

# Environmental Impact Assessment (EIA)

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# Overview

- **Definition of Environmental Impact Assessment (EIA)**
- **Steps in the EIA process**
- **Limitations and Constraints**
- **Solutions and Mitigation Measures**
- **Discussion (*throughout*)**

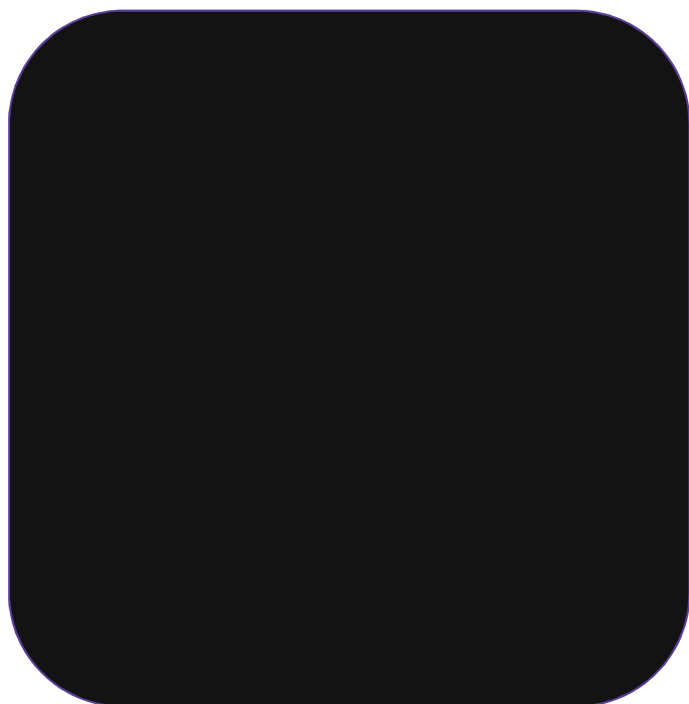
**But first, a “quiz...”**

# Question 1

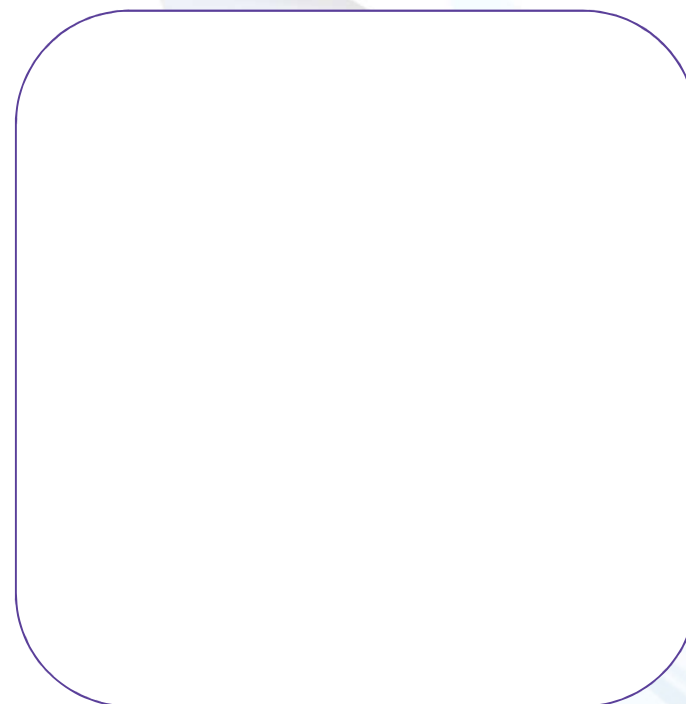
What is the difference between being “objective” and being “subjective?”

# Objectivity

**Black**

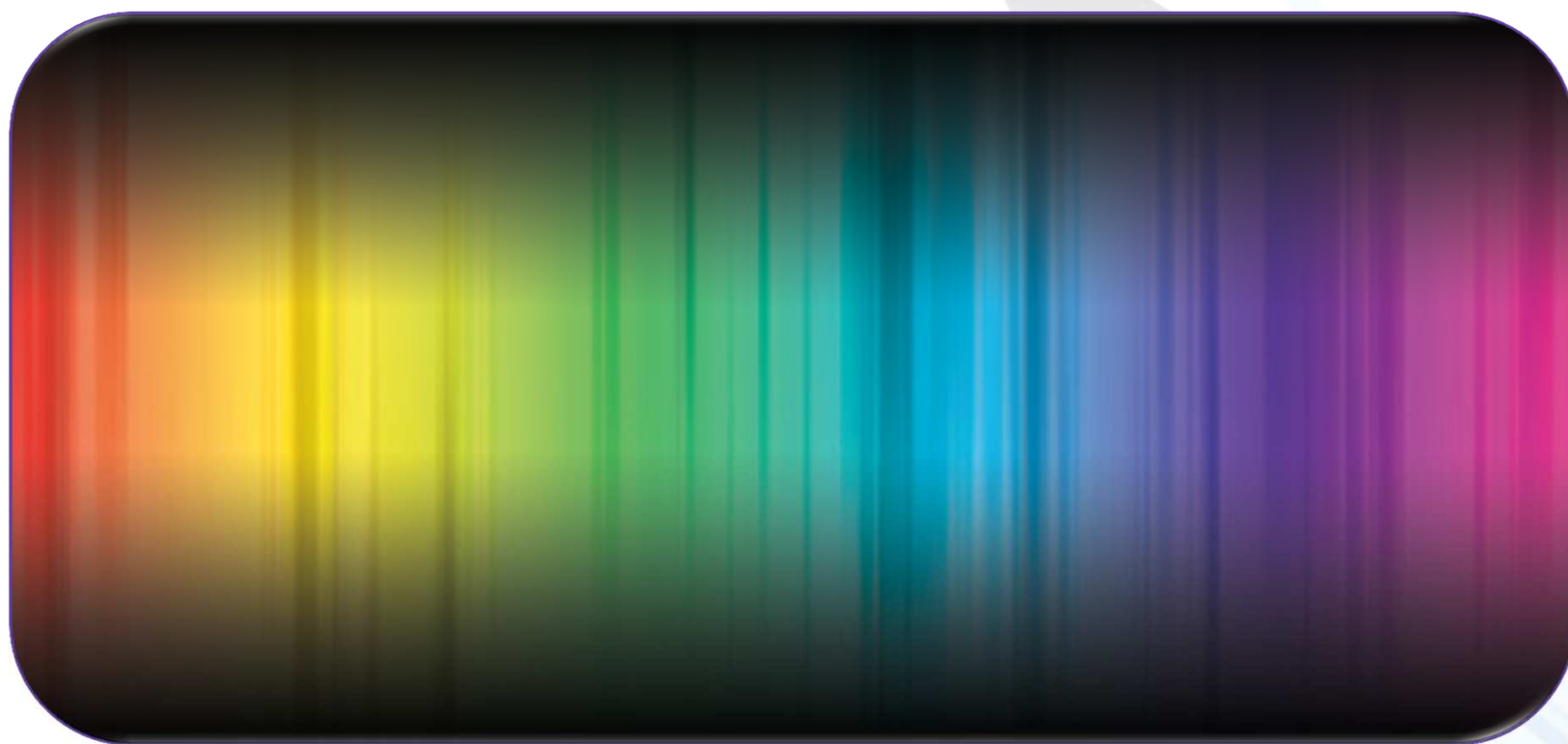


**White**



# Subjectivity

Everything in-between



# Example



## Question 2

What is the difference between  
“qualitative” and  
“quantitative” data?



