

IMPLEMENTING A NUCLEAR SECURITY PROGRAM IN ARGENTINA

A POLICY AT NATIONAL LEVEL

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Introduction

Argentina's characteristics & Main Issues to Consider

A) Main Issues to Consider



Argentina's:

- ➔ 1) Geographical Characteristics 
- ➔ 2) Federal Organization 
- ➔ 3) Important nuclear development 

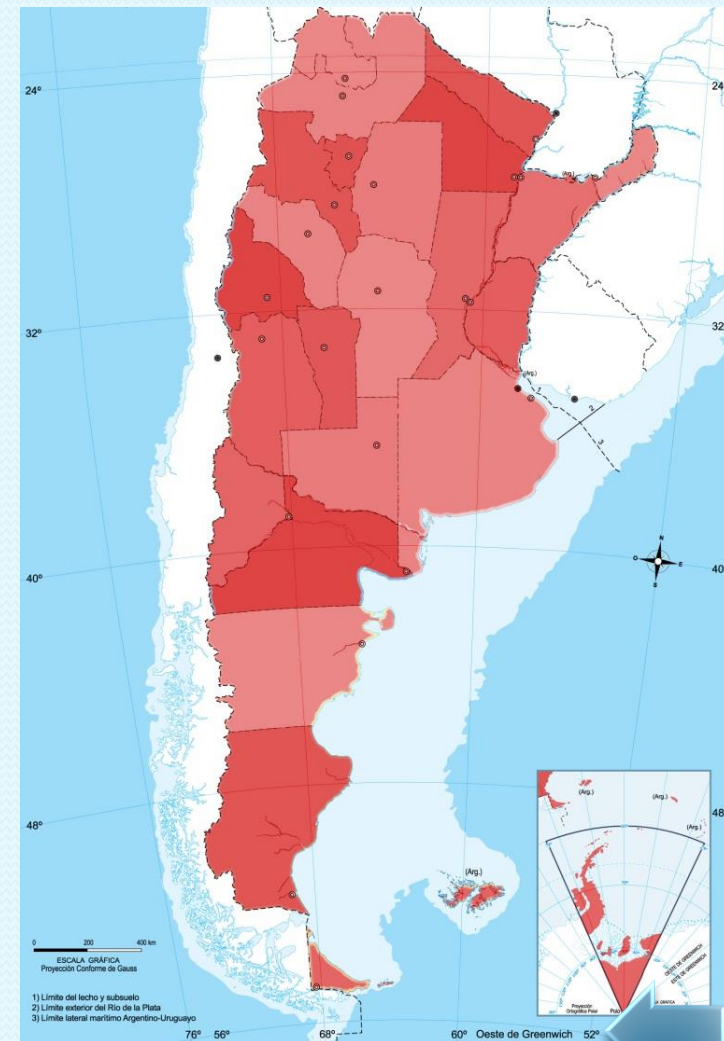
1) Geographical Characteristics

- ➔ Huge extension
- ➔ World's 8th largest territory
- ➔ Long borders on land, rivers and sea
- ➔ Low population density



1) Geographical Characteristics

- ➔ Huge extension
- ➔ World's 8th largest territory:
 - 2,791,810 Sq Km or
 - 1,068,302 Sq Mi
- ➔ Long borders on land, rivers and sea
- ➔ Low population density



1) Geographical Characteristics

- Huge extension
- World's 8th largest territory
- More distance from N to S than from Madrid to Moscow (4387 km)
- Long borders on land, rivers and sea
- Low population density



