4. CORSIA Monitoring, Reporting and Verification (MRV) System

ICAO Secretariat

CORSIA MRV System – Outline

a) Assembly Resolution A39-3 and the MRV system

b) Overview of Monitoring, Reporting and Verification procedures

c) Expected roles and responsibilities in the MRV process

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Resolution A39-3: MRV System

- Regarding the implementation of the MRV system, the 39th ICAO Assembly requested:

  a) the Council to develop, with the technical contribution of CAEP, the SARPs and related guidance material for the implementation of the MRV system under the CORSIA, including simplified MRV procedures, for adoption by the Council by 2018

  b) all Member States whose aircraft operator undertakes international flights to develop the necessary arrangements, in accordance with the MRV SARPs, for implementation from 1 January 2019

  c) that a methodology should be developed to ensure that an aircraft operator's offsetting requirements under the scheme in a given year can be reduced through the use of sustainable alternative fuels, so that all elements of the basket of measures are reflected

These paragraphs request the development of MRV SARPs and guidance by the Council by 2018, and implementation of the MRV system by States from 1 January 2019

 Reference: Assembly Resolution A39-3, Paragraphs 6 and 20.

Resolution A39-3: MRV System

- Regarding the capacity building and assistance to implement the MRV system, the Assembly requested:

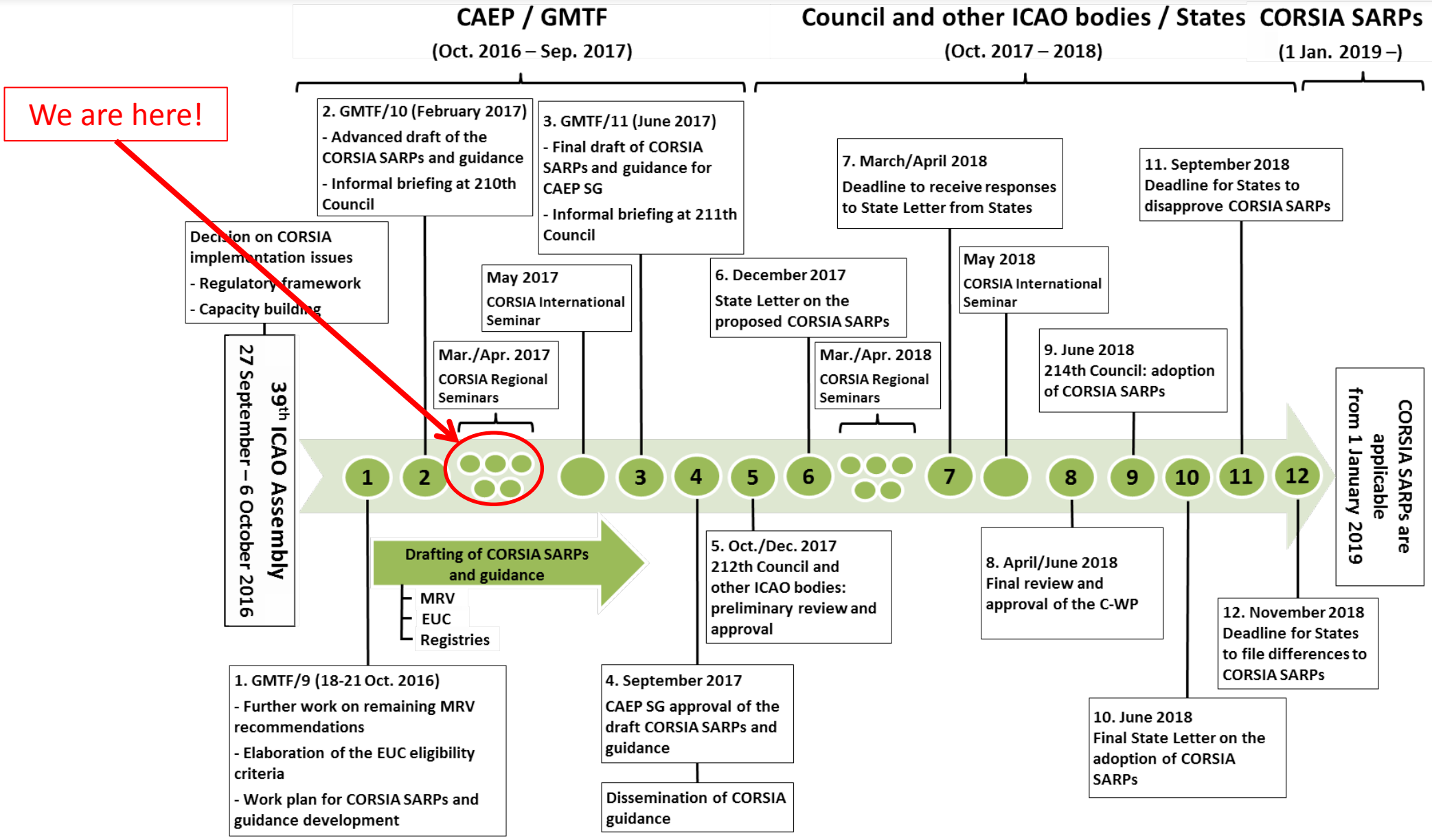
  a) the Council to take necessary action to expand the provision of capacity building and assistance for the preparation and implementation on Member States' action plans, in order to accommodate capacity building and assistance for implementation of the MRV system by Member States from 1 January 2019, including organization of seminars and training in all regions from 2017, and facilitation of financial support where needed, in particular for those States that volunteer to participate in the pilot phase and require support to do so