# Comparison

## Qualitative

- Deals with **descriptions**.
- Data can be **observed** but *not* measured.
- Colors, textures, smells, tastes, appearance, beauty, etc.
- **Qualitative** → **Quality**

## Quantitative

- Deals with **numbers**.
- Data which *can* be **measured**.
- Length, height, area, volume, weight, speed, time, etc.
- **Quantitative** → **Quantity**

# Example: Starbucks Latte (Tall)

## Qualitative data:

- Robust aroma
- Frothy appearance
- Strong taste
- “Classic” white-and-green mug

## Quantitative data:

- 355 ml (12 fl. oz.) of latte
- Serving temperature 65.6° C.
- Serving mug 20 cm in height
- Cost KD1.500



# **Definition of Environmental Impact Assessment (EIA)**

# 1. Environment

- Can be defined as “*the biosphere in which different forms of life are manifested*”
- Divided into 2 main categories:

## Natural

Comprises living creatures (human, animal, plant, and other living creatures), natural resources (water, soil) and natural systems.

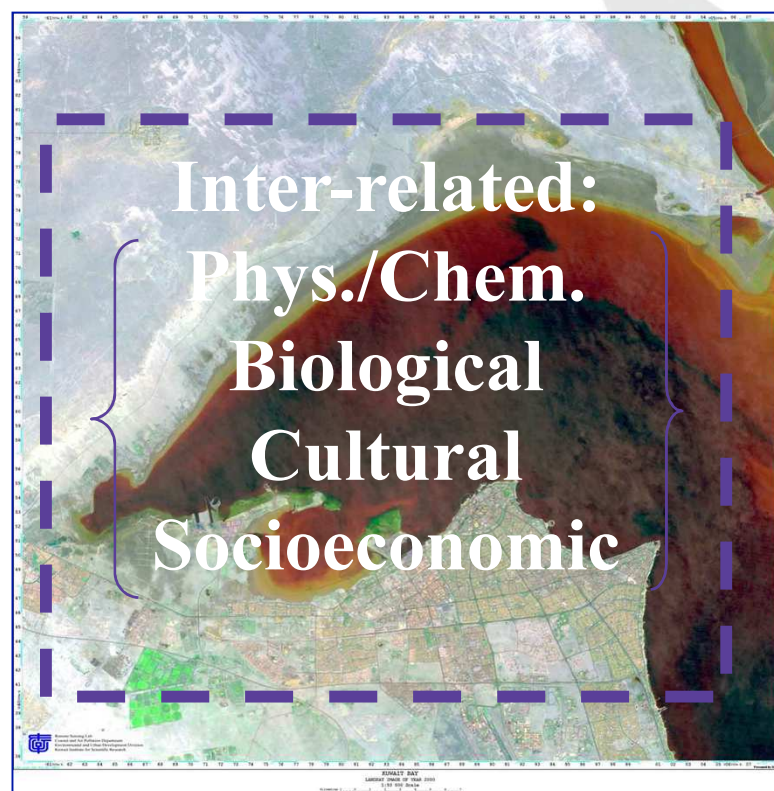
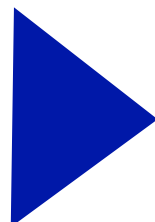
## Anthropogenic

Comprises all human elements introduced into the natural environment.

# Environmental Systems



Input  
Activities



Output  
Impacts

## 2. Impact

- Can be defined as “***environmental consequences***”
- An **impact indicator** is an element or parameter that provides some sort of measure of the magnitude of environmental impact.
- **Examples** of different indicators are: loss of recreational activities; changes in water quality parameters; or loss of bird communities and vegetation.
- The measurement may be **qualitative** or **quantitative**, depending on the parameter and the means of evaluating future changes.

# Variation in Impacts

- **Type and nature** (physical, social, etc.)
- **Magnitude**
- **Extent** (local, regional, etc.)
- **Timing** (immediate/single, long term/cumulative)
- **Duration** (temporary, permanent)
- **Uncertainty**
- **Reversibility**
- **Significance** (important, unimportant)

## 3. Assessment

Evaluation, Identification, Prediction, Estimation,  
Calculation



Impacts of human activities, before those  
activities begin.



# Environmental Impact Assessment



E.

I.

A.

# EIA - Summary

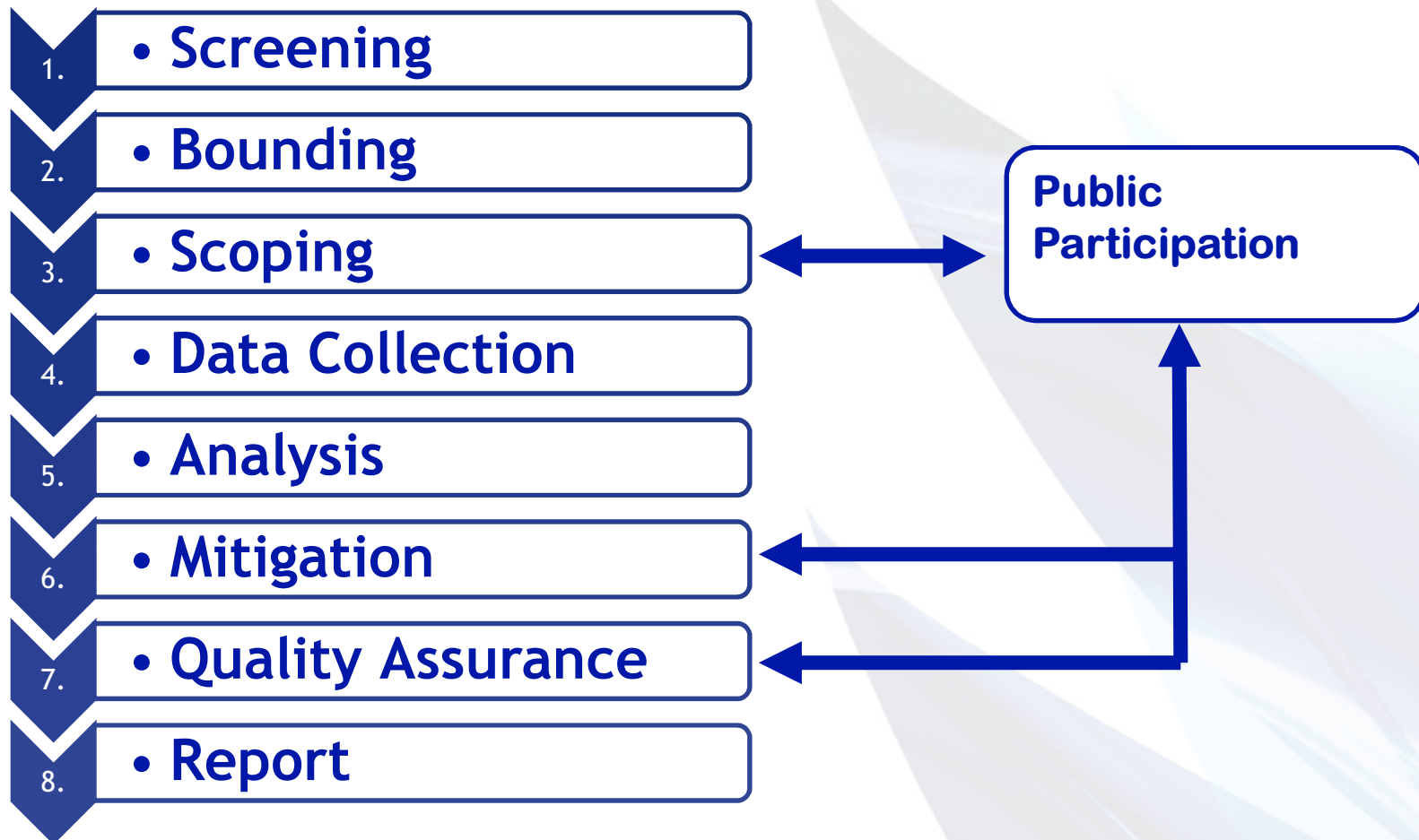
- EIA is **defined** as the **systematic identification and evaluation** of the potential impacts of **proposed** projects, plans, programs or legislative actions relative to the **physical-chemical, biological, cultural, and socioeconomic components** of the **total** environment.
- The **purpose** of EIA is to give the environment its due place in the decision-making process by clearly **evaluating** the environmental consequences of a proposed activity **before** any action is taken.