Argentina N - S: 4,387 km



Madrid - Moscow: 3,440 km



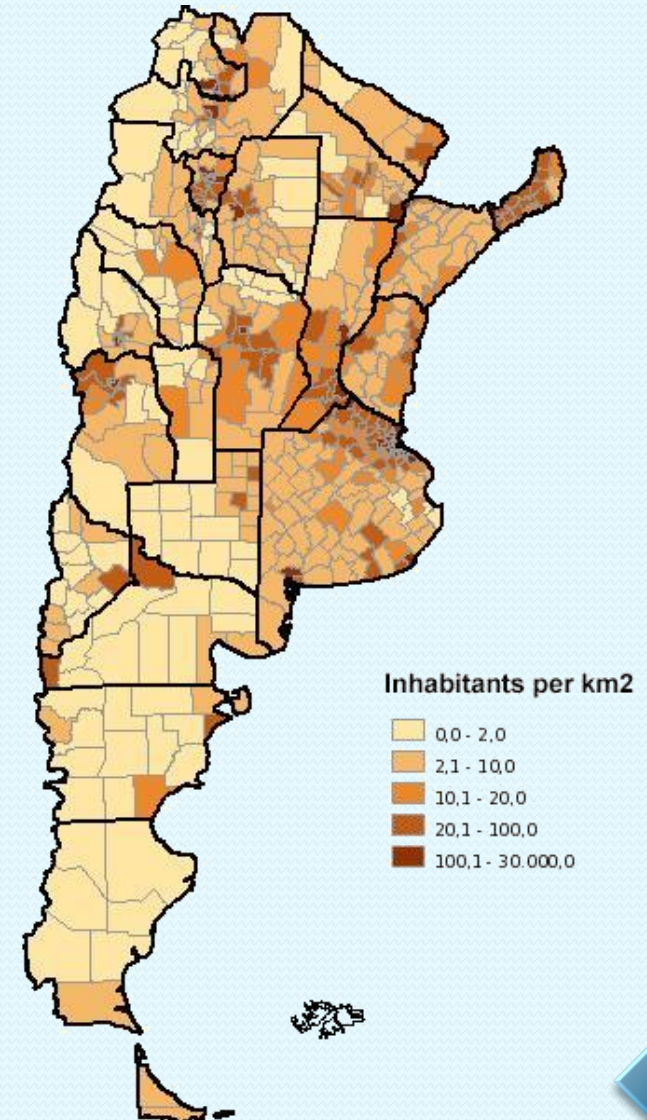
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1) Geographical Characteristics

- Huge extension
- World's 8th largest territory
- Long borders on land, rivers and sea
- **Low and uneven population density:**
 - Avg: 15.84 pop./km²
 - Max: 29,300 pop./km²



2) Federal Organization

24 Provinces means 24 different jurisdictions to coordinate with.

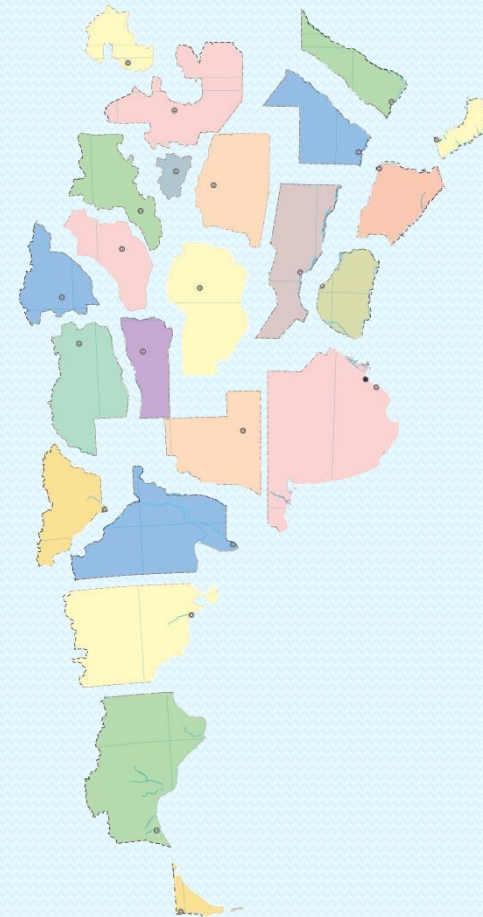


2) Federal Organization

24 Provinces

Each one with different:

- ➔ authorities,
- ➔ legislation,
- ➔ agencies,
- ➔ equipment,
- ➔ communication protocols, etc.













3) Nuclear development

- ➔ Starting in 1950
- ➔ Rapid growth of
 - ➔ Laboratories
 - ➔ Research reactors and facilities
 - ➔ Nuclear power plants
 - ➔ Nuclear medicine centers
 - ➔ Irradiation plants
 - ➔ Mining complexes
 - ➔ Fuel and radioisotopes plants
- ➔ 1255 total facilities



