Introduction

- Requirement 1: "*The government shall ensure that an integrated and coordinated emergency management system for preparedness and response for a nuclear or radiological emergency is established and maintained.*"

- Requirement 6: "*The government shall ensure that arrangements are in place for emergency response operations to be appropriately managed.*"

- Requirement 21: "*The government shall ensure that the overall organization for emergency preparedness and response is clearly specified and staffed with sufficient personnel who are qualified and fit for their intended duty.*"

- Requirement 22: "*The government shall ensure that arrangements are in place for the coordination of emergency preparedness and response between the operating organization and local, regional, and national authorities, and, where appropriate, at the international level.*"

Organization and Authority

- **Lessons learned** from past emergencies:
  - Not clear who was **in charge**
  - No clear **chain of command** for responders
  - **Authority** not given
  - Difficulty **expanding**
  - Difficulty **integrating** assets as they arrived
  - Directing the response from a **distance**
  - **Multiple** locations/persons:
    - Tried to direct the response
    - Talked to the media
    - Coordinated radiological data

Unified Command and Control System (UCCS)

- An **Unified Command and Control System**

  - Is **a generic response management structure that can be used in response to any emergency**

  - Allows for the integration of facilities, equipment, personnel, procedures and communications from different response agencies within a unified command structure

  - Enables a coordinated response among various jurisdictions and functional agencies

  - Establishes common processes for planning and managing resources

Why UCCS?

- To better protect the population and environment

  - Increased efficiency and effectiveness of the response

  - Allows transition from _reactive_ to _proactive_ operation during complex events

More than an Organization Chart

- A system of **standardized**:

  - Organizations

  - Policies

  - Processes

  - Documentation

- Used for every event

  - Emergencies are resolved within a single operational period

  - Modular, scalable nature of UCCS means that not every emergency requires a full organizational structure or planning process

A UCCS is Used for All Types of Emergencies

- Radiological / Nuclear
- Fires
- Earthquakes
- Flooding
- Wind
- Terrorist attacks

UCCS Uses a Common Terminology

- Ensures that all responders **understand** each other
- **Common organizational functions** and unit names
- **Common names** used for personnel, equipment and facilities
- **Plain text** used in radio transmissions (i.e. does not use codes)

UCCS Uses a Modular Organization

- Enables the structure to **expand or contract** to meet the needs of the emergency

- Structure develops from the **first to arrive**

- Structure based on incident/emergency management **needs**

- **Emergency response commander (ERC) is always staffed**; other functions are staffed as needed

UCCS Uses Integrated Communications

- Common communications plan
- Common terminology
- Compatible communications systems
- Two-way communications following standard procedures
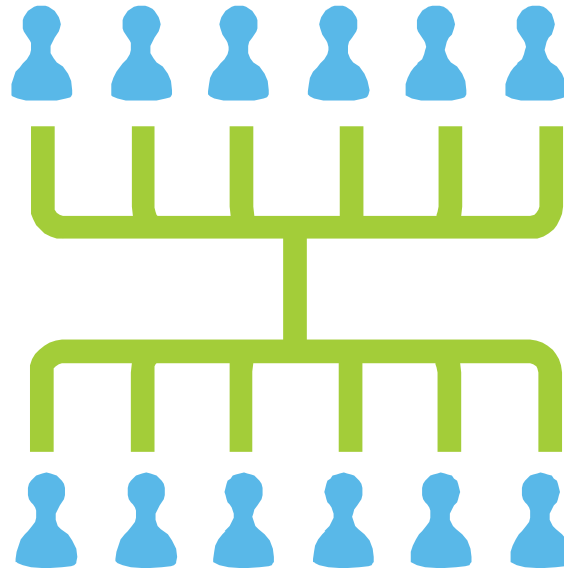
UCCS Uses Designated Facilities/Locations

- When people arrive, everyone knows where to go:
    - Emergency Response Command Post (ERCP)
    - Public Information Centre (PIC)
    - Radiological Monitoring and Assessment Centre (RMAC)

Image courtesy IAEA

UCCS Uses Unity of Command

- Understand **who** is in charge
- Predetermined/uniform chain-of-command
- Always an Emergency Response Commander (ERC) in charge
- Includes within a command group, all agencies with responsibility for EPR

Image courtesy IAEA

As the Emergency Expands the ERC May Change

- Individuals with a **primary role** during each phase
  - Operator or first responder to arrive
  - Local official
  - National official
- Responsibility is **transferred** to an individual fully trained and briefed
  - Command group / Unified Command for most nuclear or radiological emergencies