# Integration Within EIA

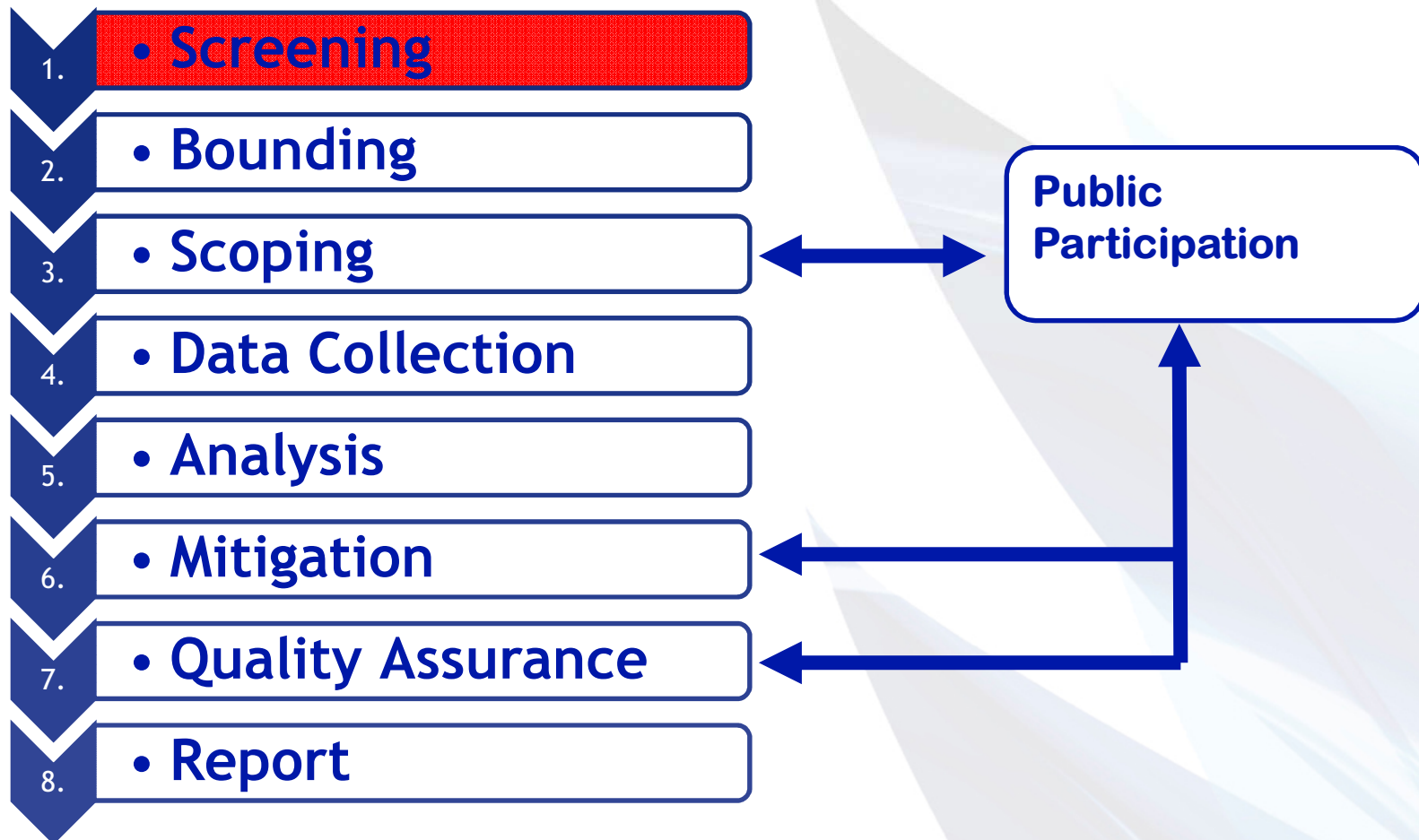
- The process of EIA has moved towards being **holistic** i.e. all effects arising from a proposal are taken into consideration. These can include:
  - Biophysical
  - Social
  - Health
  - Economic
  - Risk and uncertainty

# Steps in the EIA Process

# Outline of the EIA Process



# Outline of the EIA Process



# Step 1 - Screening

- **This is usually part of the regulatory requirements and set in conjunction with the planning authorities. The project is screened according to legislative standards/demands.**

# Guidance on Stages in Screening

- Check **mandatory** project lists
- Check whether project is in a **location** where EIA is required
- Refer to **guidance** on projects which may require EIA
- Collect further **information**