  b) Member States to build partnerships among themselves to cooperate on the implementation of the MRV system

These sub-paragraphs request capacity building and partnerships on MRV

 Reference: Assembly Resolution A39-3, Paragraph 22.

CORSIA SARPs and Guidance Development Timeline



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Overview of MRV Procedures

- An MRV system is a key component of CORSIA implementation
  - Implementation of the MRV system from 1 January 2019 by all States whose aircraft operator undertakes international flights is essential

- Monitoring, reporting and verification of CO_2 emissions
  - Purpose: to collect data on international aviation CO_2 emissions on an annual basis and compare emissions against the baseline emissions (2019-2020)
  - Scope: all international flights (flights that depart in one country and arrive in a different country)

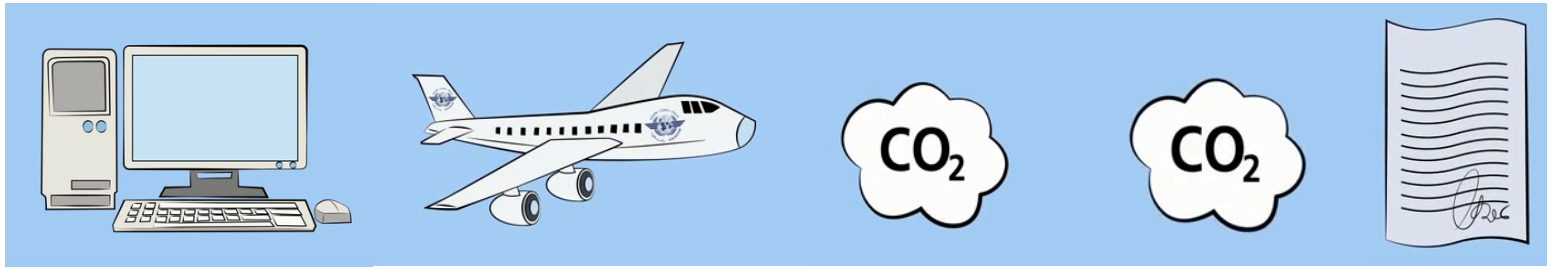
- Components of the MRV system:
  - **Monitoring** of fuel use on each flight and calculation of CO_2 emissions (1 tonne fuel burn = 3.16 tonnes CO_2 emissions)
  - **Reporting** of emissions information between aircraft operators, States and ICAO
  - **Verification** of reported emissions data to ensure completeness and to avoid misstatements

