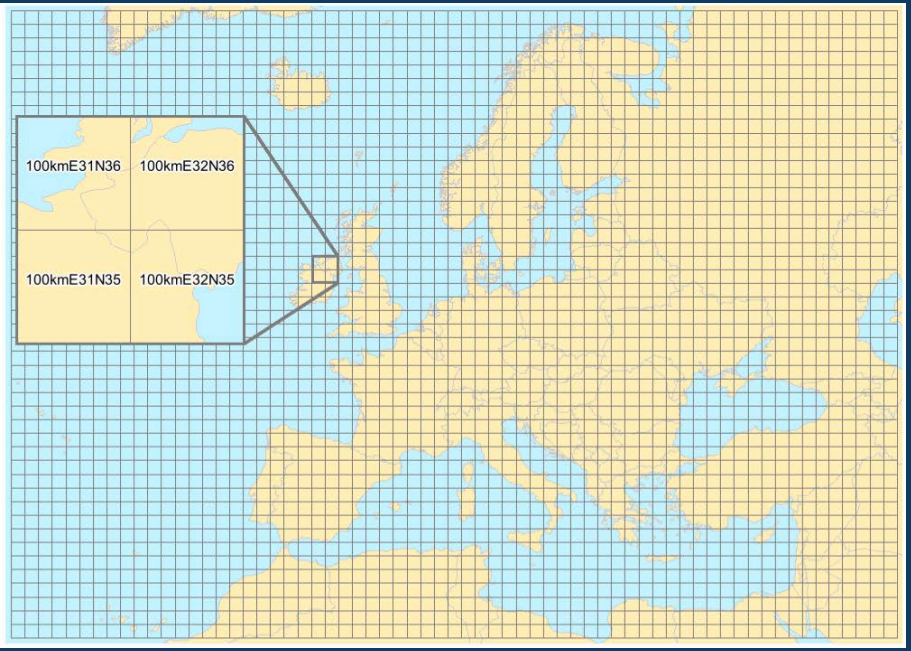
SPOs spatial representativeness areas
Modelling results (currently E1b)

Extents of exceedance areas

Common grid system

EEA Reference Grid

ETRS89-LAEA Europe (SRID 3035), recommended resolutions: 100m, 1km, 10km, 100km



Simplified reporting from models

Improved processing of reported data

Extended operational capacity

Direct link to EEA's assessments

Readiness for product application

General conclusions
(and potential actions for 2025)

General conclusions and potential actions

Conclusions:

There are issues with duplicates in several data sets (Sampling Point, Model, etc.),

Several code lists need improvements,

There are still elements which seem redundant and could be removed,

There are still procedures and rules to be clarified in ReportNet3, e.g. for data updates and re-submissions, deletion of data, etc.

General conclusions and potential actions

2025 Actions** (EEA – ETC HE & ETC DI – ReportNet3 Pilot Group)**:

Data cleansing exercise seems inevitable – end 2025?

Work on code lists is needed by mid 2025 – for 'Model/OBE' – in cooperation with FAIRMODE,

The next iterations of reporting schema: mid 2025 and end 2025,

ReportNet3 procedures and rules to be clarified by end 2025.

Adaptation plan
2024 - 2027

European Environment Agency

Draft plan 2024 - 2027

2024 - 2025:

Tests of simplified data model in ReportNet3 (extending with E1a, D/E1b, H-K),

Integration of RAVEN with ReportNet3,

Translation of QC rules from ReportNet2 (xquery) into ReportNet3 (Dremio SQL),

Start of co-creation via ReportNet3 Pilot Group,

Concepts of adapting to new IPR.

Draft plan 2024 - 2027

2026 - 2027:

Fine tuning of the reporting data model & procedures via ReportNet3 Pilot Group,

Adaptation to the new IPR (ReportNet3 & RAVEN),

Adaptation of data monitoring system to ReportNet3,

Adaptation of post-processing from ReportNet3 for EEA's assessments.

Thank you for your attention!