3) Nuclear development

Main facilities under regulatory oversight 2016

-  Atomic Centers (Bariloche, Constituyentes, Ezeiza)
-  Nuclear Power Plants in operation (Atucha I and II) and under refurbishment (Embalse).
-  Prototype reactor CAREM 25 - under construction (LIMA, province of Buenos Aires).
-  Research reactors and critical assemblies.
-  Radioisotopes production plant.
-  Irradiation plants.
-  Fuel cycle facilities.
-  Industrial mining complexes out of service.
-  Nuclear medicine and teletherapy centers. (420)
-  Gammagraphy installations and industrial applications. (369)
- Other facilities for minor uses - not included in the map. (394)

Total Facilities

1255



B) Stages and Activities of the NNSP

The NNSP includes all the nuclear security activities involved in:

Prevention

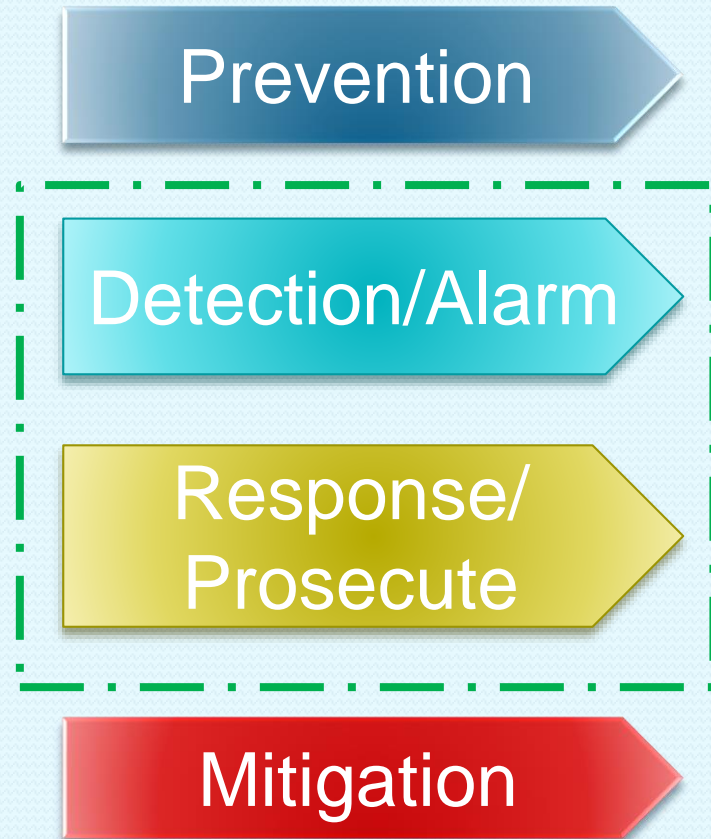
Detection/Alarm

Response/
Prosecute

Mitigation

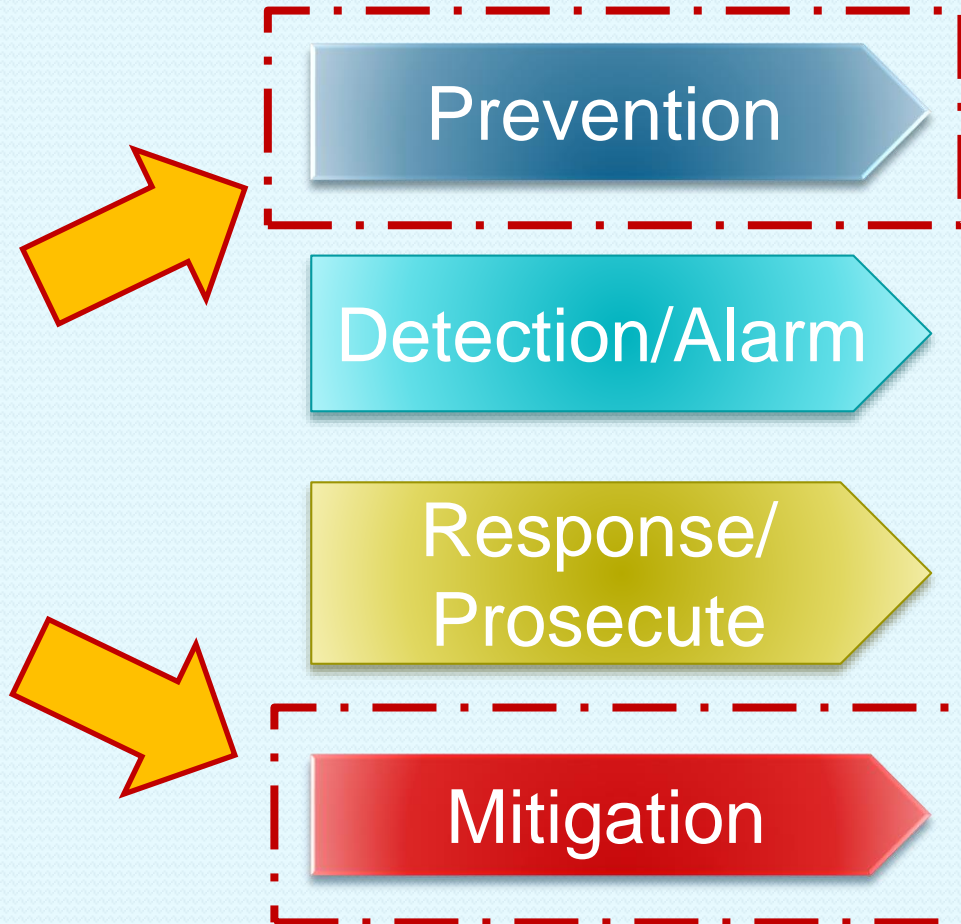
B) Stages and Activities of the NNSP

This paper refers to the Alerts and Communications between Agencies during the Detection and Response stages only.



B) Stages and Activities of the NNSP

PREVENTION and MITIGATION are only mentioned in the paper.



Legal Framework

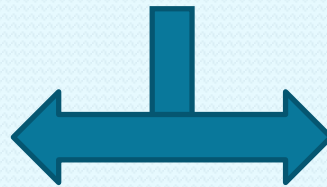
National System for Risk and Civil Protection Management

Law 27.287 establishes the organization of the *National System for Risk and Civil Protection Management*



Two main Councils

National Council



Federal Council

NATIONAL SYSTEM FOR RISK AND CIVIL PROTECTION MANAGEMENT
LAW 27.287. Decrees 39 y 383/2017

CHIEF OF MINISTERS OFFICE

NATIONAL COUNCIL FOR RISK AND CIVIL PROTECTION MANAGEMENT

- Security Min.
- Interior Min.
