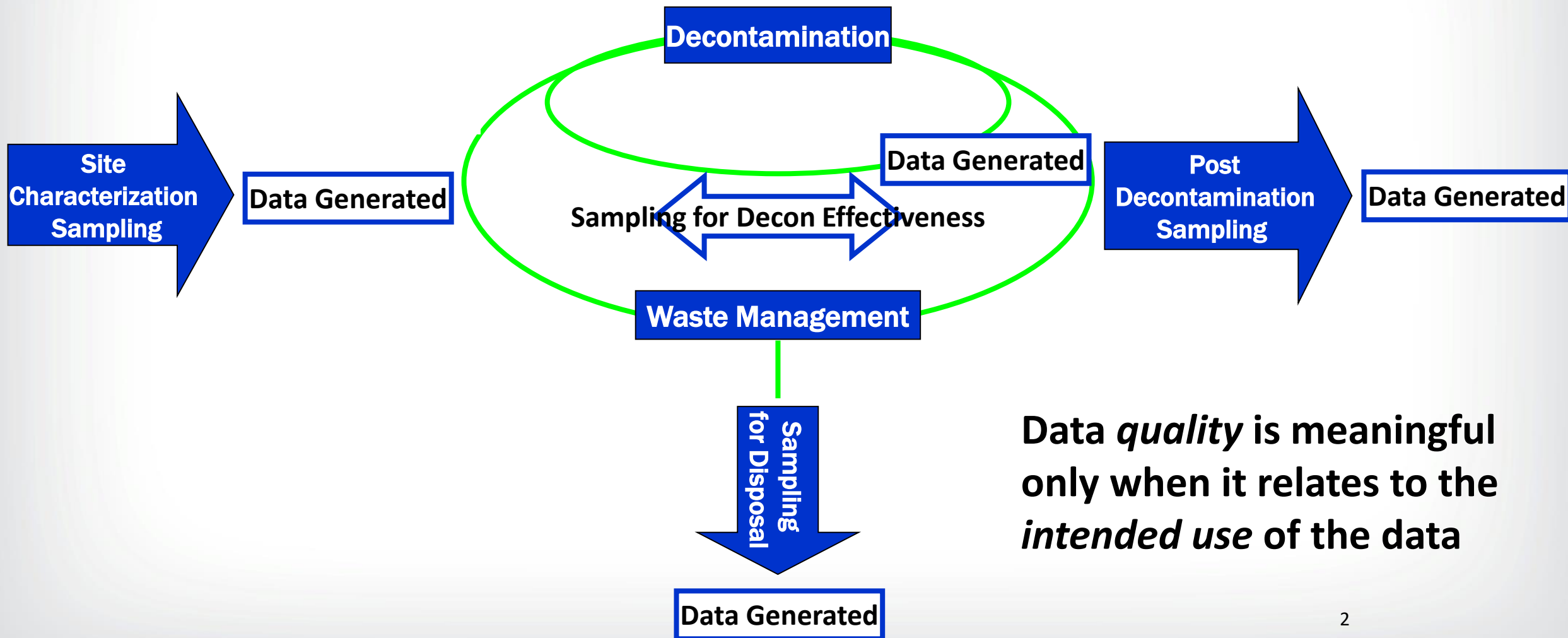# Streamlining Documentation of Sampling and Analysis Plans for Biological Contamination Events

Virtual Biological Sampling Design and Implementation Workshop
September 15, 2020