Recommendations on MRV

- The Assembly requested the Council, with the technical contribution of CAEP, to complete its work on MRV as soon as possible

- **The preliminary recommendations contained in this presentation regarding the CORSIA MRV system reflect the ongoing work of CAEP; further work is required in CAEP to provide its technical recommendations, for consideration by the Council**

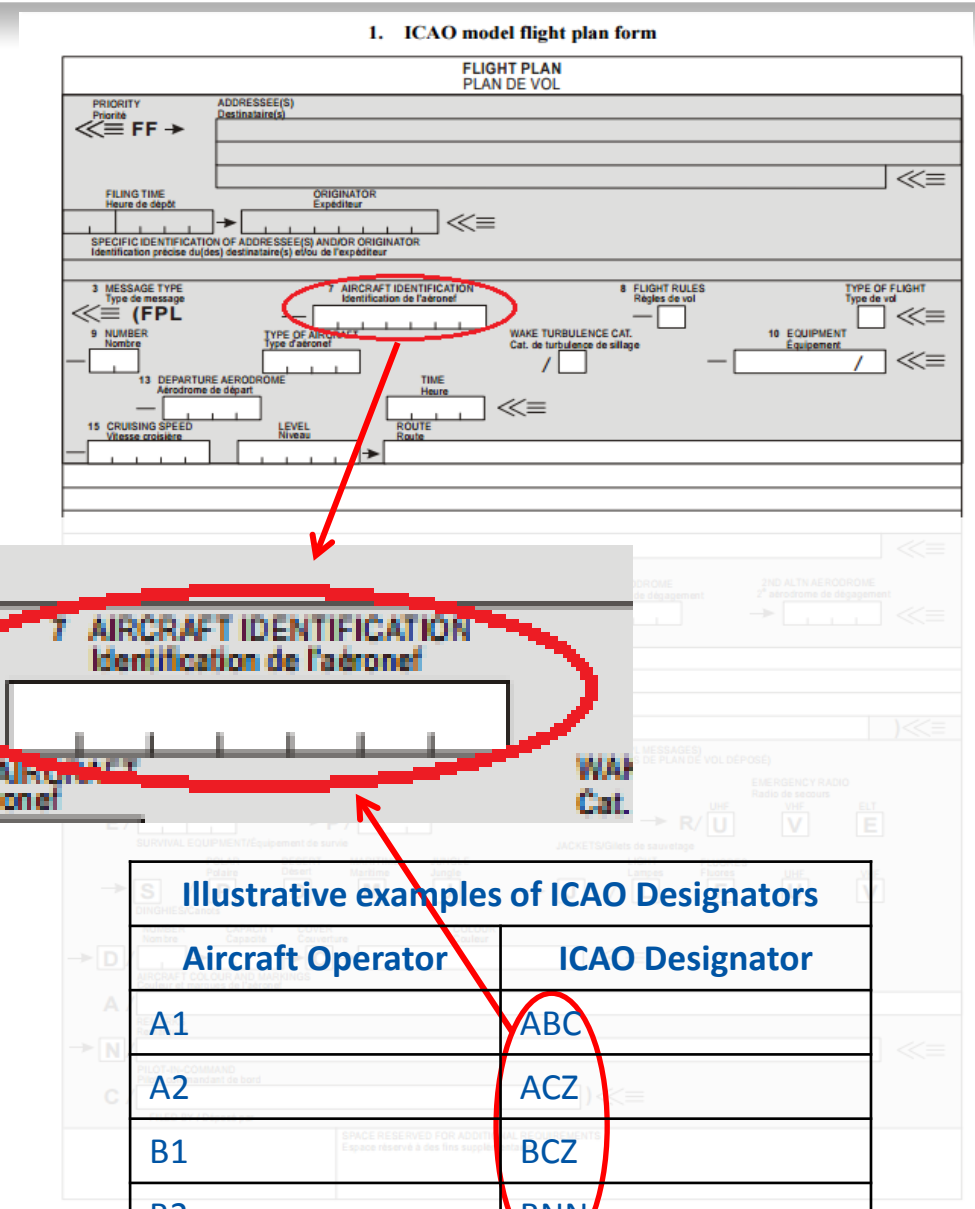
- Following slides present a high-level overview of the key elements in the MRV system under the CORSIA



 Reference: Assembly Resolution A39-3, Paragraph 15.

How to Attribute an International Flight to an Operator?

- All operators are responsible for monitoring emissions of international flights they performed
- Need to make sure that each international flight is attributed to a single aircraft operator
- Flight plan is used for the attribution of flights to operators – For example, the ICAO Designator* in Field 7 (aircraft identification) attributes the flight to an aircraft operator



Illustrative examples of ICAO Designators	
Aircraft Operator	**ICAO Designator**
A1	ABC
A2	ACZ
B1	BCZ
B2	BNN

*ICAO Designators are contained in ICAO Doc 8585

Monitoring of Fuel Burn and CO_2 Emissions

- Monitoring of fuel burn and CO_2 emissions by an aircraft operator for each flight needs information, e.g.:
  - Aircraft fleet and operating routes; method for calculating CO_2 emissions; and how CO_2 emissions data will be managed
- Calculation of CO_2 emissions to be based on fuel burn:

1 tonne of fuel burn = 3.16 tonnes of CO_2 emissions

- Flexibility for aircraft operators to choose an appropriate method:
  - Large operators: Fuel monitoring methods based on actual fuel burn
  - Small emitters: Emissions estimation methods (ICAO tool) – simplified procedure

Reporting of CO_2 Emissions

- Reporting of CO_2 emissions data (covered by CORSIA and not covered by CORSIA) provides the basis to calculate the total emissions and annual offsetting requirements of individual aircraft operators
- Flow of CO_2 emissions data:
  - **Aircraft operators** report emissions information to the State Authority every year

  - **States** report the necessary information to ICAO

  - **ICAO** consolidates the data, publishes total CO_2 emissions, calculates the annual sectoral growth factor, and communicates the growth factor to States/aircraft operators

- Standardized template is being developed to facilitate uniform reporting of information

Verification of CO_2 Emission Data

- Verification on emissions data aims to ensure the consistency of data and to identify any errors in the aircraft operator's Annual Emissions Report

- A three-step verification pathway, which provides a role for each stakeholder:
  - **An internal pre-verification by the aircraft operator** ✓
  - **Third party verification before reporting to the State Authority** ✓
  - **An order of magnitude review by the State Authority** ✓

- Requirements for external verification to be based on existing ISO Standards

MRV of Sustainable Alternative Fuels

- Paragraph 6 of the Resolution A39-3 requests the Council to develop a methodology to ensure that an aircraft operator's offsetting requirements under the scheme can be reduced through the use of sustainable alternative fuels

- For MRV purposes, the sustainable alternative fuel needs to:
  - Meet requirements defined in sustainability criteria; and
  - Have a default emission value for each feedstock/production pathway
- Tracking the quantity of alternative fuel, based on fuel purchase records
  - Typically, aviation fuels are blended in fuel distribution infrastructure → it is not feasible to determine the alternative fuel content of fuel at the point of uptake to an aircraft
  - Work in CAEP is on-going to finalize the recommendations on how to best track the fuel purchase records from the fuel producer to the aircraft operator

Preliminary Structure of the Draft SARPs, Guidance and Supporting Information/Documents