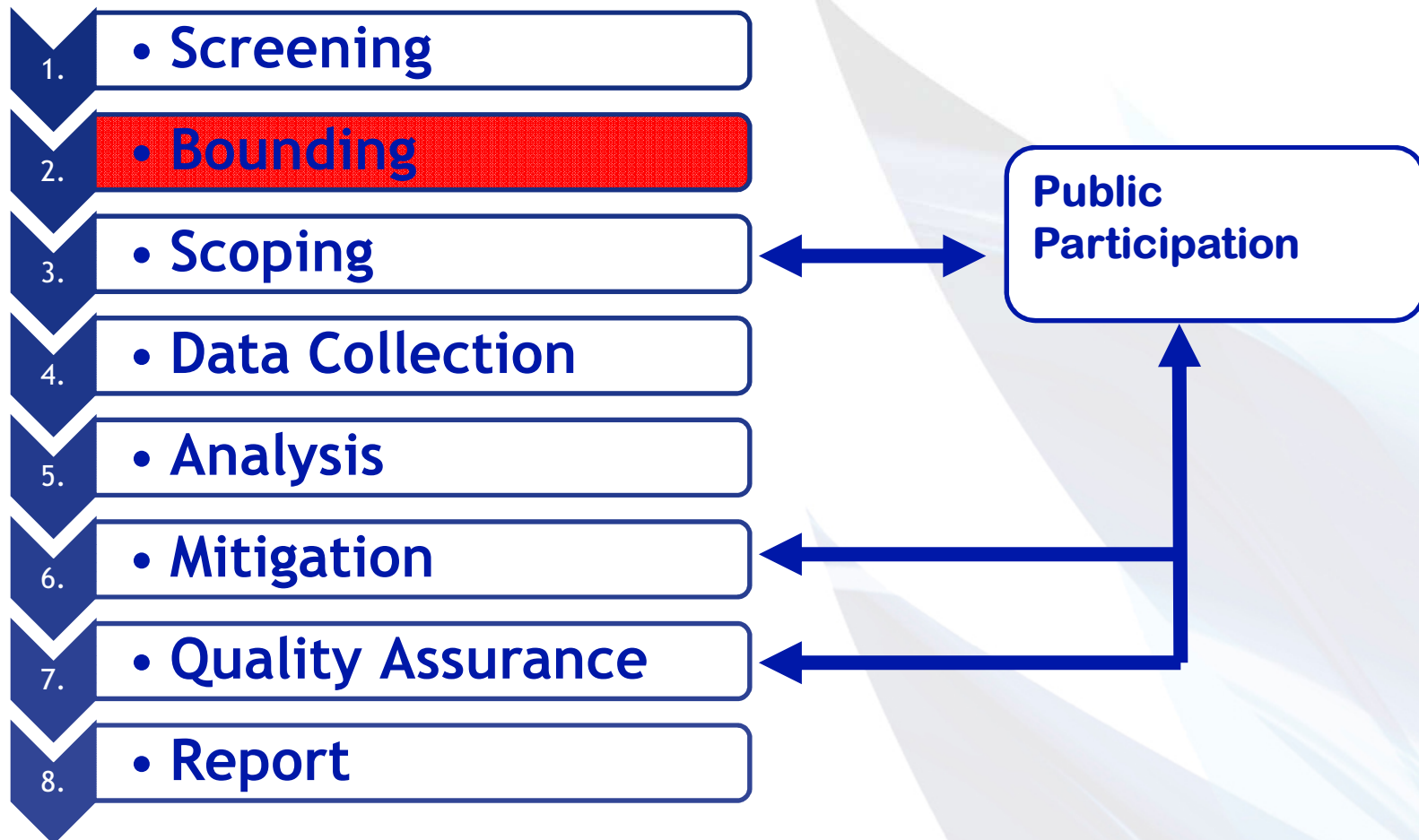
# KEPA Screening

- **Chapter 1, Article (2) of KEPA regulations regarding environmental requirements and standards for the state of Kuwait:**  
***“All governmental, joint, private parties and others should carry out studies of the environmental impacts of their projects prior to their execution or when introducing modifications or expansion to the existing projects”***

# Benefits of Screening

- Developers and competent authorities encouraged to consider **environmental issues** at an **early stage** in the process
- Consideration of **mitigation measures**
- **Dialogue** between developer and competent authorities
- **Identification** of different factors to be considered

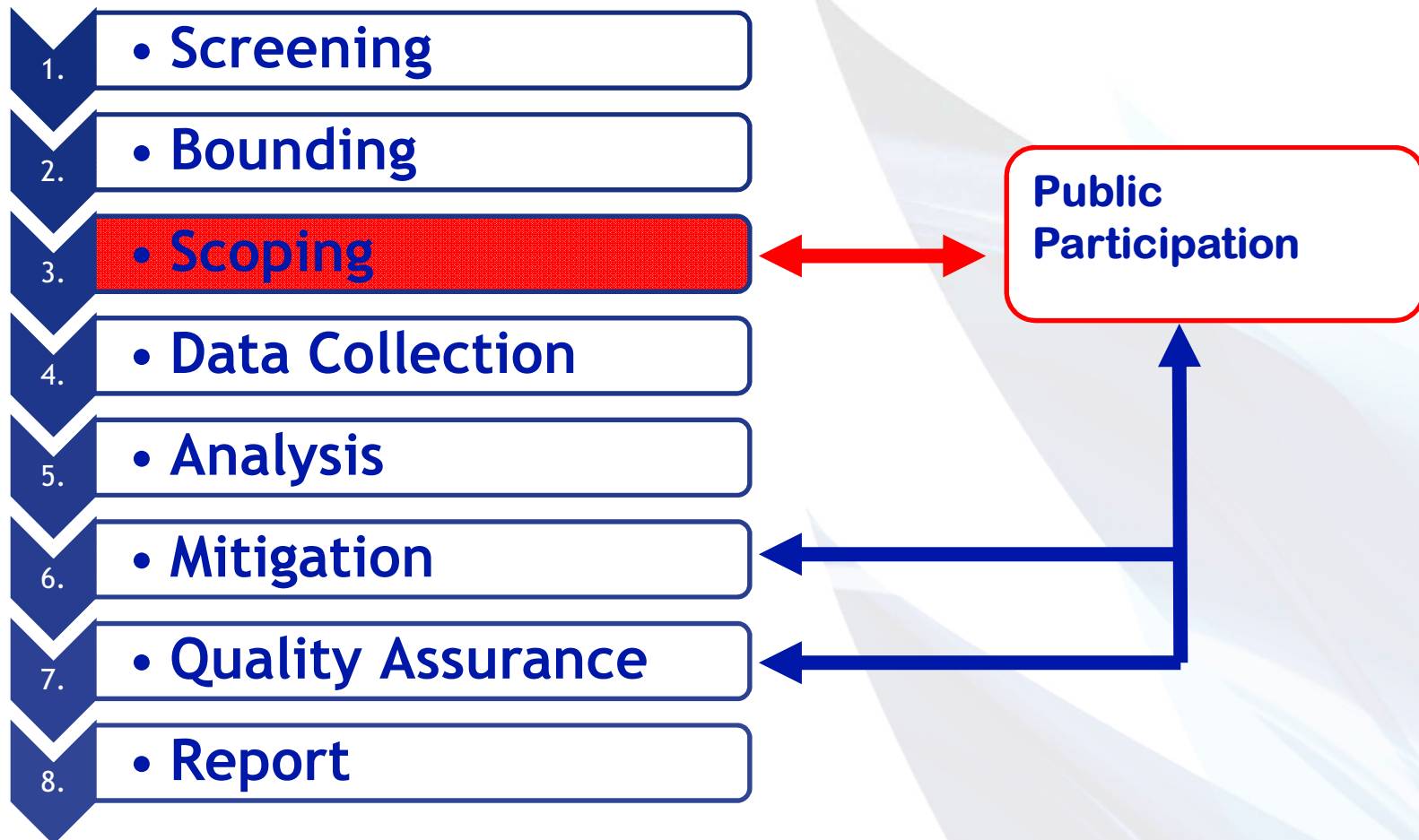
# Outline of the EIA Process



## Step 2 - Bounding

- This element defines the **boundaries** (or “spatial limits”) for the EIA.
- Bounding of the “project area” for an EIA may be confined to:
  - The project area itself;
  - A few hectares;
  - A few square kilometres; or
  - The globe