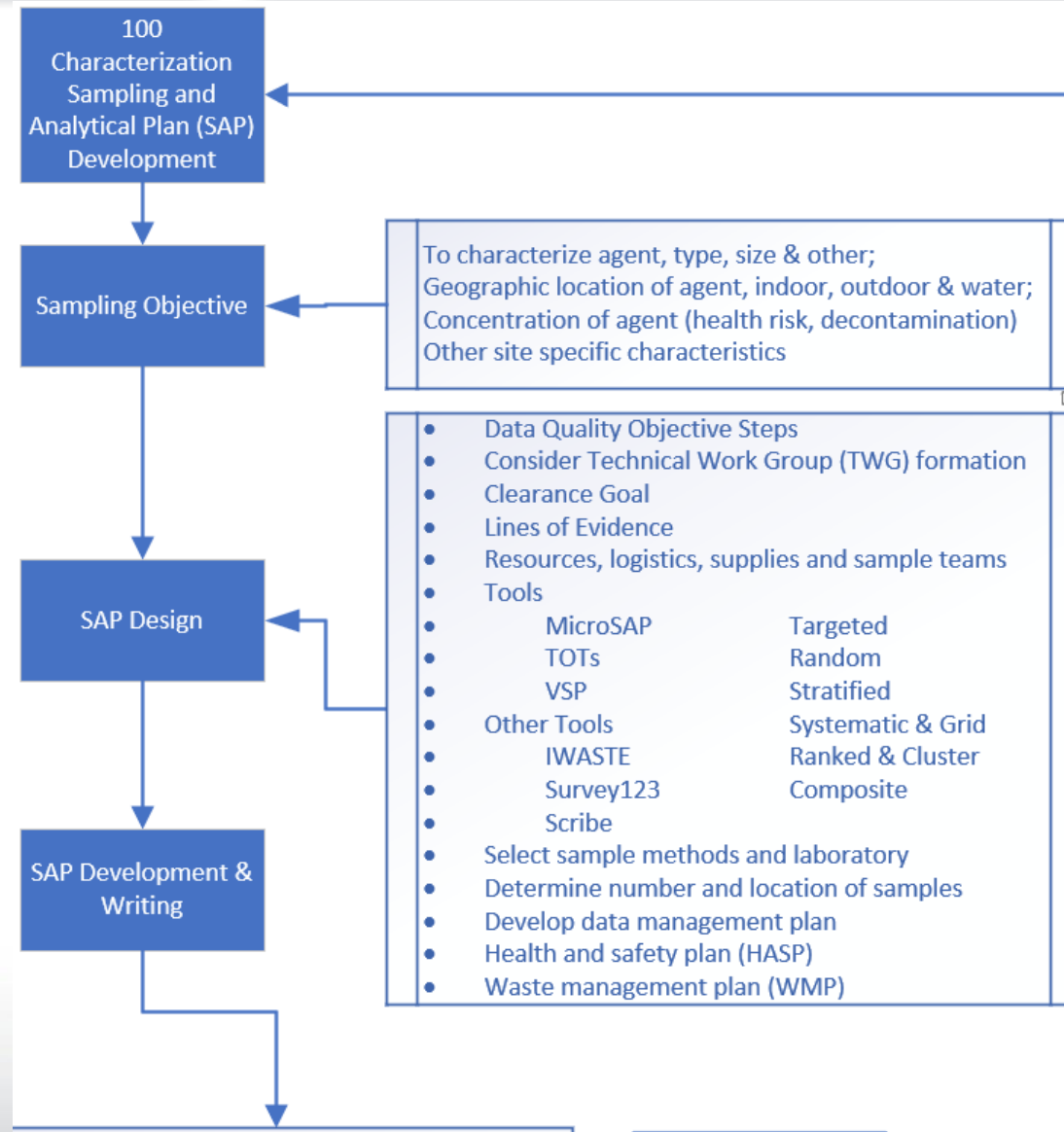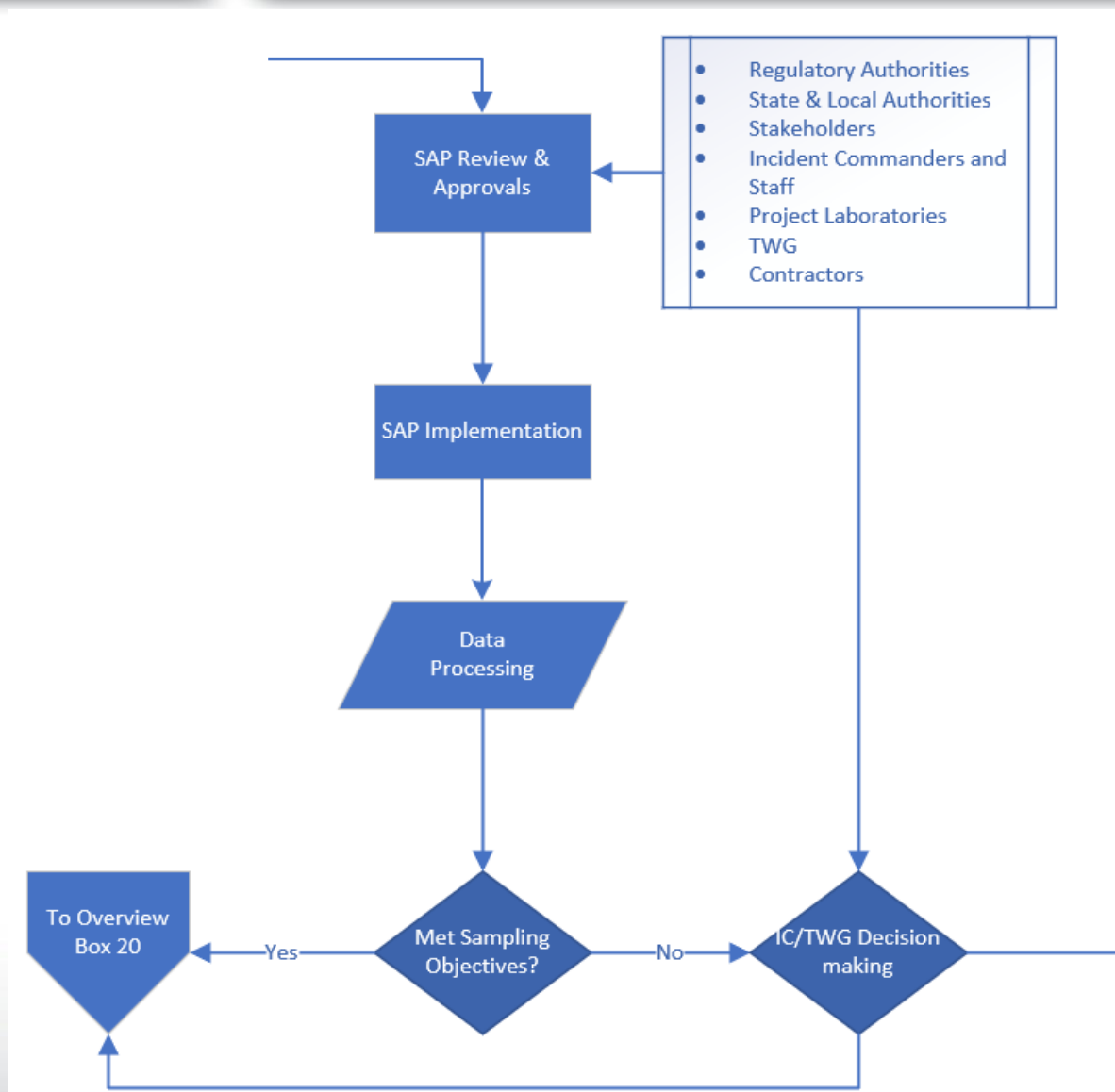Data *quality* is meaningful only when it relates to the *intended use* of the data