- Defense Min.
- Health Min.
- Environment Min.

EXECUTIVE SECRETARY

SCIENCE AND TECHNICAL ORGANIZATIONS NET

- CNEA
- NRA
- NUCLEOELECTIRCA

SECRETARY OF CIVIL PROTECTION AND EMERGENCY RESPONSE

OPERATIVE FORCES

- ARMED FORCES
- FEDERAL SECURITY FORCES
- PROVINCIAL SECURITY FORCES
- PUBLIC HEALTH SYSTEMS
- FIREMEN SYSTEMS
- PUBLIC OFFICES, FEDERAL AND PROVINCIAL

SECURITY MINISTRY

FEDERAL COUNCIL FOR RISK AND CIVIL PROTECTION MANAGEMENT

Possible Scenarios

Possible Scenarios

Five possible generic scenarios to cover all situations.



Scenarios must be generic and exhaustive.

1) Undefined Situation

2) Robbery or Missing Radioactive Material Detected

3) Robbery or Missing Nuclear Material Detected

4) Radioactive Material Released

5) Credible Information Concerning Attack or Sabotage Involving Nuclear Material / Radioactive Sources

Possible Scenarios

- ➔ For each, the NNSP establishes agencies involved, responsibilities and actions.
- ➔ Local and National Agencies responsible for the:
 - ➔ Detection
 - ➔ Alert
 - ➔ Communication
 - ➔ Immediate measures
 - ➔ Evidence Protection
 - ➔ Interdict
 - ➔ Prosecution

1) Undefined Situation

2) Robbery or Missing Radioactive Material Detected

3) Robbery or Missing Nuclear Material Detected

4) Radioactive Material Released

5) Credible Information Concerning Attack or Sabotage Involving Nuclear Material / Radioactive Sources

1) Undefined Situation

- ➔ Non-confirmed information related to:
 - ➔ potential attack
 - ➔ robbery
 - ➔ some way of radioactive liberation.
- ➔ It needs the immediate investigation to confirm and characterize the scenario.
- ➔ This scenario may switch to another afterwards.