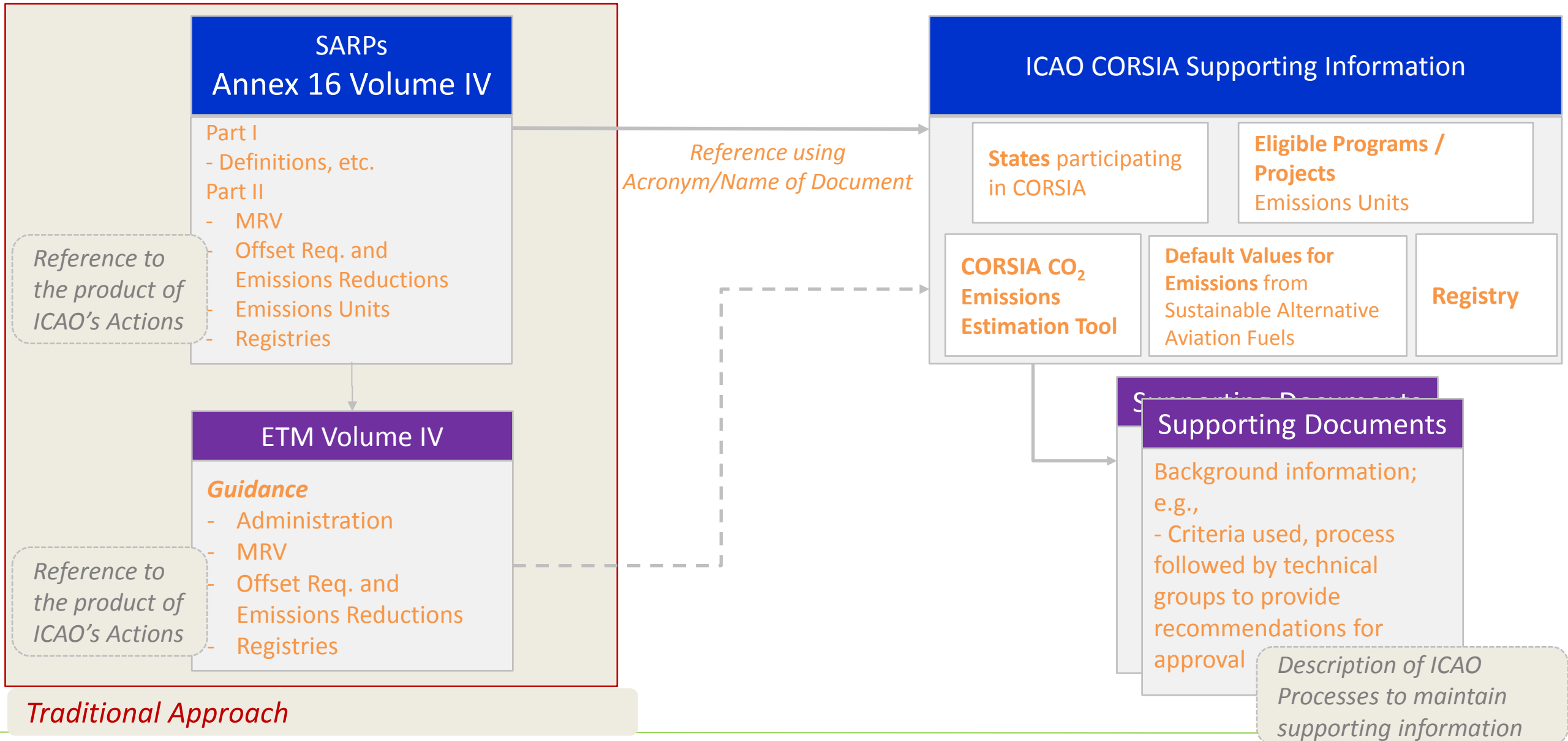
- In addition to the CORSIA SARPs and guidance material, which include the core requirements of the MRV system, supporting information/documents is needed to complete the MRV system

- Draft CORSIA SARPs, guidance material and supporting information/documents together will constitute a comprehensive package, which allows for the timely implementation of the MRV system

Preliminary Structure of the Draft SARPs, Guidance and Supporting Information/Documents

ICAO ENVIRONMENT

Note: This is a preliminary structure being discussed by CAEP and is subject to change.



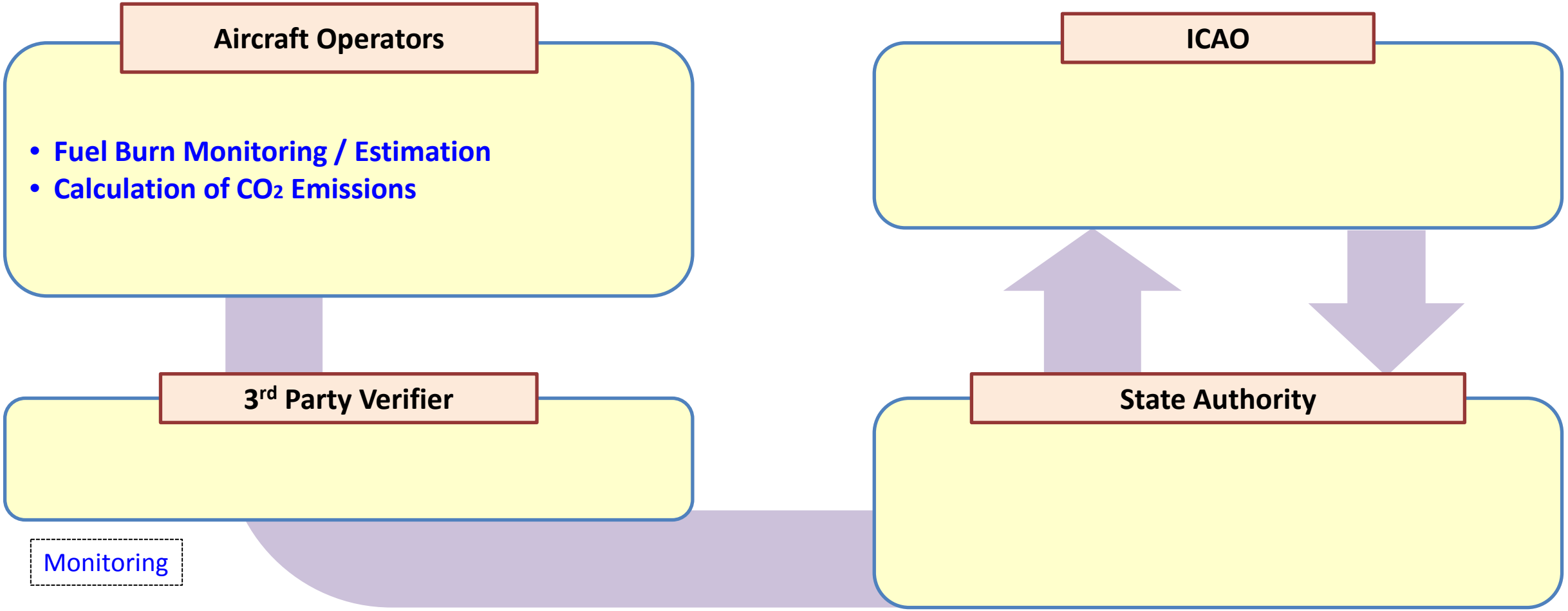
a) Assembly Resolution A39-3 and the MRV system

