



# ENVIRONMENTAL MEASUREMENTS IN AN EMERGENCY

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International Experts' Meeting on Assessment and Prognosis in Response to a  
Nuclear or Radiological Emergency

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# Outline

- Understanding the problem
  - Defining the question
  - Execution plan
- Advanced training elements
  - Advanced training
  - Calibration
- Best practices
- Potential errors and delays
- Conclusions

# Defining The Question

## One Event



Earthquakes  
Tsunamis  
Explosives/bombs



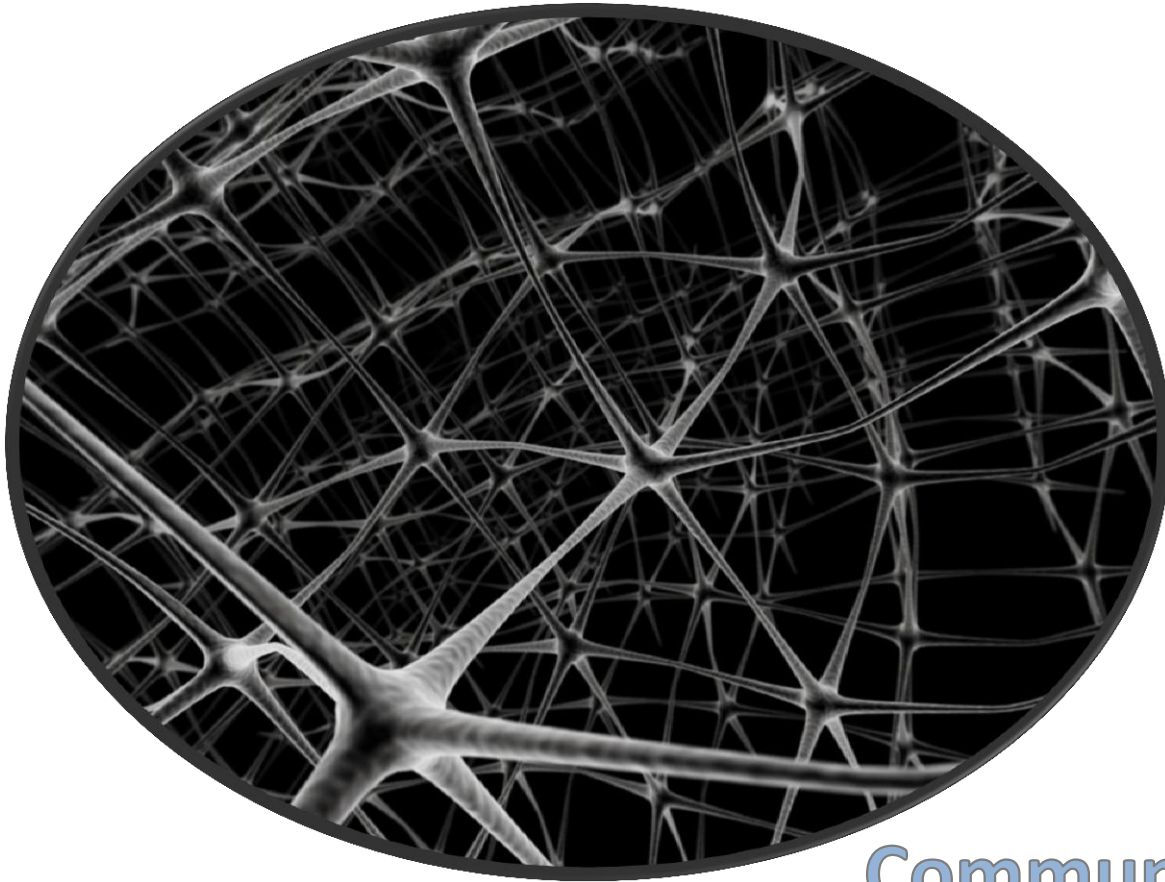
Public health  
Worker health

## Many Pieces

Food  
Water  
Return to home/work  
Clearing rubble/debris

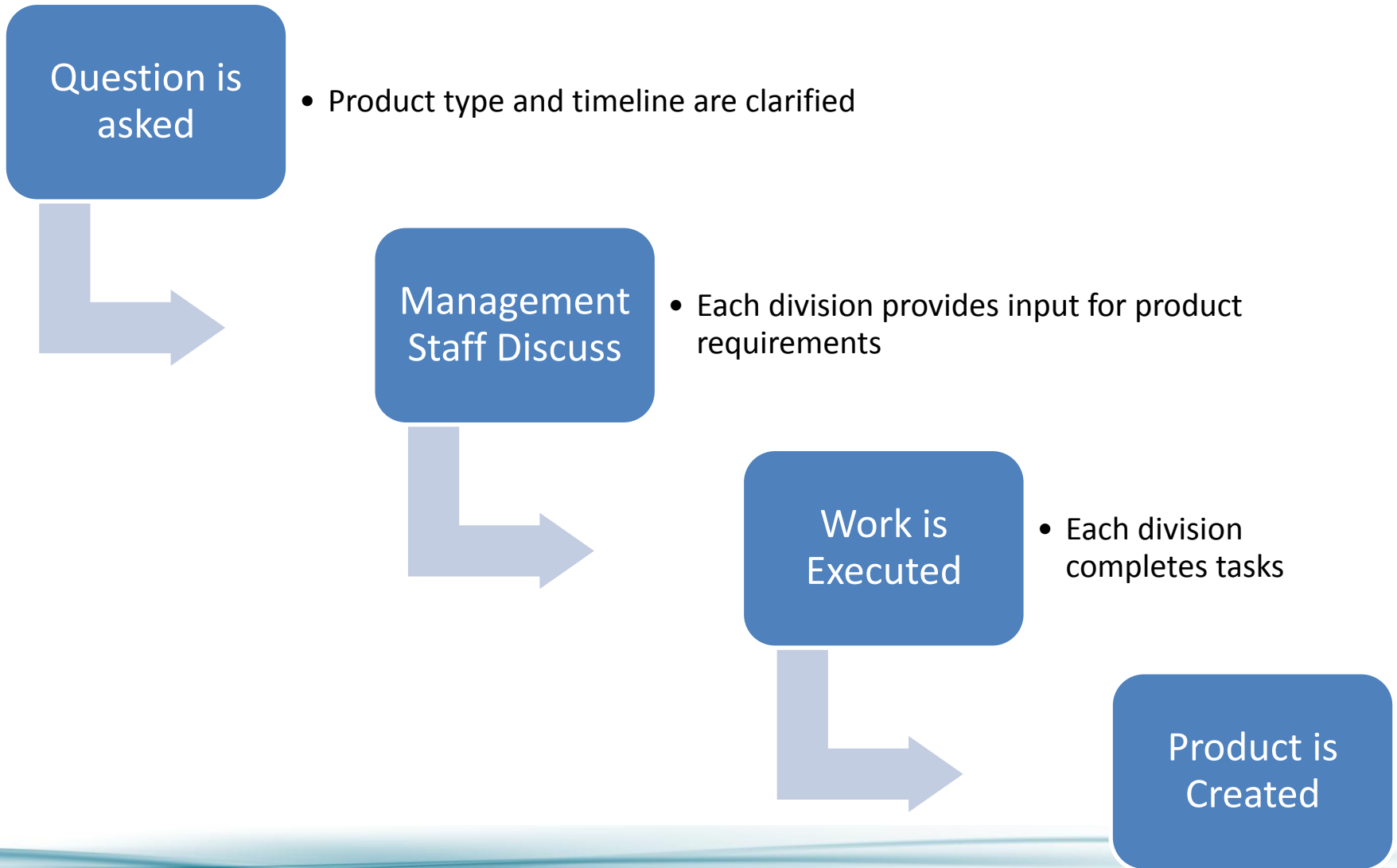


# Issues are interconnected!



Communication between  
Responding organizations  
must exist, or problems  
will come up!

# Execution Plan: Required Elements



# Execution Plan: Division Inputs

Assessment

- Sample types
- Monitoring data
- Analysis method for product

Lab Analysis

- Sample analysis methods
- Labs that can process samples

Monitoring

- Collection of samples

Health and Safety

- Establishes safety protocols

Modeling

- Additional information in product
- Used for creating initial monitoring and sampling plan



# Execution Plan: Example Discussion

Assessment: What dose guidance?  
Map or report?

Monitoring: Where do they want to  
plant? How many samples? How big  
of a sample?

Lab Analysis: What detection  
levels? What tolerable error?

Health & Safety: Which responders will  
collect samples? What else will they  
be doing that day?

Management: How fast can you get  
the answer?

Can we  
plant  
rice?



# Advanced Training Advantages

- Quickly able to begin working
- Efficient with mixed-teams

Initial  
Response



- Procedures in places saves times
- Tools considered in advance

Complicated  
Methods



- Longer response priorities
- Team member able to exchange roles efficiently

Ongoing  
Expectations





# Calibration & Maintenance Advantages



# Best Practices and Avoiding Error

## Best Practices

- Good record keeping
- Frequent training
- Appropriate calibration schedule
- Selecting the right team and equipment for the job

## Potential Errors

- Calibration incorrect
- Not performing updates on calibration in the field
- Hot samples stored in a poor location
- Responder errors

# Conclusions

- Understanding the question is critical to obtaining the appropriate answer quickly
- The creation of an execution plan will take some time initially, but will save time later
- Advanced training and calibration will assist in the entire process