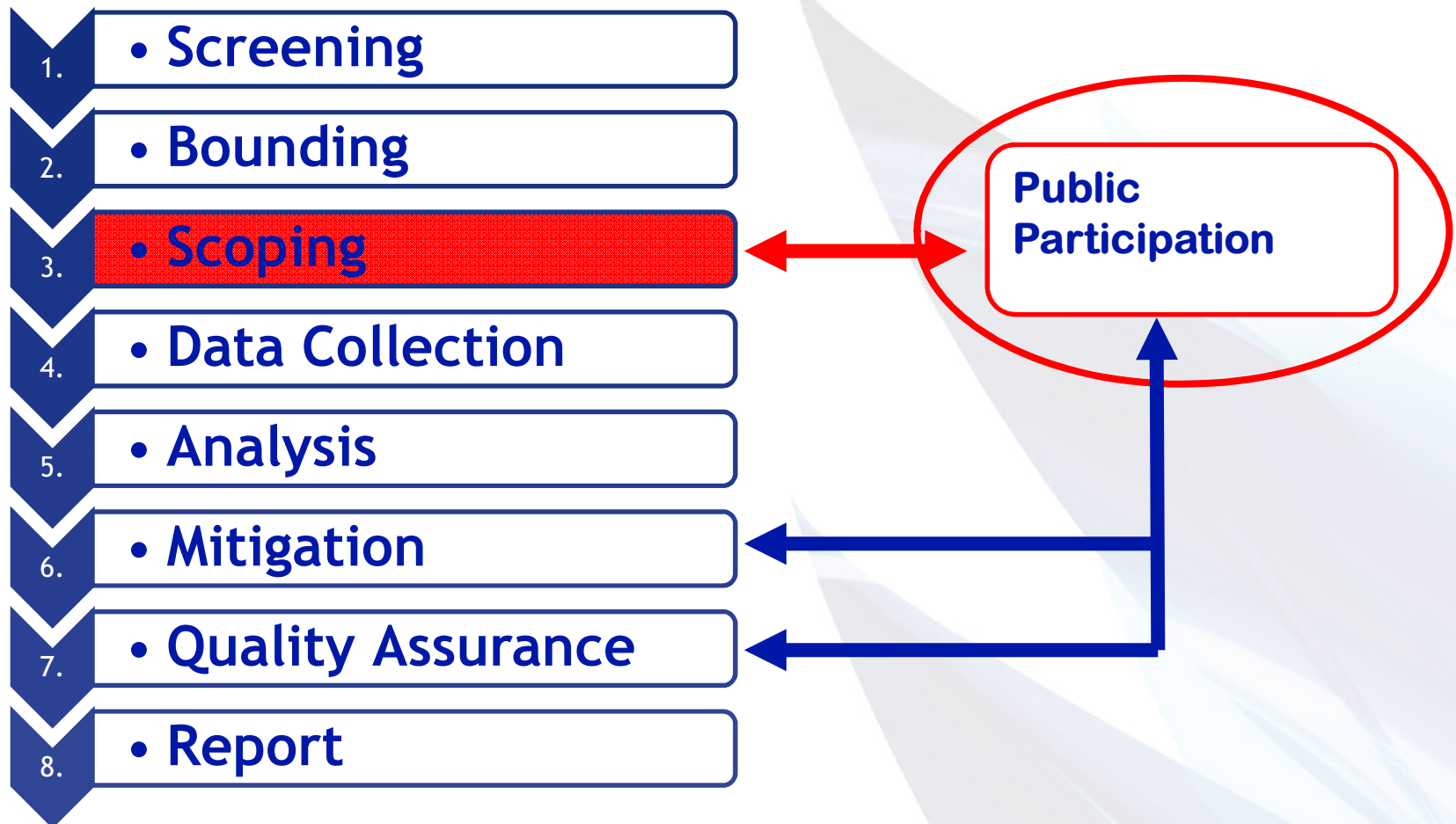
# Outline of the EIA Process



## Step 3 – Scoping

- **Scoping** is a crucial element in which the exact components to be studied by the EIA are carefully defined.
- The most critical part
- The components in a holistic EIA will:
  - Cover all relevant disciplines; and
  - Relate to the areas of possible change (both positive *and* negative)

# Outline of the EIA Process



# Public Participation

- **Involves the people affected by the development.**
- **This element is very important to ensure that the scoping is comprehensive and exhaustive.**
- **The communities affected by the development should have their concerns incorporated into the scoping process.**



# Public Participation - Legal Rights

- In many developed countries, legal rights to public participation is embedded in national laws e.g. **Aarhus Convention (EU)**:
  - Proposed in June 1998, came into force October 2001
  - Establishes a number of rights of the public (individuals and their associations) with regard to the environment:
    1. Access to environmental information
    2. Public participation in environmental decision-making
    3. Access to justice

# Public Participation - Kuwait

- **Question:** How many laws/regulations exist today in Kuwait specifically referring to EIA Public Participation....?
- **Answer:**