1) Undefined Situation

Examples include:

- Alert produced by info relating to potential sabotage or robbery

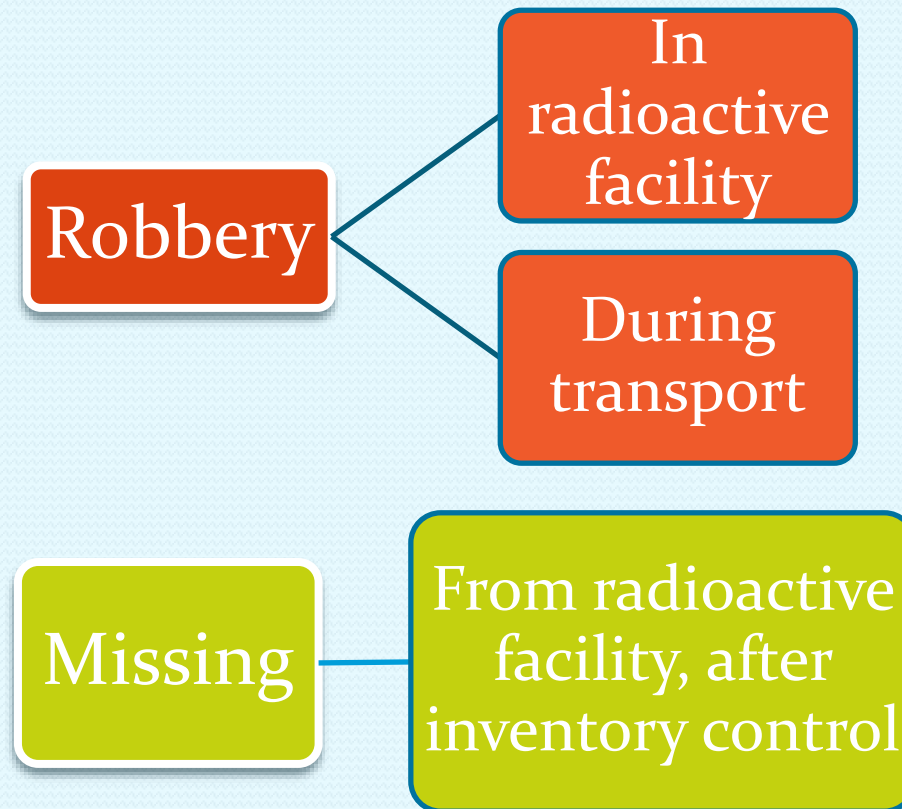
- Detection of attack that could involve radioactive release

- Alert in health centers due to reception of irradiated people

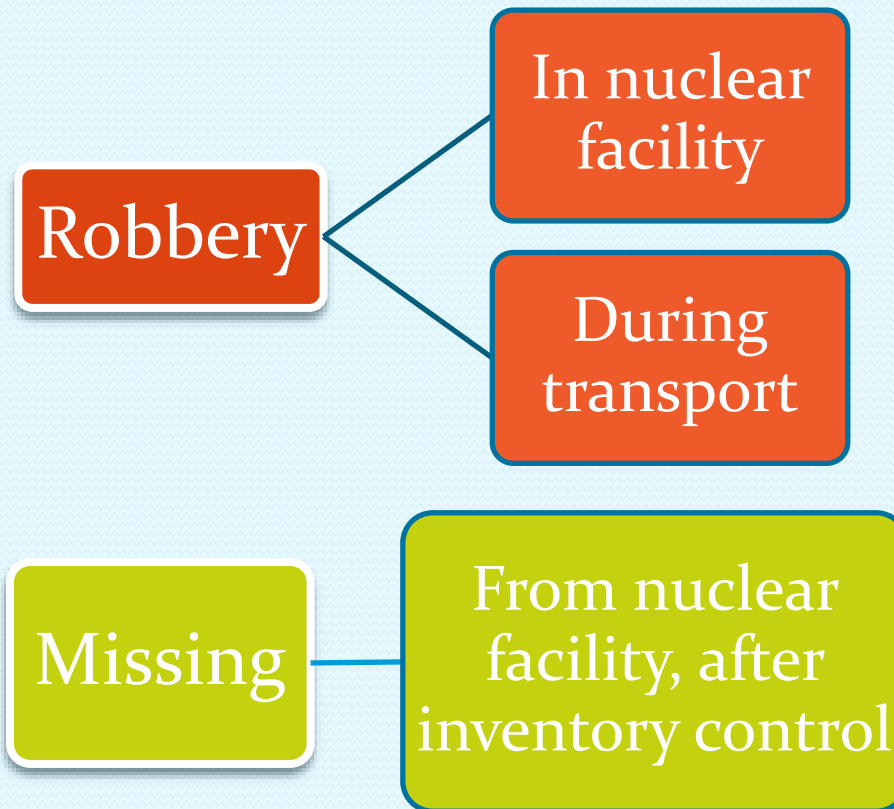
- Unconfirmed communication about:
 - Radioactive release
 - Attack against facility
 - Detection of nuclear/radioactive material out of regulatory control