2

- Used to document the criteria for sampling and analysis activities and associated quality of the results (data quality objectives [DQOs])

- Helps ensure environmental data collected are of known and documented quality for the intended use

- SAP development is an iterative process and the SAP might require modification throughout a data collection event

- During collection and assessment of the results, it is important to ensure that the protocols outlined in the SAP were followed according to the established criteria

SAP Development

```
┌─────────────────────┐
│ 100                 │ ◄──────────────────────────────────────────────┐
│ Characterization    │                                                │
│ Sampling and        │                                                │
│ Analytical Plan(SAP)│                                                │
│ Development         │                                                │
└─────────────────────┘                                                │
          │                                                            │
          ▼                                                            │
┌─────────────────────┐    ┌──────────────────────────────────────────┴──┐
│                     │    │ To characterize agent, type, size & other;   │
│ Sampling Objective  │ ◄──┤ Geographic location of agent, indoor,        │
│                     │    │   outdoor & water;                           │
│                     │    │ Concentration of agent (health risk,         │
│                     │    │   decontamination)                           │
└─────────────────────┘    │ Other site specific characteristics          │
          │                └──────────────────────────────────────────────┘
          │
          ▼
┌─────────────────────┐
```

- Data Quality Objective Steps
- Consider Technical Work Group (TWG) formation
- Clearance Goal
- Lines of Evidence
- Resources, logistics, supplies and sample teams
- Tools

• MicroSAP	Targeted
• TOTs	Random
• VSP	Stratified
Other Tools	Systematic & Grid
• IWASTE	Ranked & Cluster
• Survey123	Composite
• Scribe	

- Select sample methods and laboratory
- Determine number and location of samples
- Develop data management plan
- Health and safety plan (HASP)
- Waste management plan (WMP)

SAP Design

SAP Development & Writing

SAP Implementation

Considerations for Developing Sampling and Analysis Plans

Summarizes elements that should be considered when planning, developing and implementing a SAP including lines of evidence, field sampling, laboratory analyses and reporting, and data quality assessment and interpretation.

[Sampling, Laboratory and Data Considerations for Microbial Data Collected in the Field](#)

Sampling and Analysis Plan Outline

Interim Draft Outline: Sampling and Analysis Plan for Environmental Samples Potentially Containing Pathogens to assist in generation of a SAP in an instance that one needs to be created offline.

[Sampling and Analysis Plan Outline for Environmental Samples Potentially Containing Pathogens](#)

https://www.epa.gov/esam/sampling-and-analysis-plan-resources-pathogens

The Environmental Sampling and Analysis Method (ESAM) Program supports decision makers by coordinating sampling and analysis needs to a chemical, biological, radiochemical, or biotoxin contamination incident.

Sample

Collection and Handling

Processing and Analysis

Results and Interpretation

Data Management

Supports Environmental Remediation and Recovery

https://www.epa.gov/esam

Sample Collection and Handling → Sample Processing and Analysis → Sample Results Interpretation → Supports Environmental Remediation and Recovery

Data Management
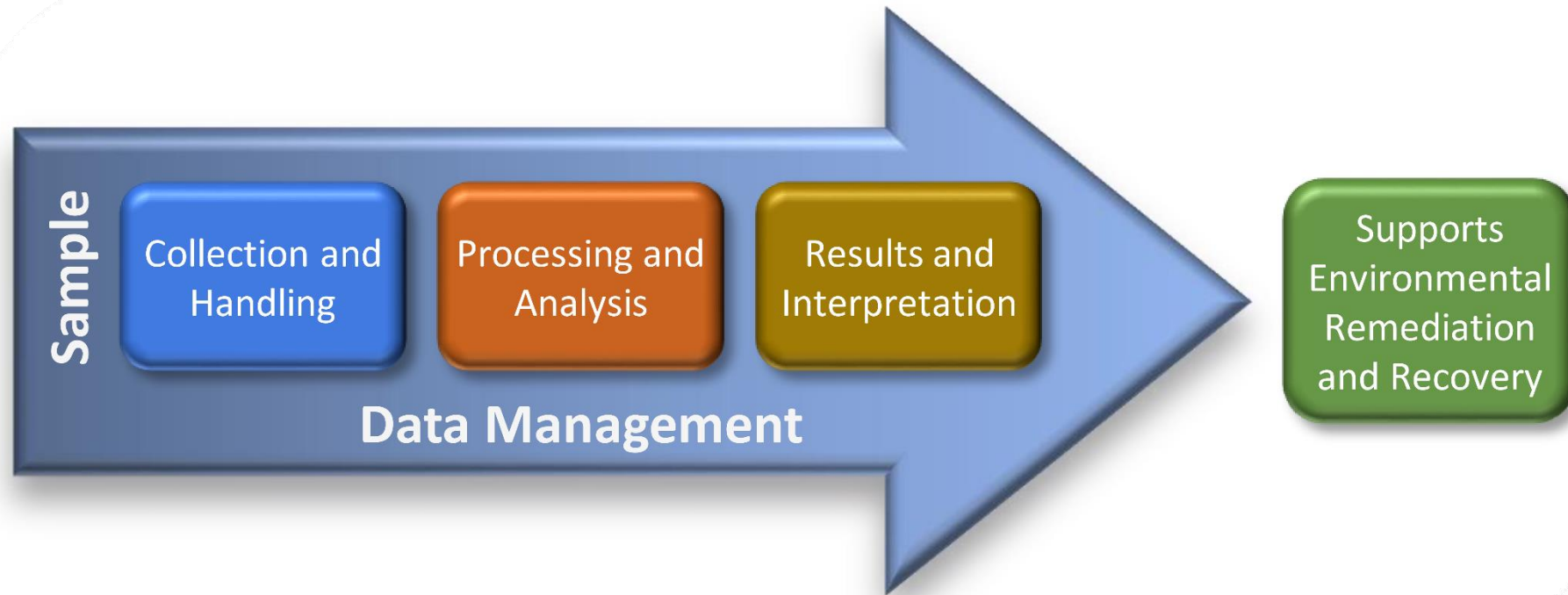
Sample Collection Protocols & Procedures