b) Overview of Monitoring, Reporting and Verification procedures

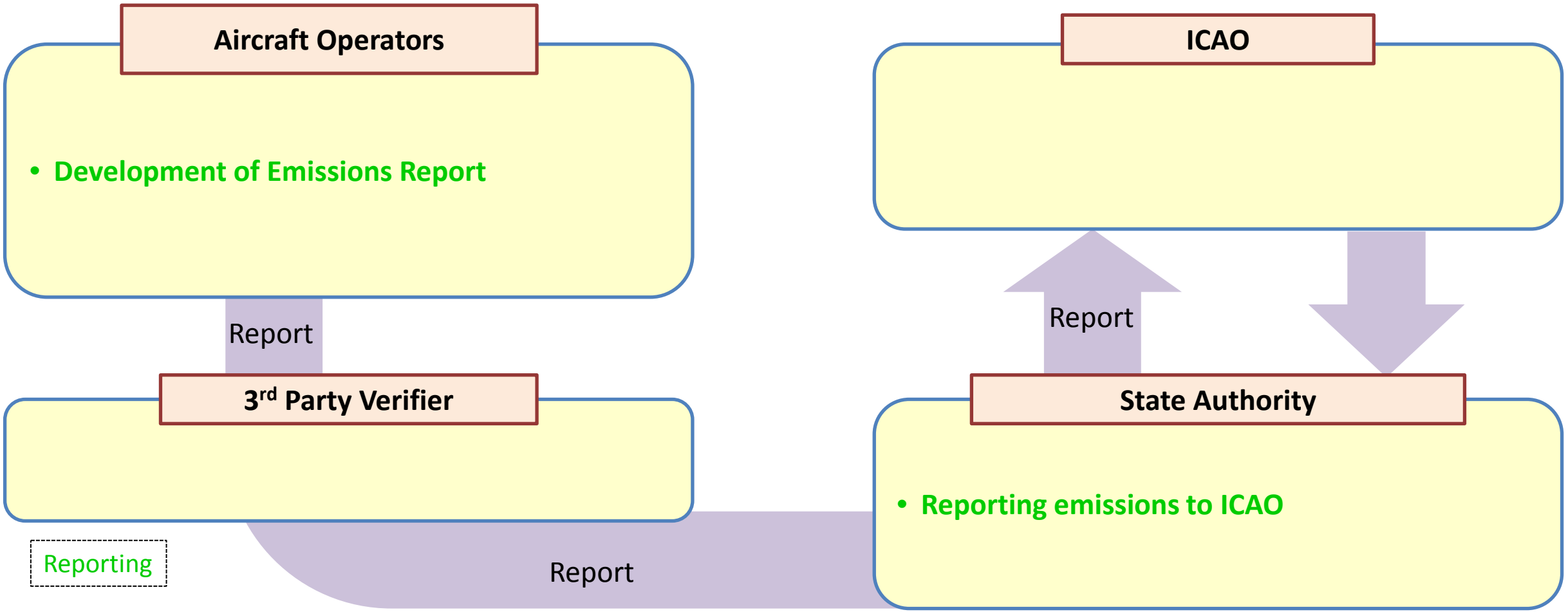
c) Expected roles and responsibilities in the MRV process

The following slides show the examples on the roles of States, operators, ICAO etc. in the MRV process.

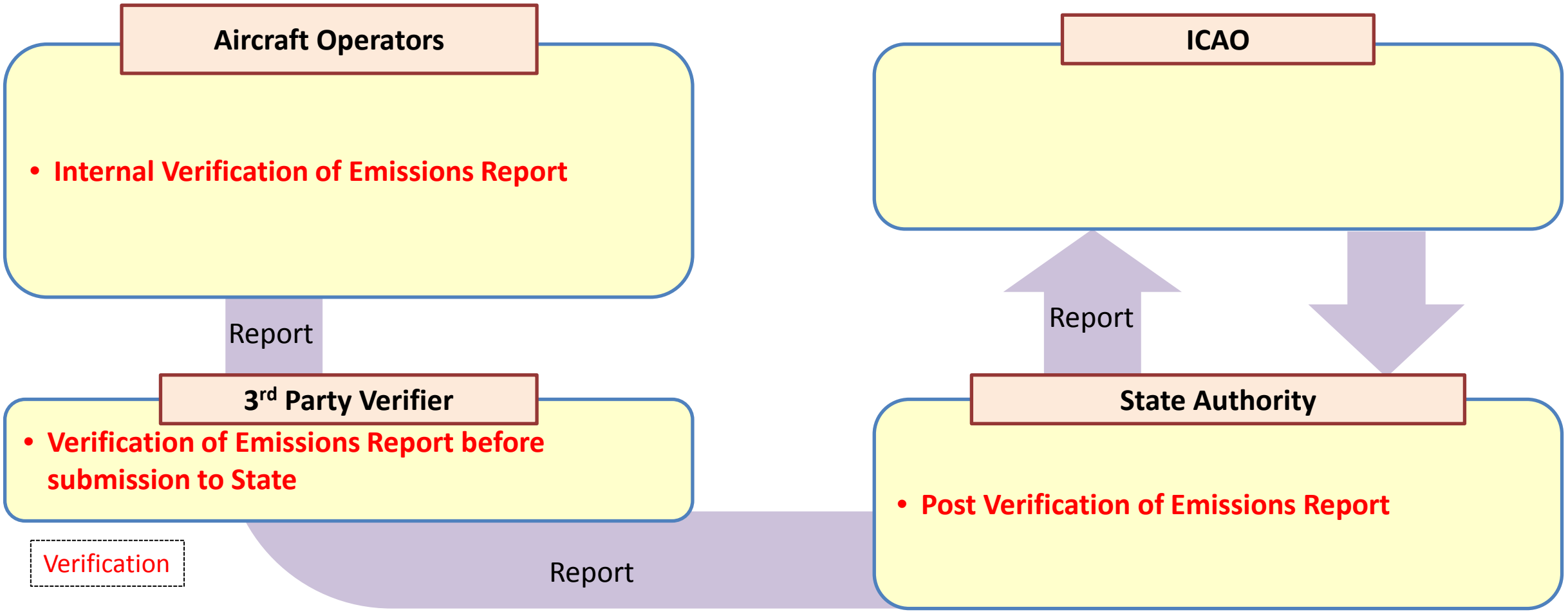
Roles in the MRV System – Monitoring of CO_2 Emissions



Roles in the MRV System – Reporting of CO_2 Emissions



Roles in the MRV System – Verification of CO_2 Emission Data



Overview – Roles in the MRV System

Aircraft Operators

- Fuel Burn Monitoring / Estimation
- Calculation of Emissions
- Development of Emissions Report
- Internal Verification of Emissions Report

Report

3rd Party Verifier

- Verification of Emissions Report before submission to State

Report

ICAO

- Collection of States emission data (covered and not covered by CORSIA)
- Calculation of total emissions and sector's growth factor

Report

Total emissions and Growth factor

State Authority

- Post Verification of Emissions Report
- Reporting emissions to ICAO

Monitoring
Reporting
Verification
Administration

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Seminar Programme

1. Objectives of the Seminar and Overview of CORSIA
2. CORSIA and Resolution A39-3 (Part 1)
   - *Small group exercise 1*: Participation and emissions coverage in CORSIA
3. CORSIA and Resolution A39-3 (Part 2)
   - *Small group exercise 2: Calculation and distribution of offsetting requirements in CORSIA*
4. CORSIA MRV System
   - *Small group exercise 3: Development of CO_2 emissions report*
5. Emissions Units and Registries
   - *Small group exercise 4: Flow of CO_2 emissions data and emissions units under CORSIA*
6. Capacity Building and Next Steps
7. Closing Remarks

QUESTIONS ?

Group Exercise 3

Development of CORSIA CO_2 emissions report

THANK YOU

More information on the CORSIA:

- ICAO web site **http://www.icao.int/env**
  - CORSIA Video
  - CORSIA FAQs
  - CORSIA voluntary participation
  - Environment Report 2016