0

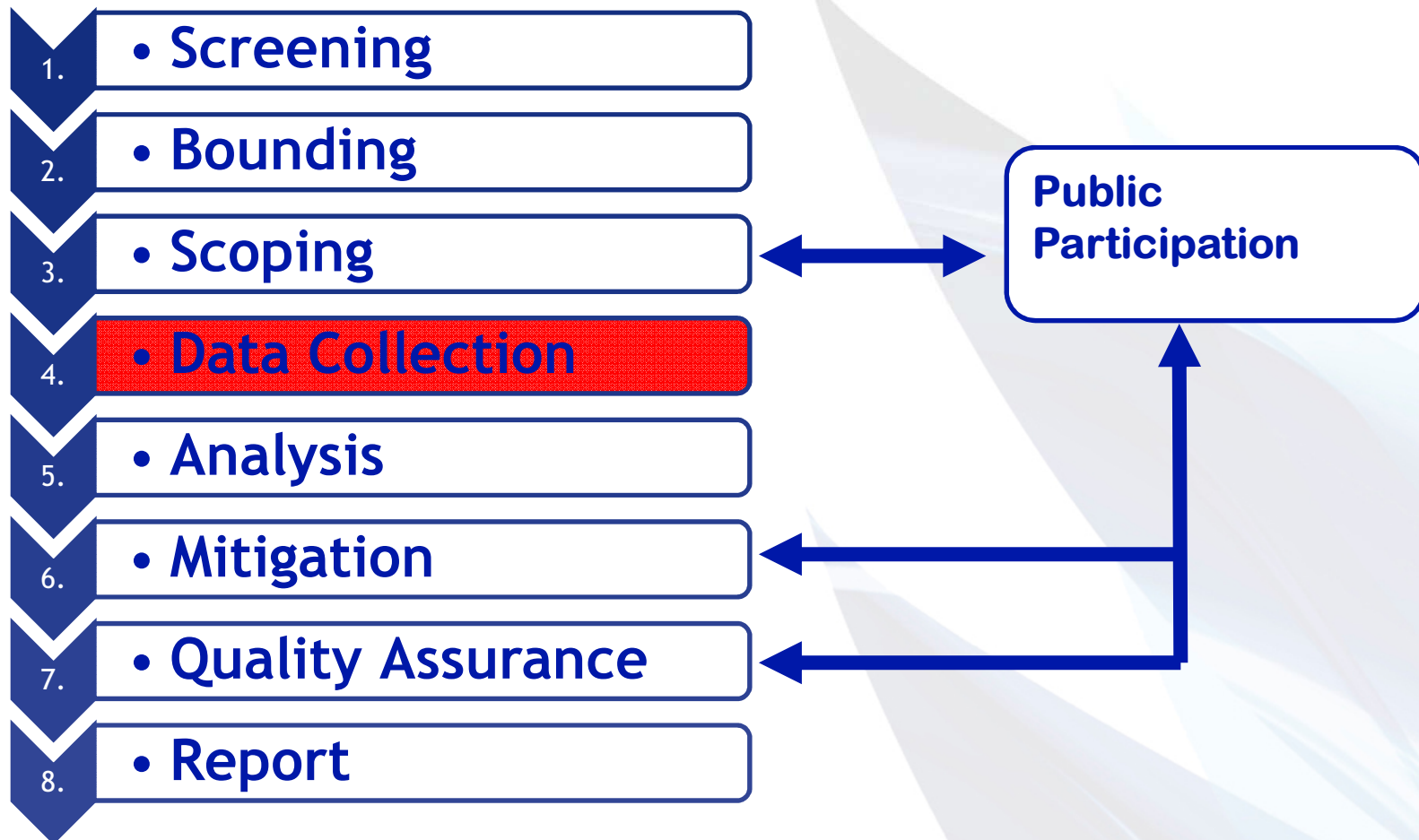
# Public Participation - Purpose

- To **inform** the public about the proposal
- To **improve** the scoping of the EIA
- To **identify** local concerns/problems
- To **allow** a wider **discussion** of the environmental and social issues
- To **improve** the forms of **mitigation**
- To provide **quality control** to the EIA through acceptance by the public
- To **improve democratic governance**

# Public Participation - Methods

- Information **displays**
- Direct **questioning** of individuals
- **Group** meetings
- **Opinion** surveys
- **Meetings** with elected representatives
- Formal **inquiries**
- **Internet**

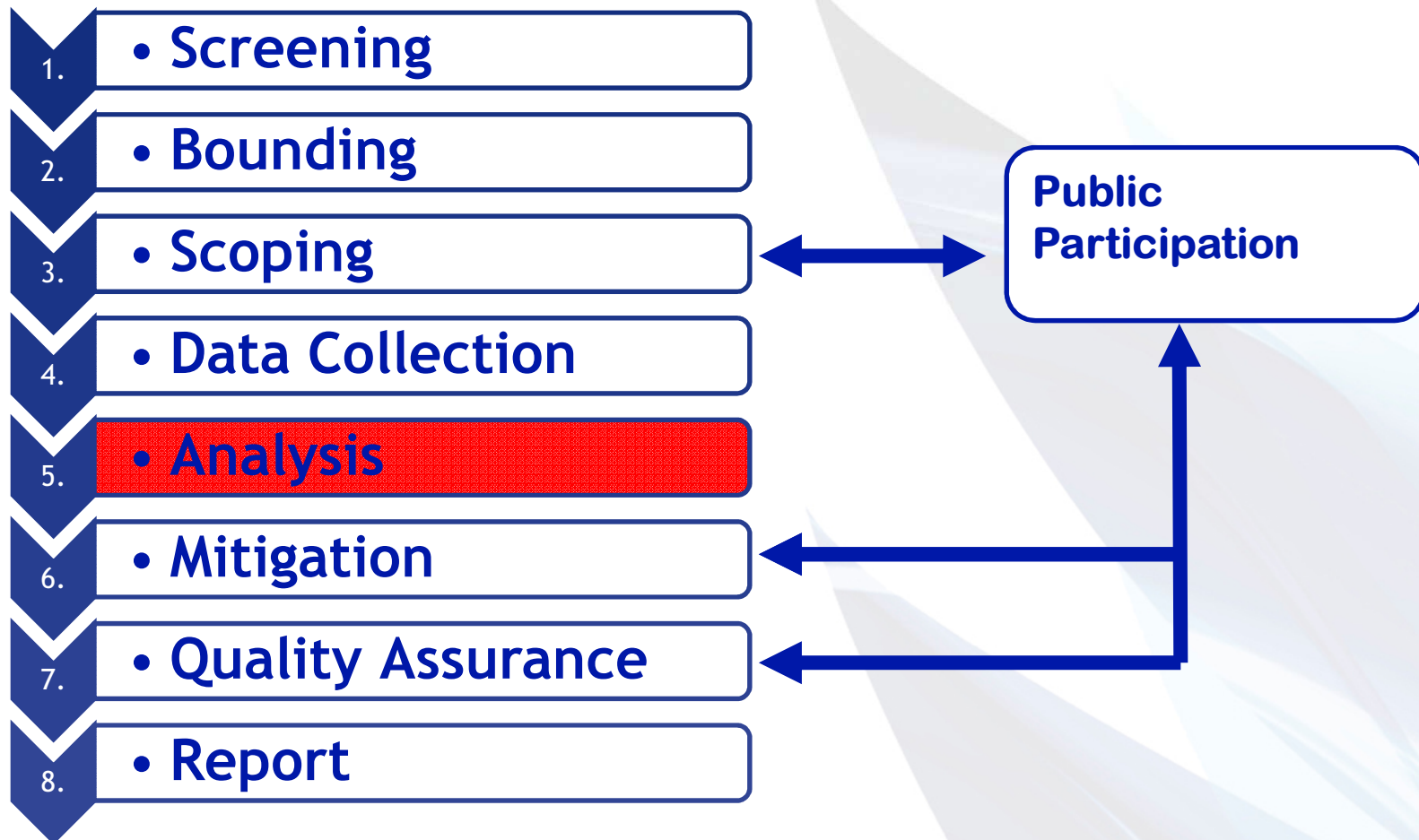
# Outline of the EIA Process



## Step 4 - Data Collection

- Based on Scoping, necessary data for the assessment are now **identified and collected**
- Collection may take the form of measurements (**primary**) or compilation (**secondary**)
- **Most data will be secondary**