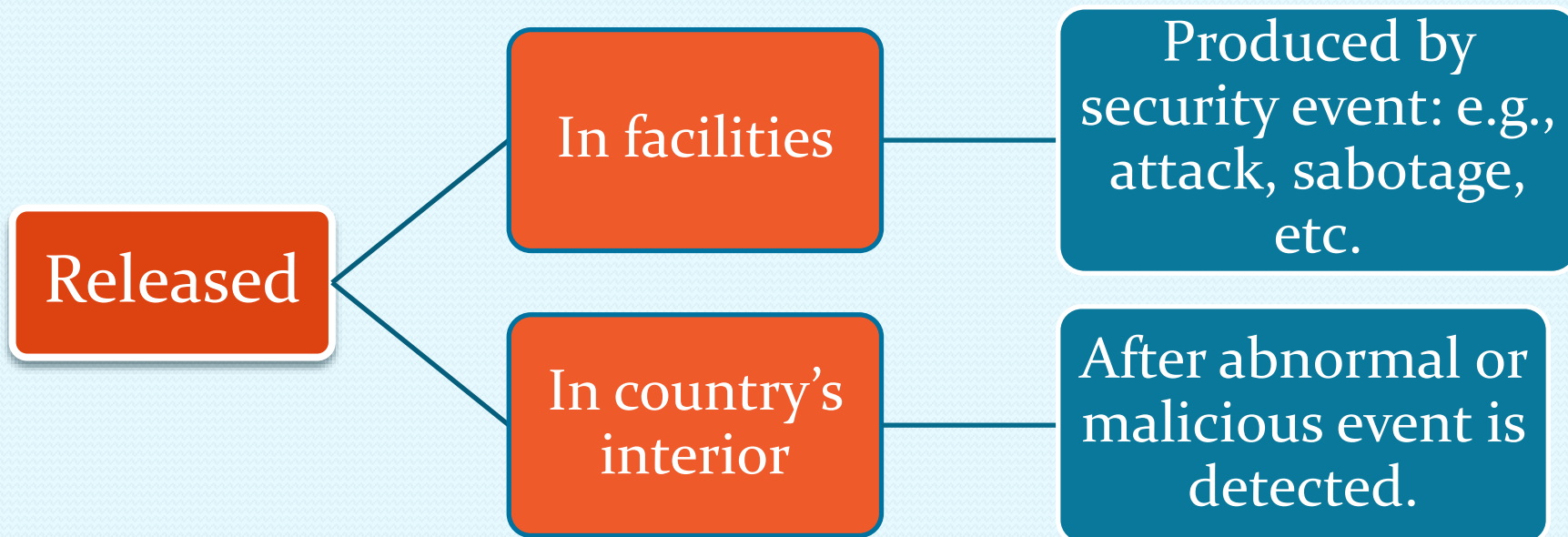
2) Robbery or Missing Radioactive Material Detected



3) Robbery or Missing Nuclear Material Detected



4) Radioactive Material Released



5) Credible Information Concerning Attack or Sabotage Involving Nuclear Material or Radioactive Sources

This scenario is called upon when the corresponding State Agency delivers credible information about upcoming malicious actions