Inclusion in Unified Command

- **Complex events** may require a unified command
- To be considered for inclusion as a UC representative, the involved organization must:
  - Have jurisdictional authority or functional responsibility
  - Have impact on your organization's Area Of Responsibility (AOR)
  - Be specifically charged by law or ordinance
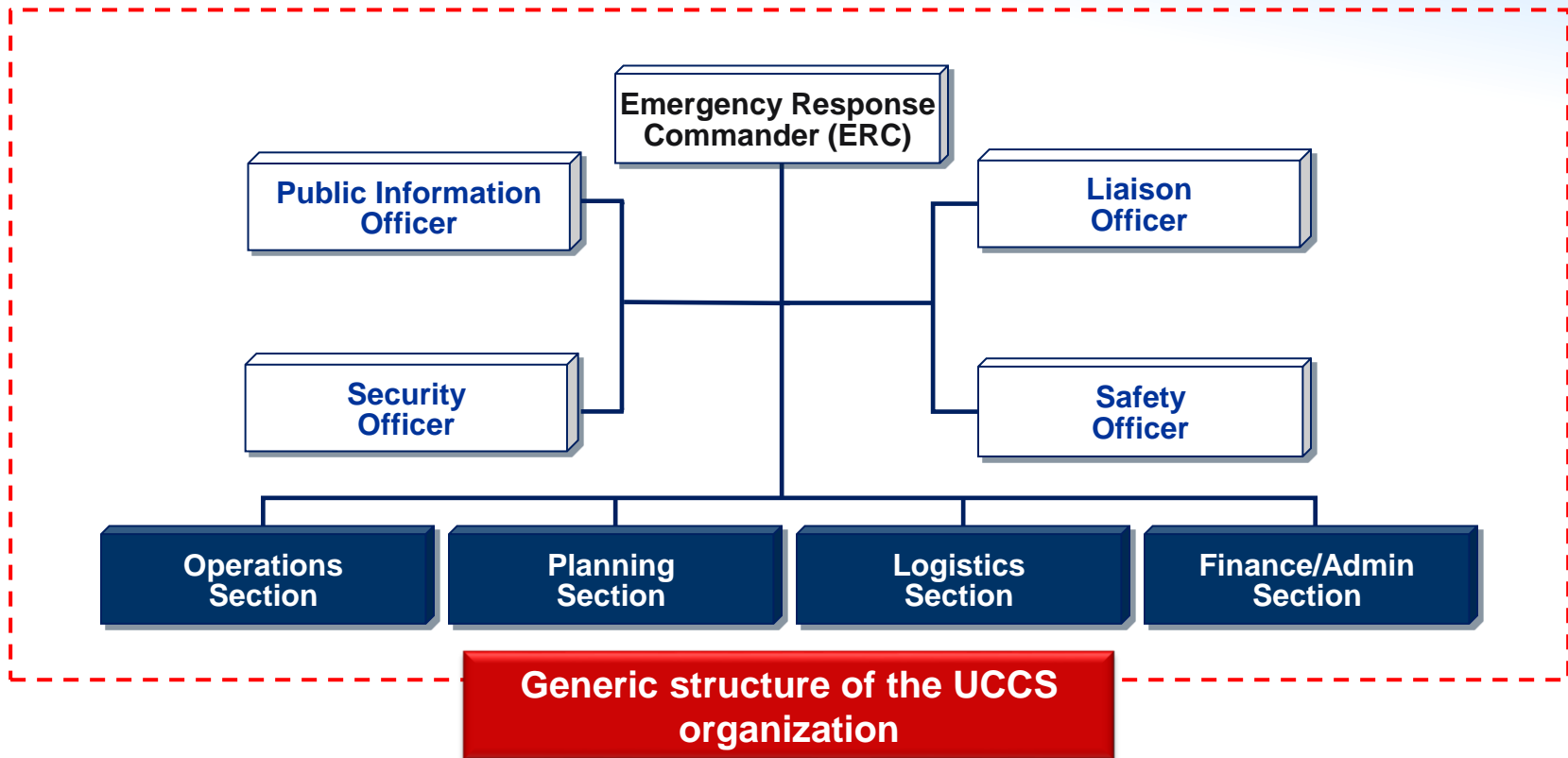 - Have the resources to support the response

UCCS Uses Five Major Components

- Command
- Operations
- Planning
- Logistics
- Finance & administration

Image courtesy US NRC

UCCS Command and General Staff

```
                    ┌──────────────────────┐
                    │ Emergency Response   │
                    │ Commander (ERC)      │
                    └──────────────────────┘
  ┌──────────────────┐              ┌──────────────────┐
  │ Public Information│              │ Liaison          │
  │ Officer           │              │ Officer          │
  └──────────────────┘              └──────────────────┘

  ┌──────────────────┐              ┌──────────────────┐
  │ Security          │              │ Safety           │
  │ Officer           │              │ Officer          │
  └──────────────────┘              └──────────────────┘

┌────────────┐ ┌────────────┐ ┌────────────┐ ┌────────────┐
│ Operations │ │ Planning   │ │ Logistics  │ │ Finance/   │
│ Section    │ │ Section    │ │ Section    │ │ Admin      │
│            │ │            │ │            │ │ Section    │
└────────────┘ └────────────┘ └────────────┘ └────────────┘
```

Generic structure of the UCCS organization

# UCCS Command and General Staff (cont.)

- Operates at the Emergency Response Command Post (**ERCP**)
- Public information officer/group (at **PIC**)
- Safety officer / group (monitors safety conditions)
- Liaison officer/group
- Security officer/group

UCCS Operations Section

- Implementing the response activities (as per the Emergency Response Action Plans (**ERAP**)

- Typically field operations

- Includes (for example):

  - Facility

  - Radiological assessment branch (at RMAC)

  - Human services

  - Police/medical/fire brigade etc.

UCCS Sample Operations Section
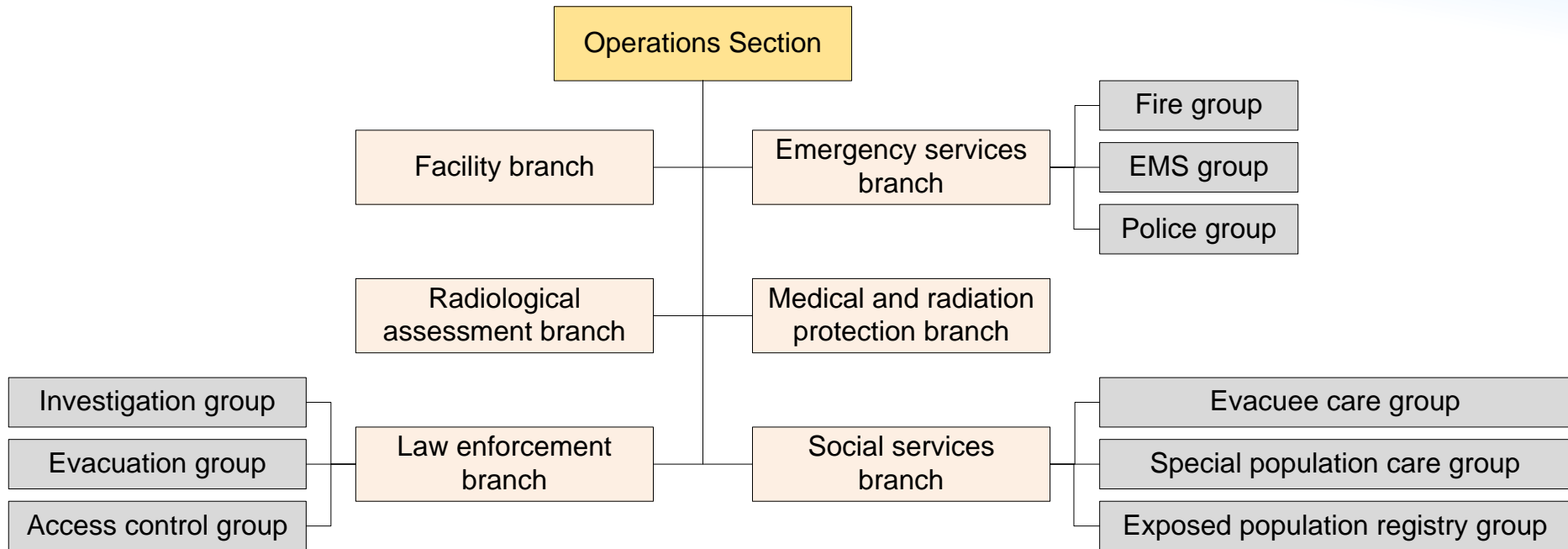
This figure references EPR-Method

UCCS :Planning Section

- Collection, evaluation and dissemination of information

- Develop an Emergency Response Action Plan (ERAP) for a selected operational period (e.g. 4, 12, 24, 72 hrs)

- Very close relationship to Operations Section

  - Operations communicates needs / status

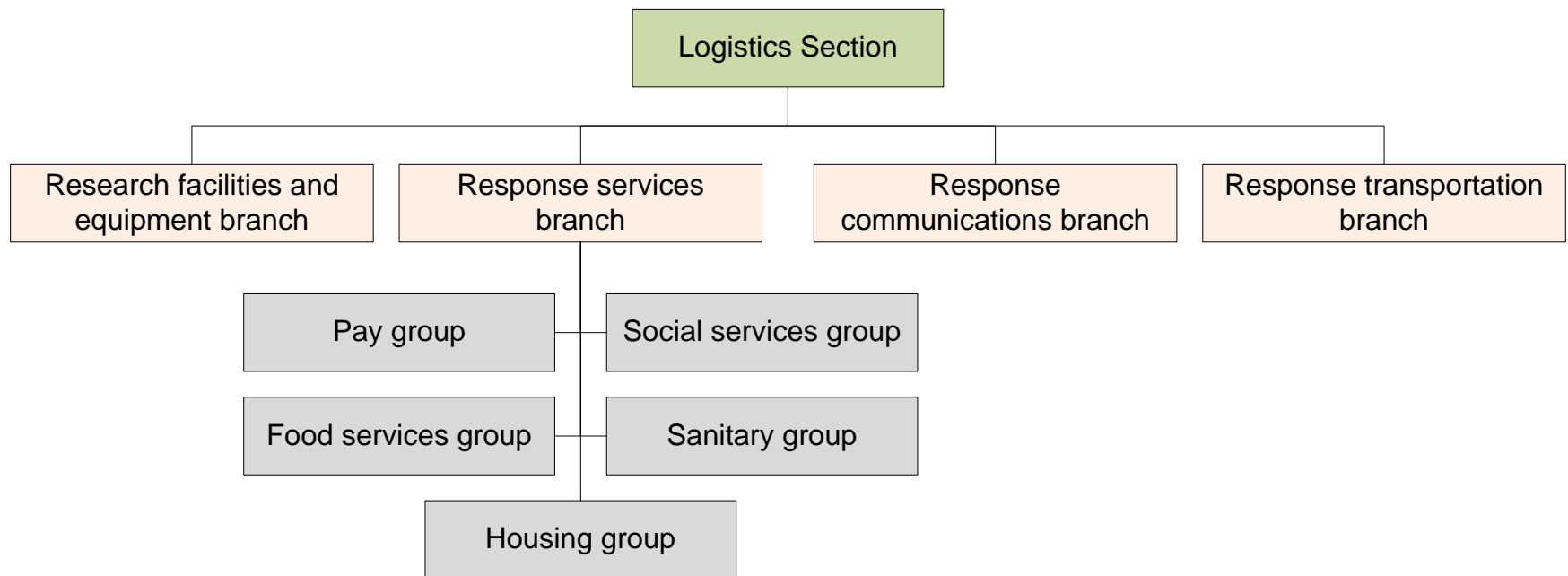 - Planning ensures that the resources are available when needed

UCCS :Logistics Section
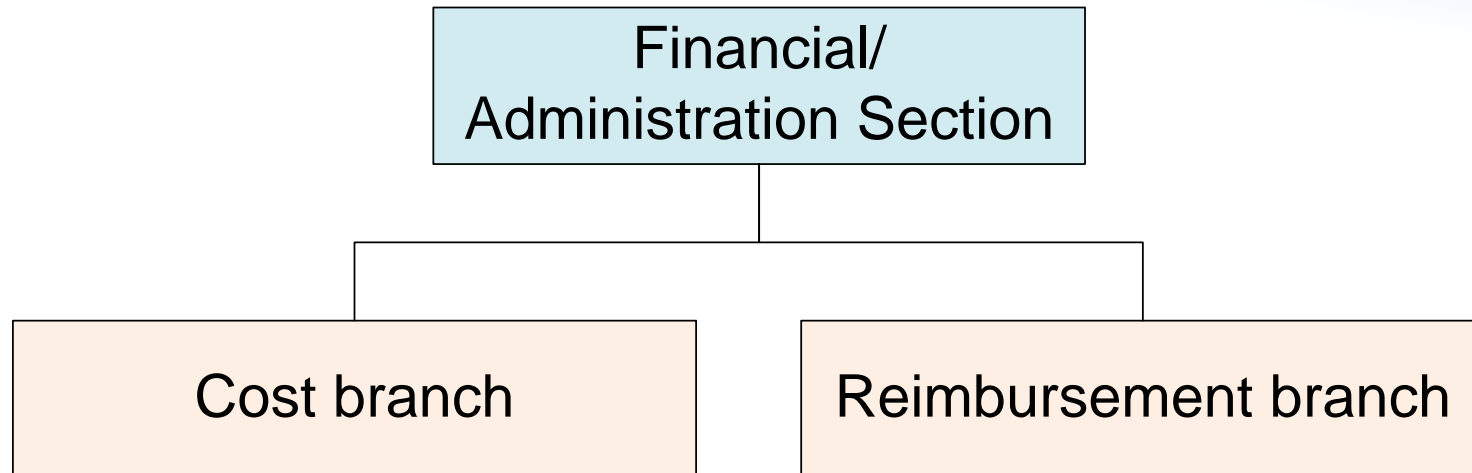
- Facilities

- Services

- Materials
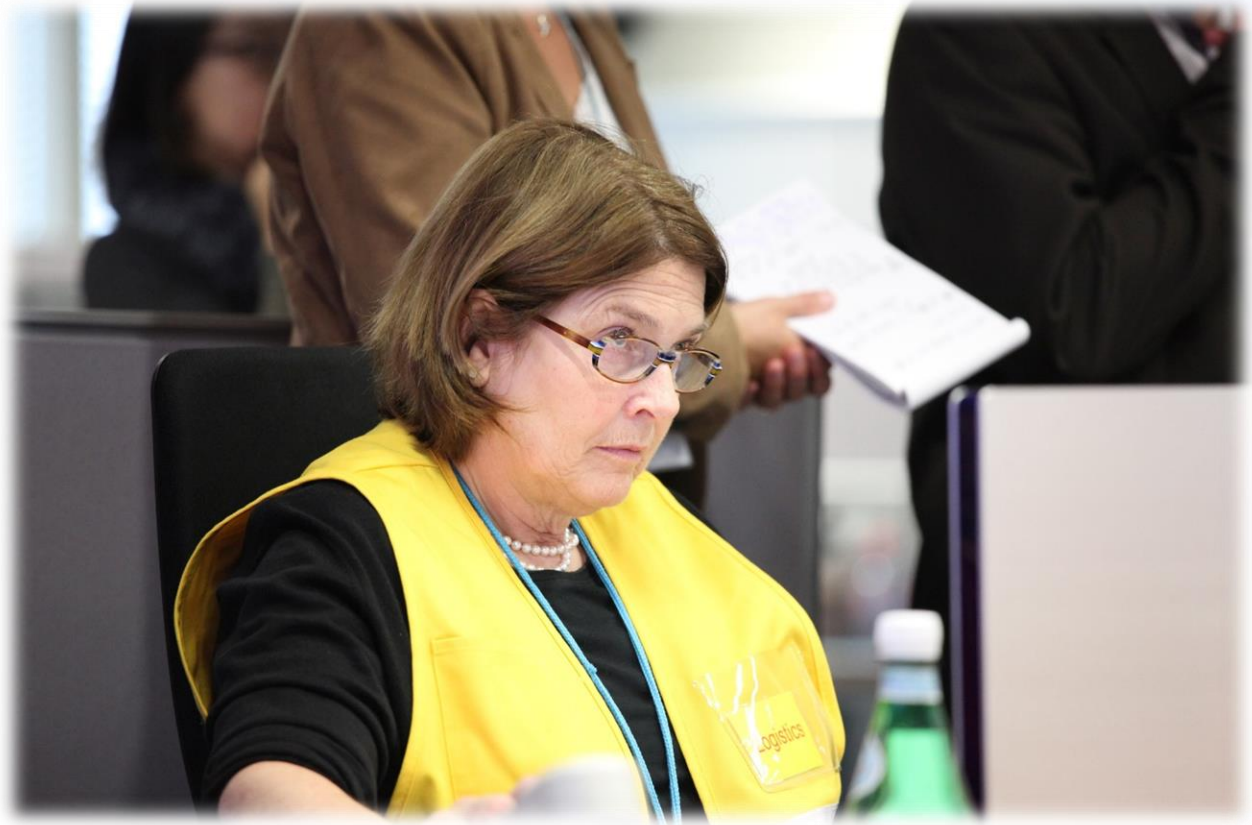
Image courtesy IAEA

UCCS: Logistics Section (cont.)