# Outline of the EIA Process

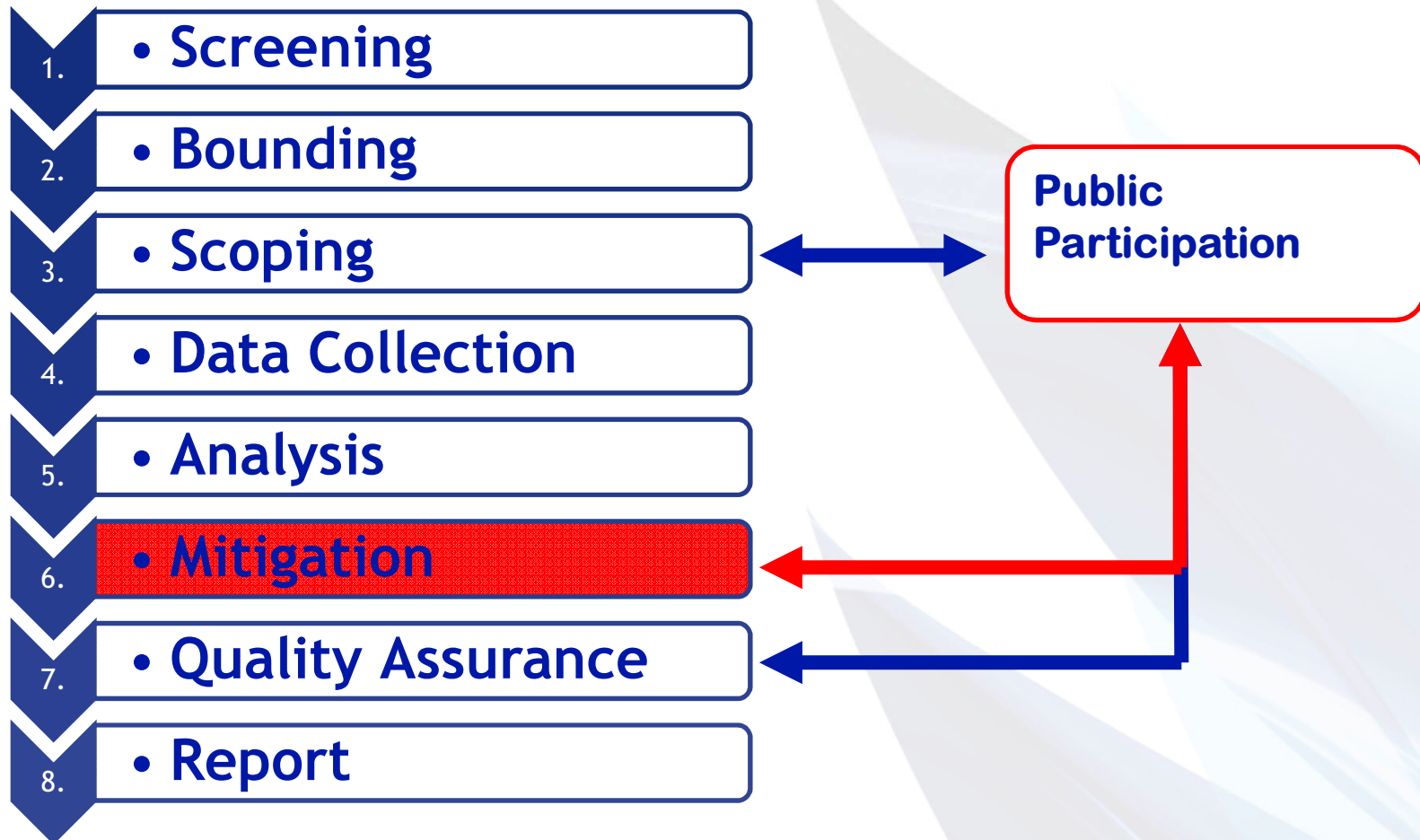


# Step 5 - Data Analysis

- Here the data collected are analysed for the nature and scale of change that each may cause or be affected by
- The intended data analysis of the collected data should be described prior to the analysis
- ...but the quality and quantity of the data may be very poor, allowing for alternative analytical methods



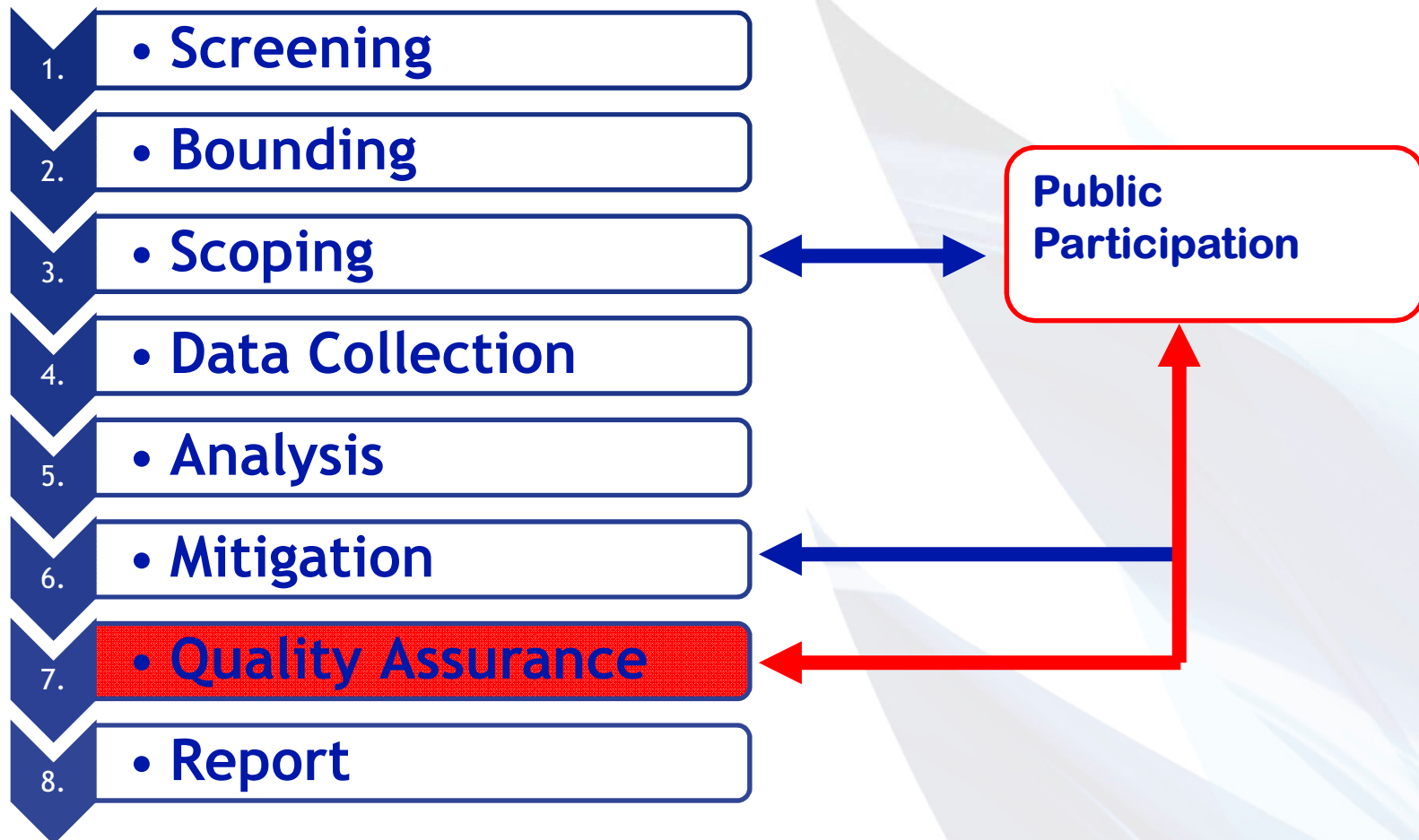
# Outline of the EIA Process



## Step 6 - Mitigation

- Defining measures that could **reduce** predicted negative impact
- **Public participation** is reintroduced to ensure that suggested mitigation actually meets the needs of affected communities

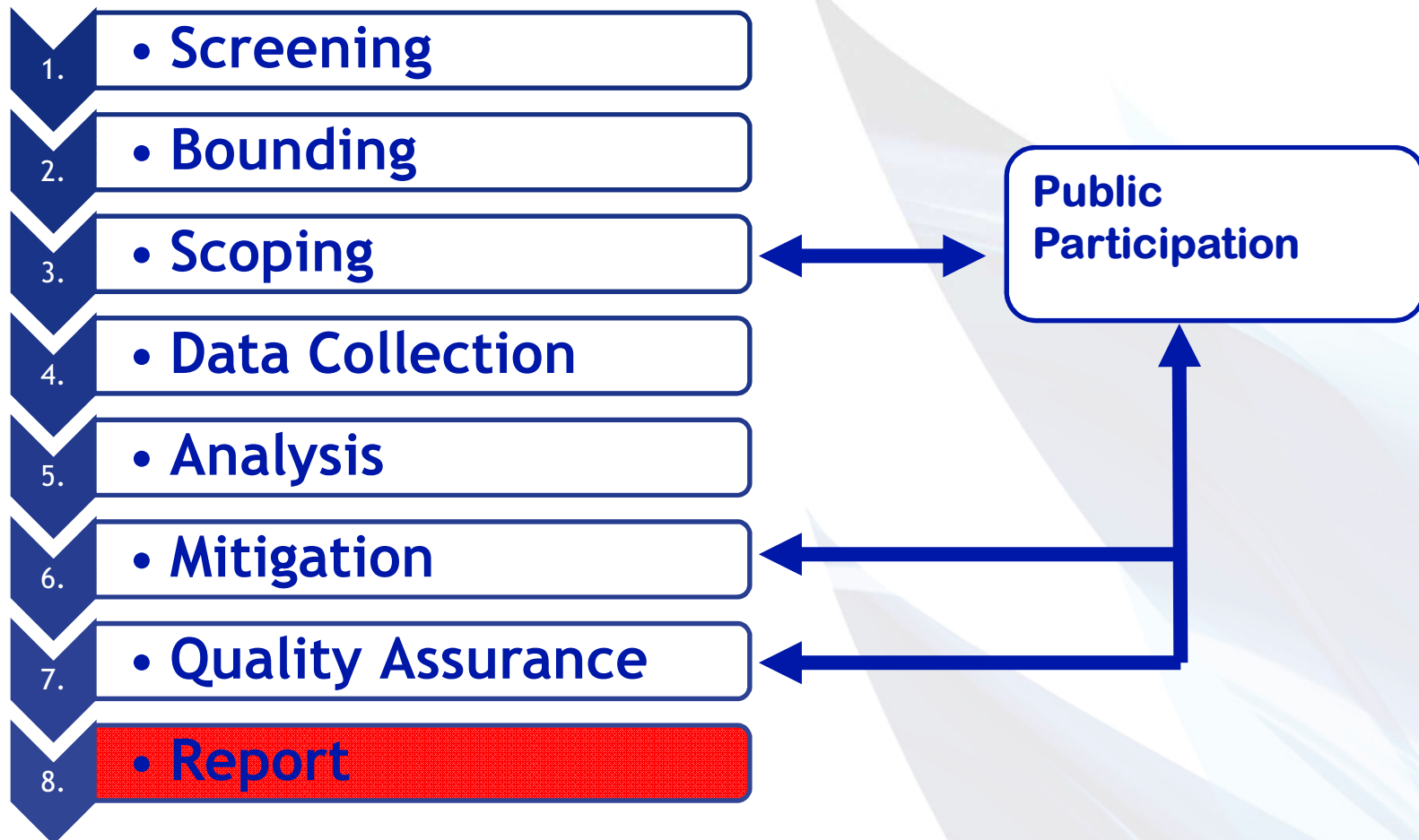
# Outline of the EIA Process



# Step 7 - Quality Assurance (QA)

- Ensures that the EIA is **accurate** and has **covered** all the relevant **aspects**
- Quality control (QC) and QA must be an **integrated** and **iterative** part of performing good EIAs → should not be limited to a final QC after completion of write-up
- **Public participation**: In this instance the public are shown the assessment to allow for comment, and most importantly, acceptance of the results and recommendations

# Outline of the EIA Process



## Step 9 - Reporting

- The EIA report is **finalised** and presented for **evaluation**.
- Reporting and presentation of the EIA must comply with the **level** and **expectation** of the **receivers**.
- **Objectivity** *should* be the trademark of EIA reports, despite the substantial element of **subjectivity**!

# Remember...

- A **good EIA** is recognised through:
  - **Good scoping; and**
  - **Good descriptions of mitigating measures that will diminish the impacts from the proposed project.**

# Limitations and Constraints



# EIA constraints

**The best EIA work and report  
cannot make up for general  
constraints**

# 1. The Authorities

- **Limitations in knowledge** about the project
- **Limitations in knowledge** about the latest scientific technology
- **Lack of (baseline) data**
- **Work load**
- **Political pressures and priorities**

## 2. Consultants

- Paid by the **contractor**

*Money + Subjectivity = Bias*

- Same lack of (baseline) data
- **Misuse** of information
- Lack of relevant **knowledge** (resource persons)

# **Solutions and Mitigation Measures**

# Solutions

- A **good scoping** procedure **before** the start of the EIA project
- A **defined basis** for all assessments
- Choice of adequate **tools**
- The **steps** to be taken
- The **priorities**
- A solid **understanding** of the **limitations** and **constraints**

# Mitigation Measures

- **New methodologies**
- **Cleaner technology**
- **Increased recycling and re-use**
- **Symbiotic relationships**
- **Changed location for the project**
- **Cultural and archaeological aspects**

# Summary

## An EIA is...

- ... **results** and/or **analyses**, seldom solutions.
- ... sometimes the **source** of problems.
- ... sometimes very **political** or used politically.



## An EIA is...

- ... often done **too late** in the process.
- ... usually **pre-focused** on supporting, opposing or mitigating a controversial project (“**side-taking**”).
- ... not “**science**;” otherwise, it would be time consuming and expensive.

## An EIA is...

- ... often used as a “stand-alone” tool.
- ... a matter of **perspective**; who defines or accepts the levels of risks?

**Thank You**