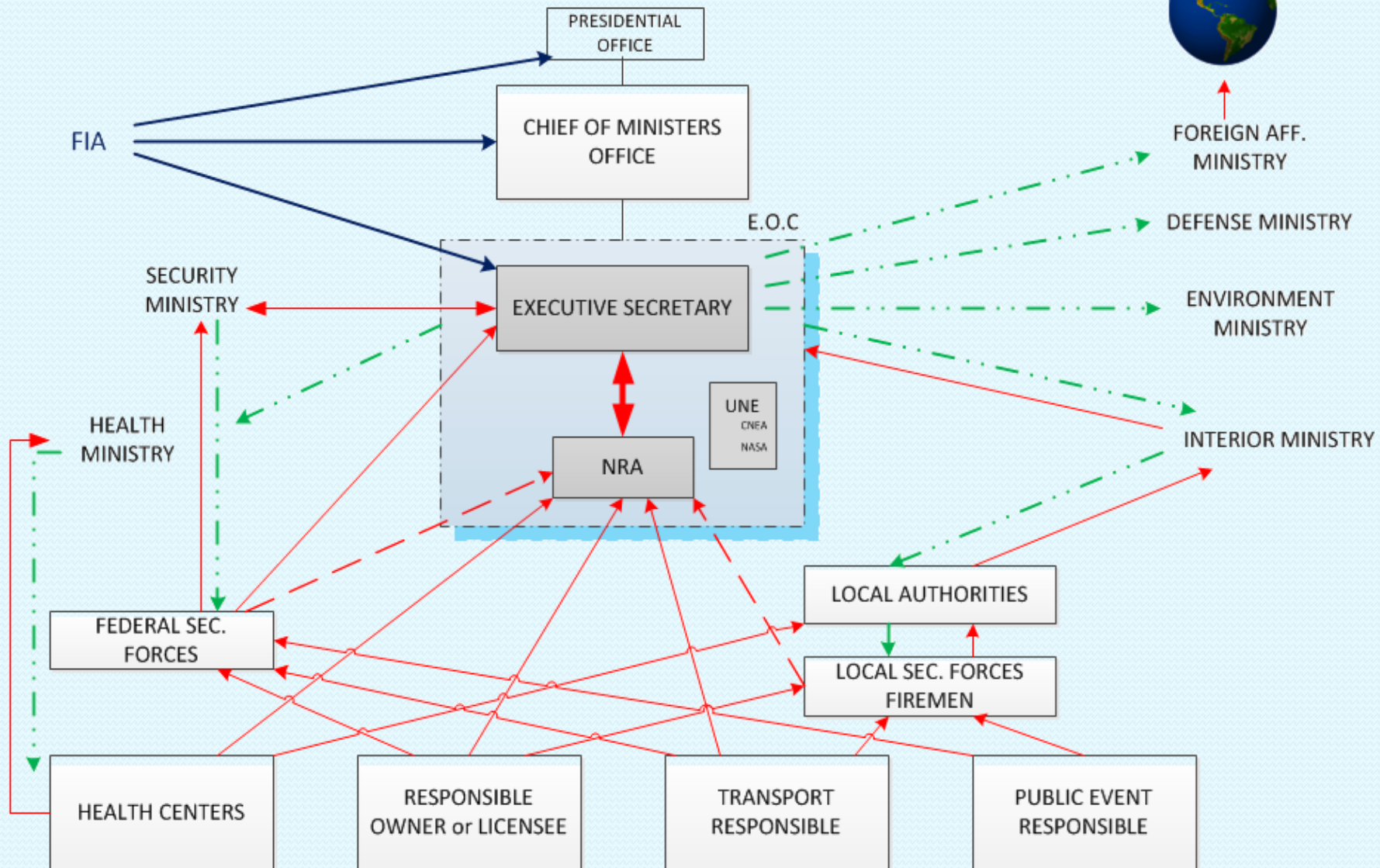
Coordination Among Different Agencies for Each Possible Scenario

Alerts and Communications

NATIONAL NUCLEAR SECURITY PROGRAM

- NNSP -

Alerts and Communications Flux



- IN ADVANCE ALERTS
- EVENT/EMERGENCY COMMUNICATION
- POSSIBLE EVENT/EMERGENCY COMMUNICATION
- INSTRUCTIONS/ORDERS

Conclusions

Three key areas to consider while developing the NNSP:

Coordination

Integration

Training

Conclusions

Three key areas to consider while developing the NNSP:

Coordination

Integration

Training

Coordination



Between different:

- Gov. authorities
- Agencies
- Sec. forces
- Emergency services
- Border patrol
- etc



Due to Argentina's large territory and federal org.

Integration



Of the many multidisciplinary teams



Of different backgrounds:

- Nuclear
- Health
- Law enforcement

With different procedures, languages and expertise.

Training



Provide equipment and training to local first responders

THANK YOU!



NUCLEOELECTRICA ARGENTINA S.A.

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