This figure references EPR-Method

UCCS :Finance and Administration Section

```
                    ┌─────────────────────┐
                    │      Financial/     │
                    │ Administration Section │
                    └─────────────────────┘
                              │
                  ┌───────────┴───────────┐
          ┌───────────────┐       ┌─────────────────────────┐
          │  Cost branch  │       │  Reimbursement branch   │
          └───────────────┘       └─────────────────────────┘
```
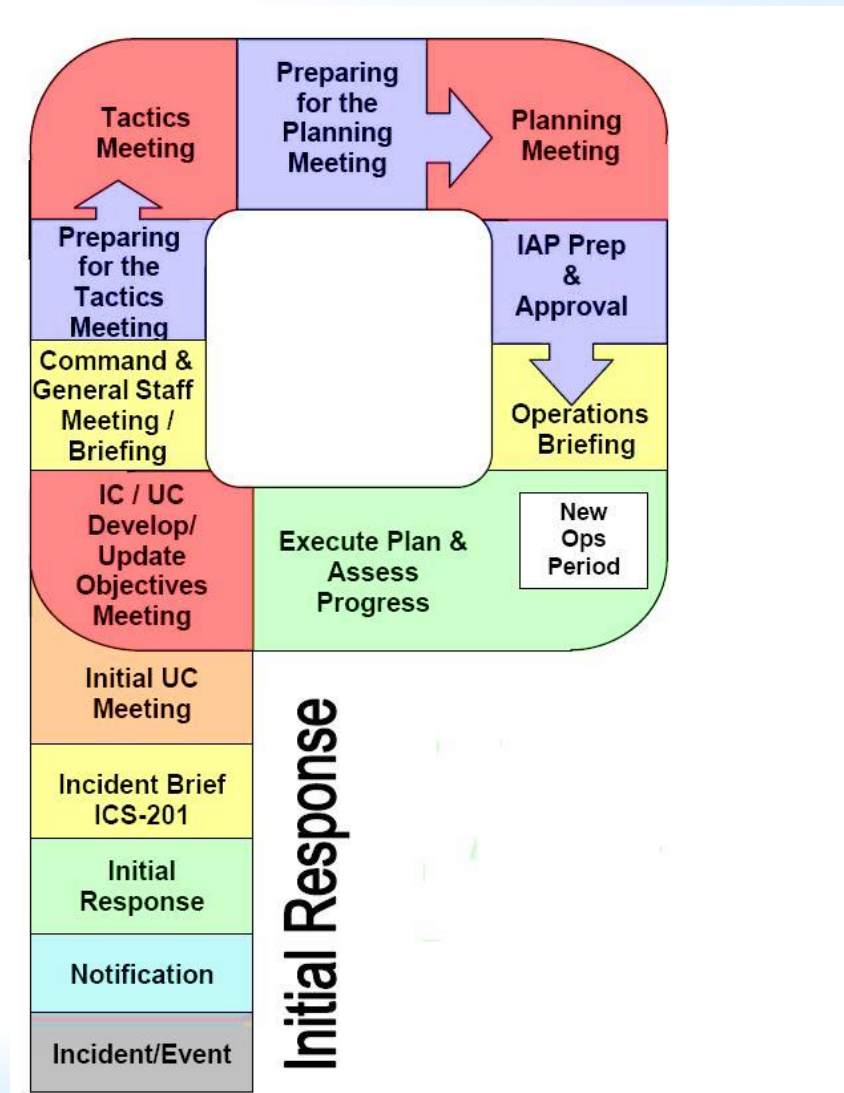
- Tracking response costs
- Reimbursements
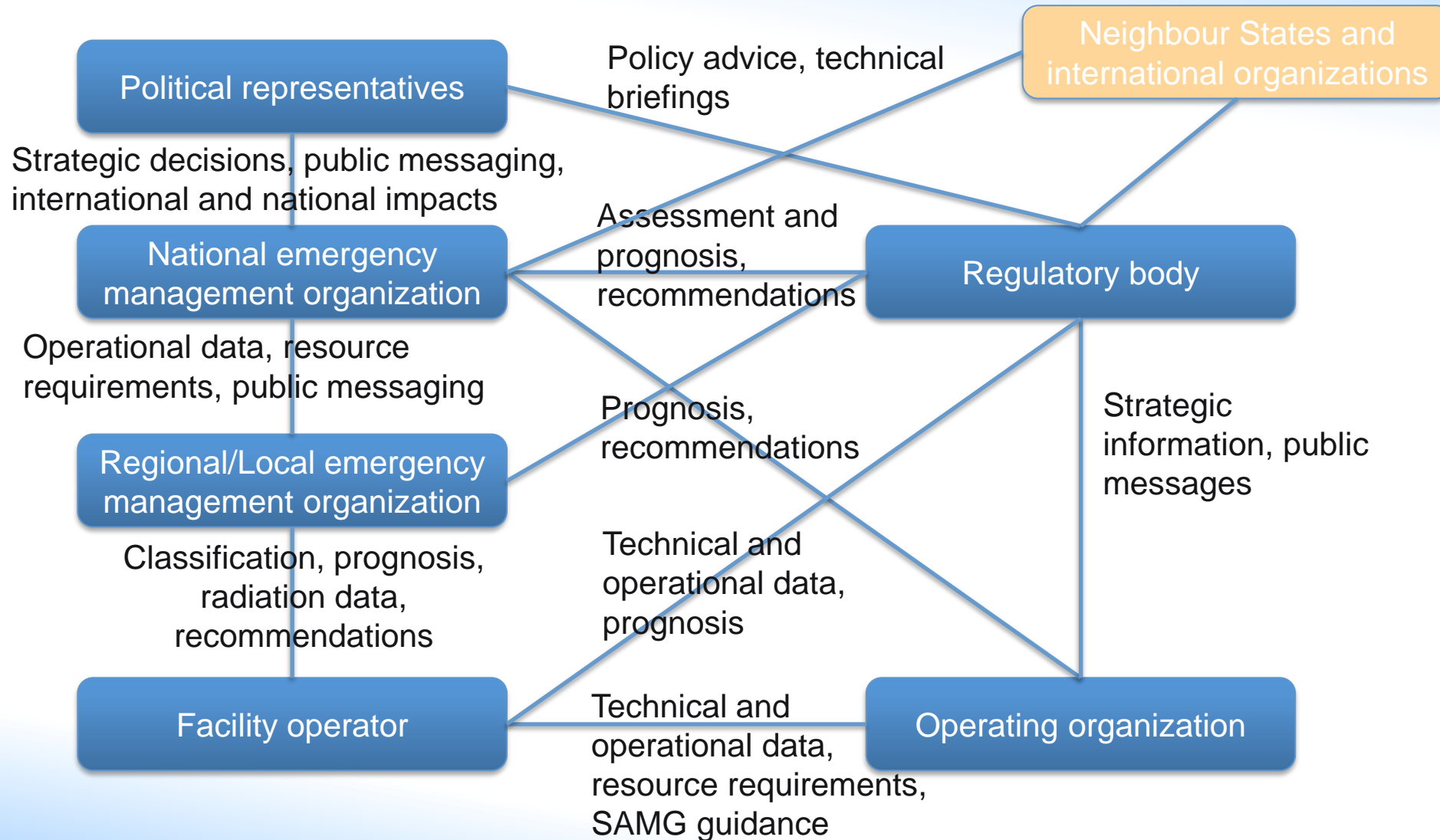
This figure references EPR-Method

UCCS Process

- An UCCS has a **standardized process** that all response organizations should follow

- Commonly referred to as the "**Planning P**"

  - Each Section has unique responsibilities during each phase of each operational period

Planning P

Image courtesy IAEA

Example of Organizational Interface Mapping

Political representatives

Neighbour States and international organizations

Policy advice, technical briefings

Strategic decisions, public messaging, international and national impacts

National emergency management organization

Assessment and prognosis, recommendations

Regulatory body

Operational data, resource requirements, public messaging

Regional/Local emergency management organization

Prognosis, recommendations

Strategic information, public messages

Classification, prognosis, radiation data, recommendations

Technical and operational data, prognosis

Facility operator

Technical and operational data, resource requirements, SAMG guidance

Operating organization

Organizational Coordination Interfaces

- Coordination **interfaces** are required at all levels, including within the organizational "units"

- **Coordination is complex**, especially if organizations do not know:
  - What the other ones are supposed to do or
  - Are capable of doing

Images courtesy IAEA
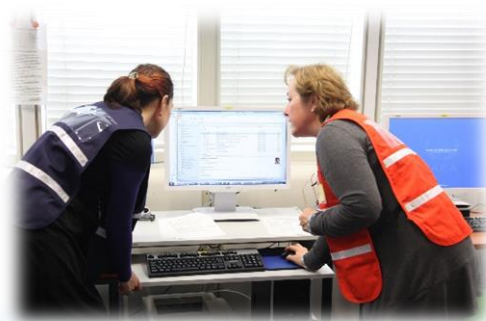
Coordination Tools for Preparedness

- Joint, multi-disciplinary coordination committees
  - Facility-Local / Local-Regional-National
  - Intergovernmental
  - National-National (neighbouring State)
  - Regional-Regional (neighbouring State)
- Joint training and exercises
- Joint conferences (thematic)
  - Assessment and prognosis
 - Public communication
  - Plan optimization

Image courtesy IAEA

Examples of Good Practices

- Local nuclear safety committee (**France**)
  - Authorities, operating organization, response organizations, interest groups

- International coordination group for the harmonization of protection strategies
  - Western European Nuclear Regulators Association (WENRA)

Response Coordination Mechanisms

- A solid emergency management system
- Emergency Response Command System (ERCS)
  - Emergency Response Management System (ERMS)
  - National Emergency Response Management System (NERMS
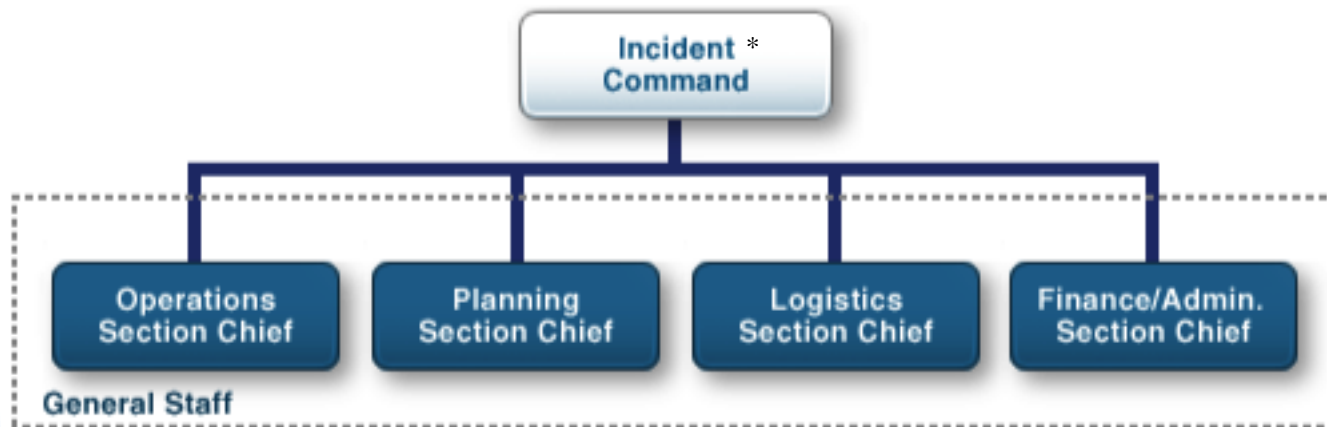
Image courtesy IAEA

*in line with IAEA Safety Glossary (2018), term Emergency Response Command is used interchangeably with Incident Command

Response Coordination Mechanisms (cont.)

- ## Situational information management system
  - Sharing knowledge and assessment in real time
  - Web-based system
  - Virtual command centres
  - Integrated situational awareness shared workspace
 - Example: IRMIS, EURDEP

Image courtesy IAEA

Response Coordination Mechanisms (cont.)

- Joint command centre, good practice:

  - The Barakah NPP (**UAE**), the offsite command centre brings together decision-makers and analysts from both onsite and offsite organizations

  - There are several other States that implement a similar practice

- Regional coordination, good practice:
  - Nordic States and the Gulf Cooperation Council have standing plans for joint response to nuclear emergencies

# Response Coordination Mechanisms (cont.)

- Public information management system and mechanisms
  - Joint Information Centre
  - Shared web-based working space for media communication
  - Joint emergency hot line
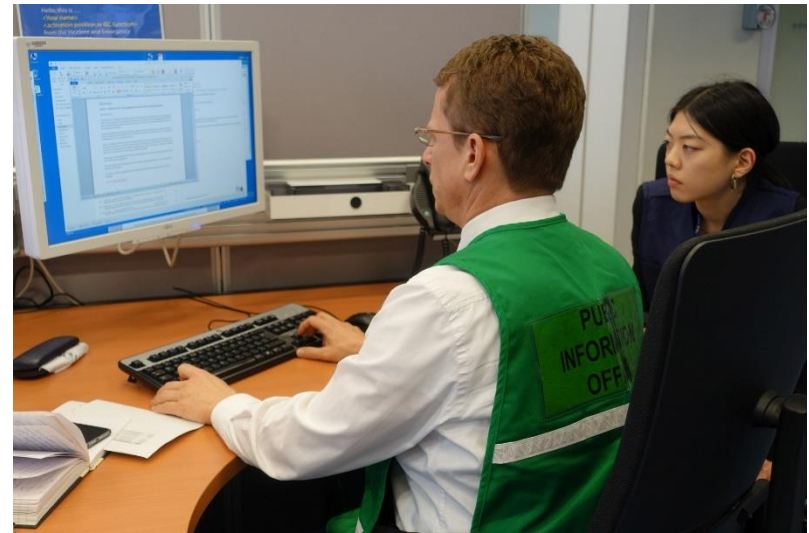
Image courtesy IAEA

Key Points

- The purpose of the UCCS is to increase efficiency and effectiveness of the response in order to provide better protection.

- An UCCS must be flexible to allow
  - Transition from reactive to proactive during complex events
  - Scalability from small to large scale emergencies

- Coordination is complex and often hinders response effectiveness, therefore coordination in preparedness enhances coordination in response
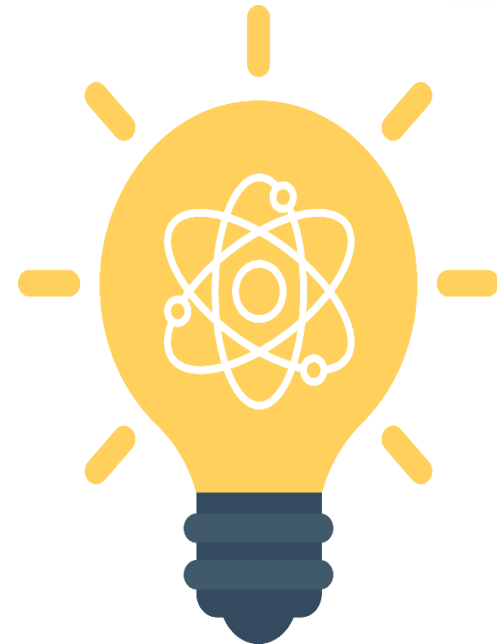
Where to Get More Information

- IAEA EPR-Method (2003) section 4.2.15
- IAEA EPR-First Responders (2006)
- IAEA GSR Part 7 (2015) requirement 22
- IAEA GS-G-2.1 (2007) para 5.2

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Thank you!

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