- Readily available protocols and procedures for use in the field by sample collectors

Sample Collection Information Document (SCID)

- Online resource to facilitate field sample collection and laboratory requirements for large numbers of samples

ESAM Sample Processing and Analysis
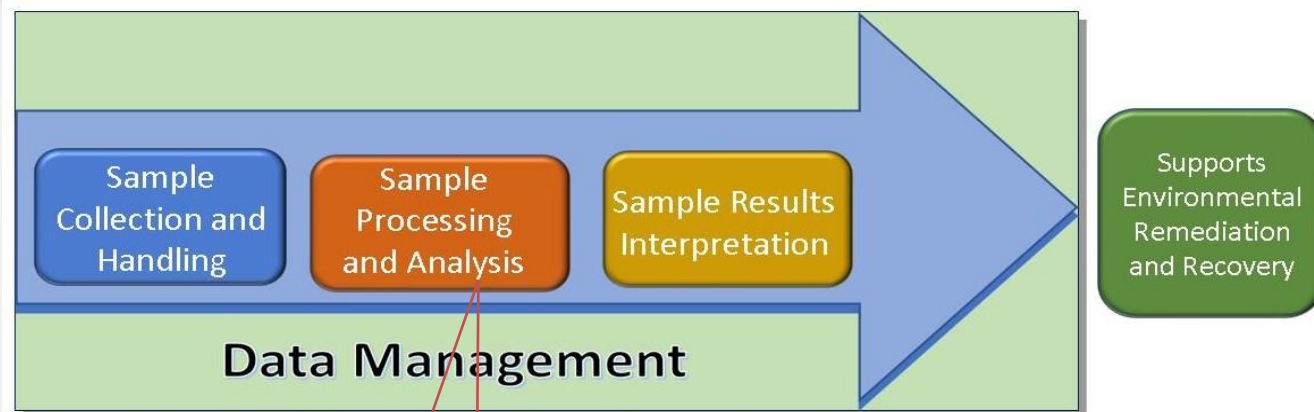
Sample Processing and Analytical Protocols & Methods

- Readily available protocols and methods for use in the laboratories

Selected Analytical Methods (SAM)

- Online resource identifying best available analytical method to be used by multiple laboratories during a large homeland security incident

- On-line or Microsoft app tool to document and store SAPs*
  - Intended to be user-friendly and step users through development of a SAP
  - Features drop down menus, custom fields, and flags for action items or delegation
  - Stores previous files to be used as templates and for easy access to the SAP

- Designed for remediation phase of biological incidents, exercises, and research

- Target users are environmental unit leaders/On-scene coordinators

*Tool under revision and will be investigated in several platforms to fix current glitches

What the MicroSAP Tool Does NOT do

- Does NOT replace use of a statistician or other sample planning tool to determine sample numbers or locations
  - The tool is intended to help you <u>document</u> this information

- Does NOT replace the data management plan, waste management plan, or health and safety plans developed for the incident

Future SAP Resources:
Sampling and Analysis Plan Fillable Template

- [PDF template](#) that walks users through filling out a SAP for microbiological contamination incidents

- Incorporates DQO process into the SAP

- Mimics intended output of the MicroSAP tool

**U.S. EPA
Sampling and Analysis Plan**

Technical Lead:

Prepared By:

Date: