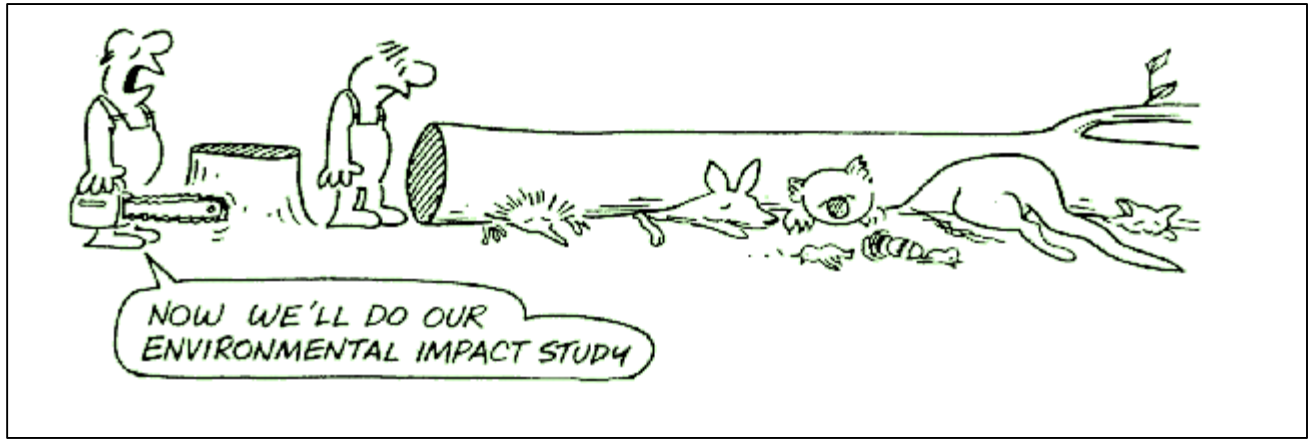
Pemahaman dan Pemantauan bagi Pelaksanaan EIA EMP dan EPW

Introduction to EIA

Environmental Impact Assessment

Study to **identify**, **predict**, **evaluate** and **communicate** information about the **impacts on the environment** of a **proposed project** and to detail out the **mitigating measures** prior to project approval and implementation

"Have you got an Environmental Impact Statement for that castle, son?"



Regulation

Environmental Quality Act (EQA) 1974 (Amendment 2012)

Section 34A

Empowers the Minister to prescribe any activity which may have significant environmental impacts as a **Prescribed Activity**

Section 34A (2)

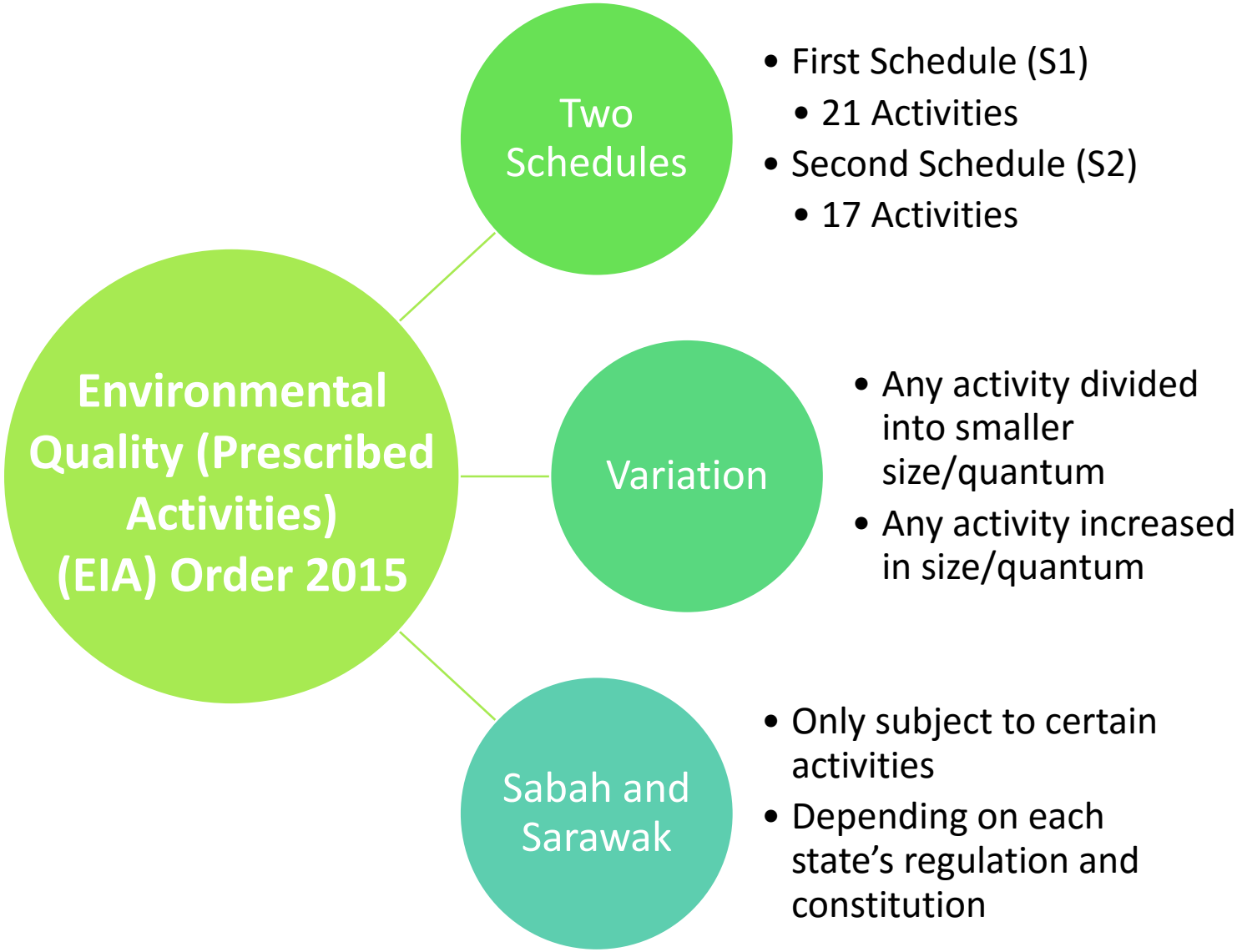
Any person intending to carry out any prescribed activity shall appoint a qualified person **to conduct an EIA** and **to submit a report** to the Director General in the manner as the DG may prescribe

Section 34A (2c)

The report shall contain

- An **assessment of the impact** such activity will have or is likely to have on the environment
- The **proposed measures** that shall be undertaken **to prevent, reduce, or control** the adverse impact on the environment

EIA Prescribed Activity



EIA Prescribed Activity

FIRST SCHEDULE		SECOND SCHEDULE	
1. Agriculture	**12. Development in Coastal and Hill Area**	1. Agriculture	**12. Development in Coastal Area, National and State Park**
2. Aerodrome	13. Development in Slope Area	2. Aerodrome	13. Development in Slope Area
3. Drainage and irrigation	14. Waste Treatment and Disposal	3. Drainage and irrigation	14. Waste Treatment and Disposal
4. Fisheries	**15. Dredging**	4. Fisheries	**15. Construction of Dam**
5. Forestry	**16. Housing**	5. Forestry	**16. Transportation**
6. Industry	**17. Industrial Estate Development**	6. Industry	**17. Radioactive Materials and Radioactive Waste**
7. Land reclamation	**18. New Township**	7. Land reclamation	
8. Mining	**19. Quarry**	8. Mining	
9. Petroleum	**20. Road**	9. Petroleum	
10. Ports	21. Water supply	10. Ports	
11. Power Generation and Transmission		11. Power Generation and Transmission	

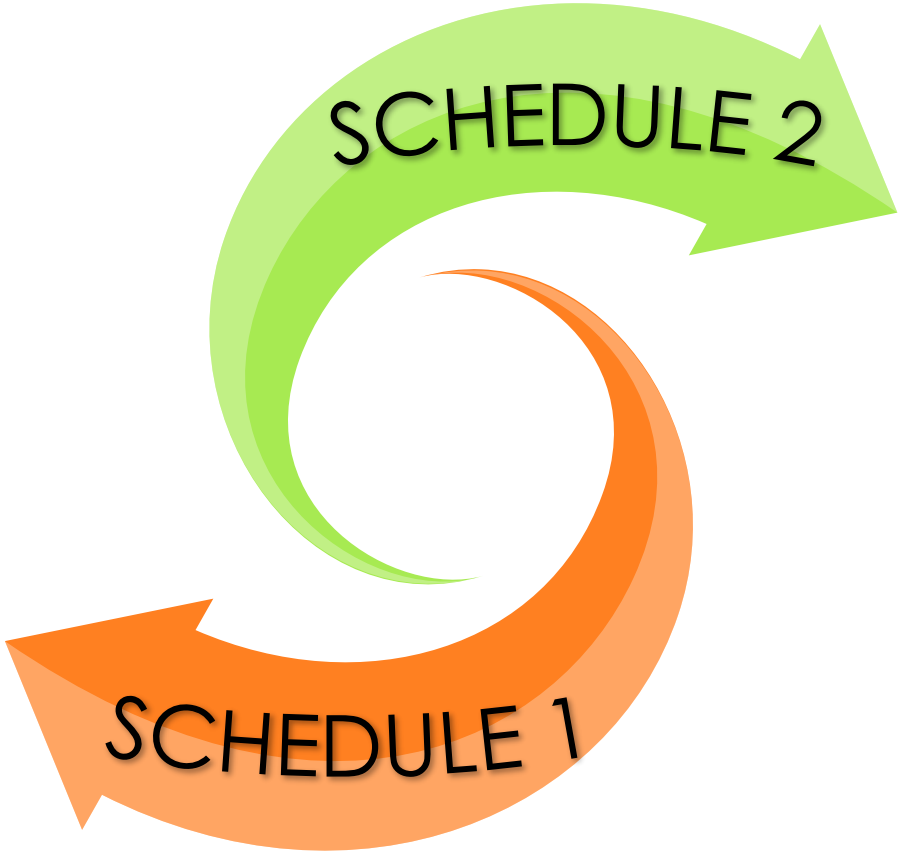
EXAMPLE : FORESTRY

Conversion of forest

- To other land use types
- Area: 20 – 100 ha

Logging/Cutting

- For the purpose of forest conversion to other land use
- Area: 100 ha – 500 ha



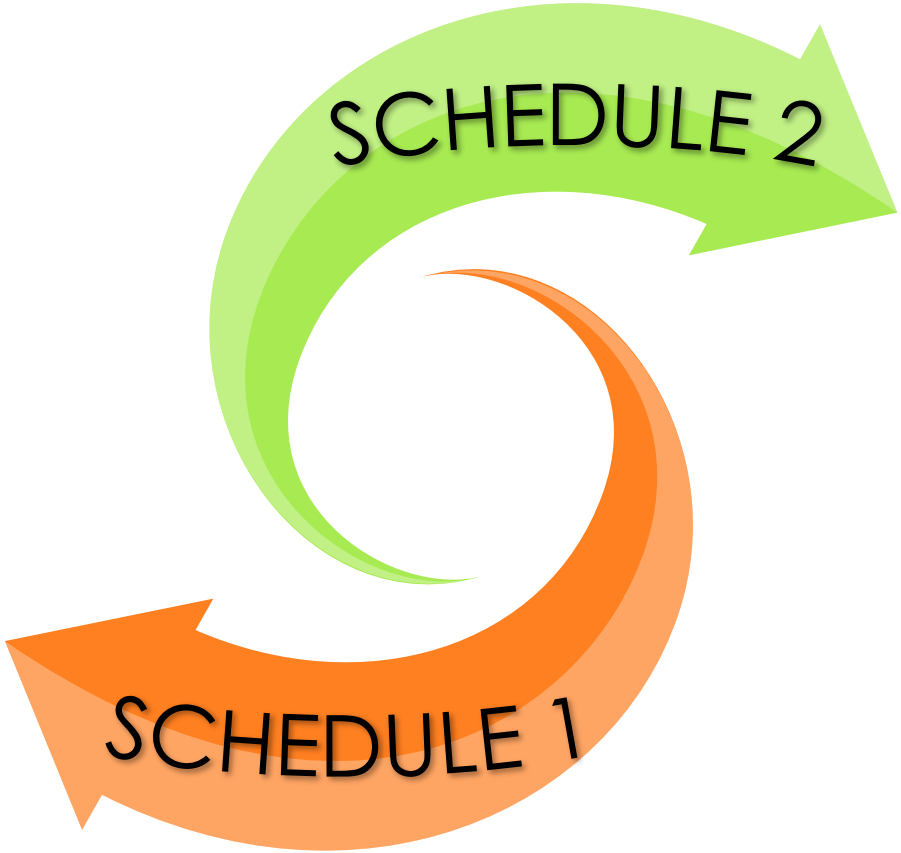
Conversion of forest

- Area: >100 ha
- Catchment area
- Adjacent to/ within state, national, marine park
- Area gazetted as water catchment

Logging/Cutting

- Area: >500 ha

EXAMPLE : SLOPE AREA



Slope Class

- Greater than 25°
- Less than 35°

Development Area

- Less than 50% of an area

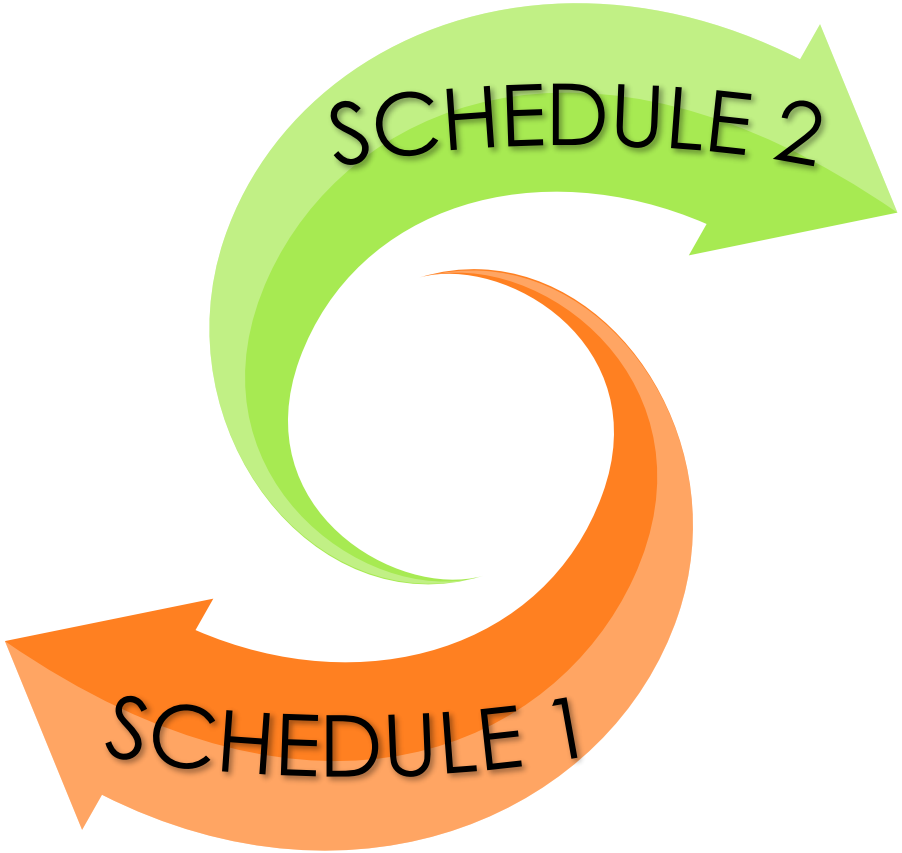
Slope Class

- Construction of road, tunnel and bridge
- Slope: More than 35°

Development Area

- More than 50% of an area

EXAMPLE : ROAD AND TRANSPORTATION



Development Type

- Expressways
- Highways
- Road, tunnel or bridge traversing or adjacent to environmentally sensitive areas (ESA)

Development Type

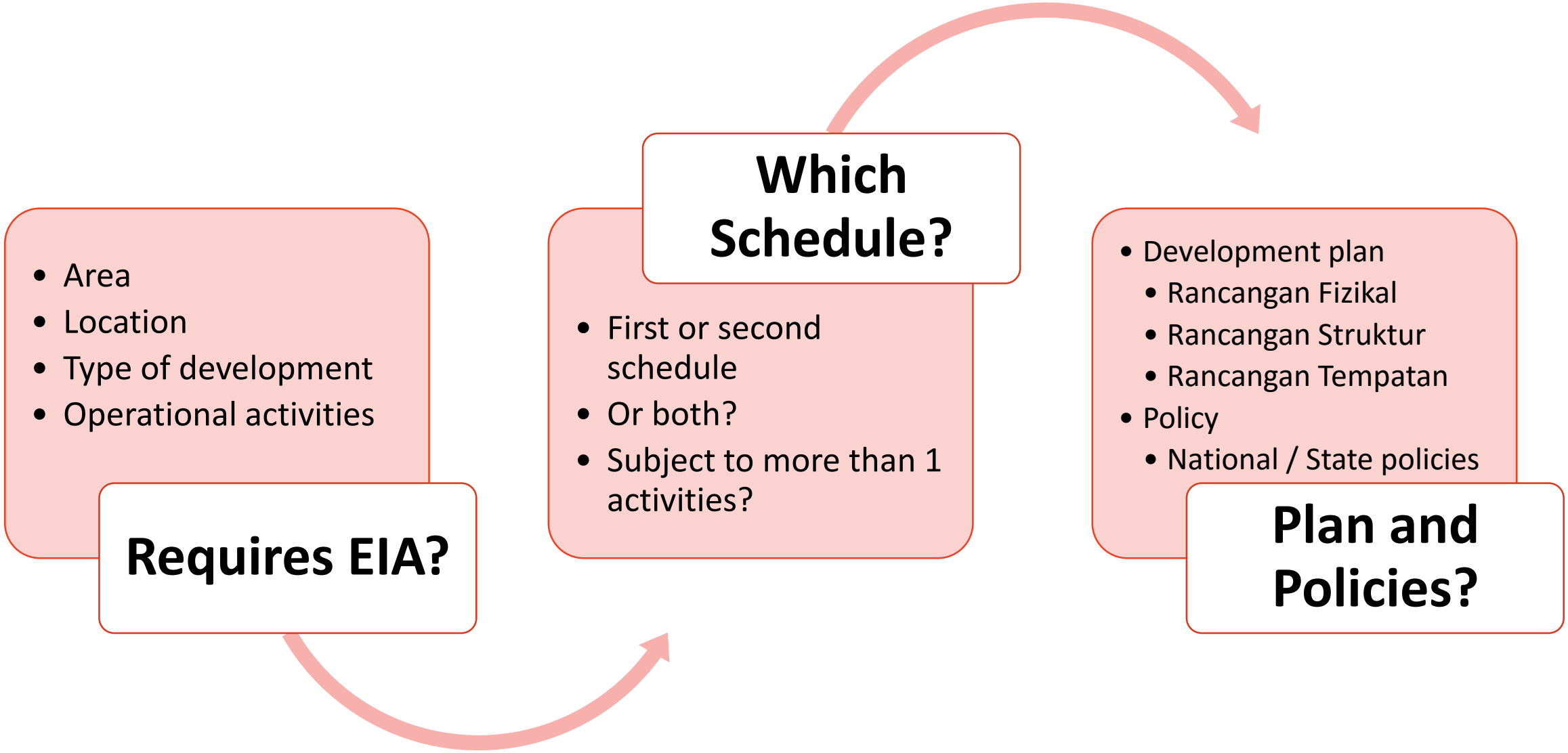
- Mass Rapid Transport
- Construction of new routes/branch line
- Construction of new railway route/branch line

SCHEDULE 1 VS SCHEDULE 2

First Schedule	EIA Review Components	Second Schedule
DOE State	Submission	DOE HQ
✗	Public Participation	✓
✗	Public Display	✓
✓	Web Display	✓
✗	EIA Report Advertisement	2 Major Newspapers

Pre-EIA

Screening


Requires EIA?
Area
Location
Type of development
Operational activities
Which Schedule?
First or second schedule
Or both?
Subject to more than 1 activities?
Plan and Policies?
Development plan
Rancangan Fizikal
Rancangan Struktur
Rancangan Tempatan
Policy
National / State policies

Terms of Reference (TOR) & Environmental Scoping Information (ESI)

Basic Information

Project title | Project proponent | Location | Project justification | Regional setting

Alternative Consideration

Project option | Project site | Technologies

Environmental Elements

Air quality | Noise & vibration | Water quality | Hydrology & hydrogeology | Flood risk | Erosion risk | Waste management | Ecology | Landuse | Hazards & risk

Planning & Implementation

Relevant policies | Project implementation | Interaction with other projects | Assessment timeline | Proposed studies

Environmental Impacts

Qualitative description of potentially significant impacts during construction and operation phase

Mitigation Measures

Proposed pollution prevention and mitigation measures (P2M2) | Best management practices (BMP)

Previously Approved EIAs

Outline and describe relevant info referenced from previous EIAs/ studies and its implications

Visual Aids

Drawings | Flowcharts | Diagrams | Photographs | Satellite images | Maps

EIA Stage

Reporting

01 Introduction

02 EIA Terms of Reference

03 Statement of Need

04 Project Options

05 Project Description

06 Existing Environment

07 Evaluation of Impacts

08 Mitigation Measures

09 Env Management Plan

10 Conclusion

Chapter 1 to 5

Chapter 1 Introduction

- Project background
- Project proponent
- EIA consultant
- Legal requirement
- Conformance to government plans

Chapter 2 TOR of EIA

- Endorsement of TOR
- TOR details (i.e. Basic info, assessment timeline, etc.)

Chapter 3 Statement of Need

- Need for project (e.g. economic growth, social improvement)
- Benefits of project

Chapter 4 Options

- Planning and design
- No project option
- Alignment/ Site/ Technology options

Chapter 5 Project Description

- Location
- Type / Components
- Project activities

Chapter 6: Existing Environment/Baseline Study

i. Physical

Landuse | Topography | Geology | Hydrogeology | Soil and terrain | Watersheed

ii. Environmental

Air quality | Water quality | Noise | Vibration | Groundwater | Visual | Aesthetics | Waste management

iii. Biological

Terretrial and aquatic ecosystems | Flora | Fauna | Environmentally sensitive areas

iv. Socio-economic

Demography | Development needs | Development potential | Infrastructure facilities | Economic activities

v. Cultural - Heritage

Archaeological resources | Historical | Heritage sites

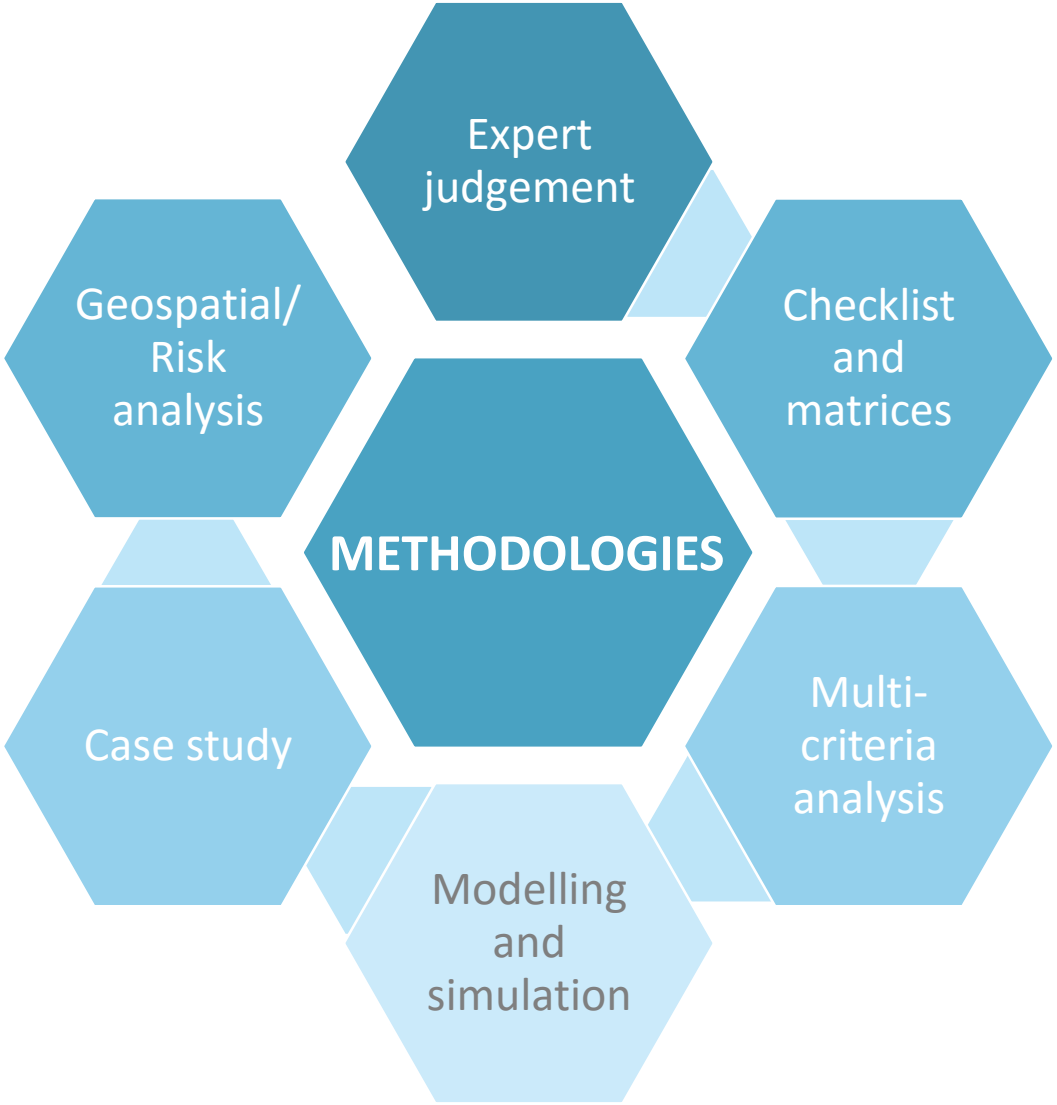
Chapter 7: Evaluation of Impacts

Development Phase

- Pre-construction
- Construction stage
- Operation stage

Sensitive Receptors

- Environmental
- Residential
- Public institutions



Chapter 7: Evaluation of Impacts

08 Socio/Traffic/Safety

Socio-economic benefits/disadvantages, traffic congestion/alleviation, safety and security

07 Ecology

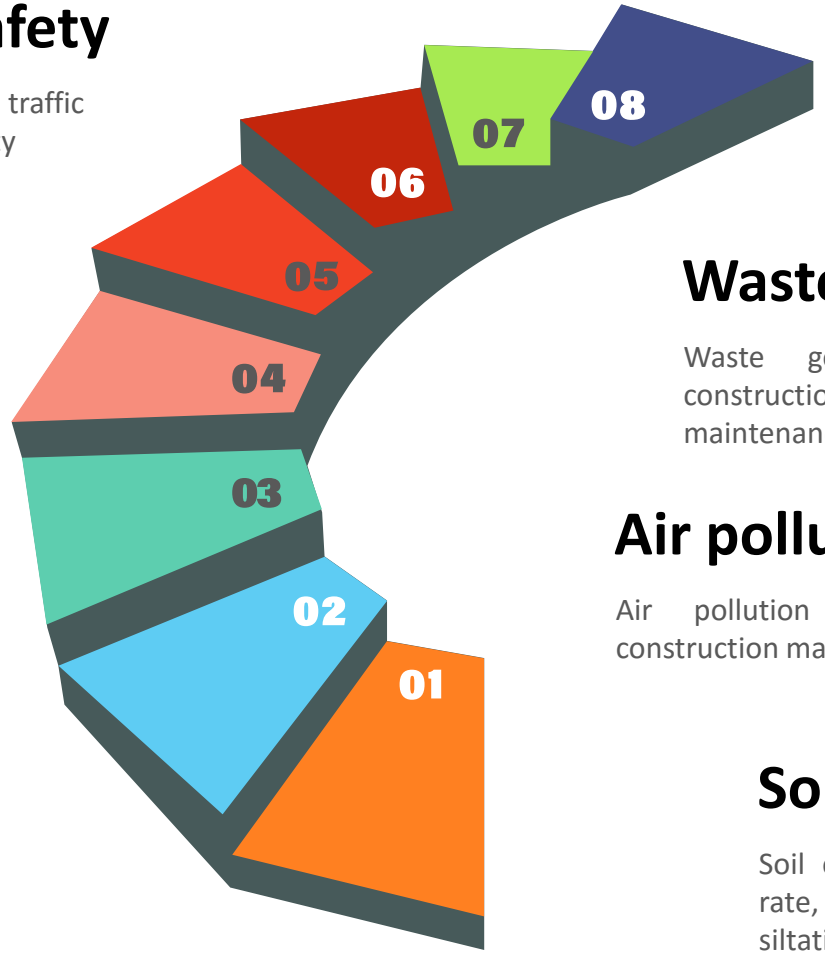
Ecological deterioration, loss of biological resources, disruption of connectivity, loss of beneficial uses

06 Flooding

Flooding risk posed by construction of embankment, river/waterway diversion, flood aggravation

05 Waste generation

Waste generated from land clearing, construction activities, workers camp and maintenance of machineris



04 Noise & Vibration

Noise and vibration from activities such as piling, blasting, operation of machineries/ generators

03 Air pollution

Air pollution due to dust emission, construction machineries emission

02 Water pollution

Prediction of TSS concentration, sewage from workers camp

01 Soil Erosion

Soil erosion and sedimentation risk, erosion rate, sedimentation quantity, landslide, siltation impacts on waterways

Chapter 8: Mitigation Measures

- Mitigation measures
  - Avoid
  - Prevent
  - Minimize
  - Offset
- Water quality
  - Erosion control
- Air quality
  - Air pollution control
- Biodiversity loss
  - Eco-bridge

Chapter 9 & 10

Chapter 9

EMP

- Organization structure
- P2M2 during construction
- Reporting
- External communications
- Monitoring program
- Environmental auditing
- Environmental mainstreaming and guided self-regulation

Chapter 10

Conclusion

- Overview of project's importance
- Summary of significant impacts and mitigation measures
- Final remarks

EIA Case Studies

Rawang Bypass

- Info
  - Rawang-Serendah Highway
  - To solve traffic congestion in Rawang town centre
  - Divided highway from Templer Park to Serendah (2 Intersections)
- Prescribed activity
  - Schedule 1 (5) and (20c): Forestry and road
  - Conversion of forest into other landuse (20-100 ha)
  - Construction of road, tunnel or bridge traversing or adjacent or near ESA

- Environmental Issues
  - Cutting across Taman Warisan Selangor & Templer Park
  - Unique tree species – Giam Kanching

Rawang Bypass

Potential Environmental Impacts

- Forest loss
- Endangerment to precious flora and fauna
- Soil erosion and sedimentation

Proposed Mitigation Measures

- **Design**
  - Elevated structure instead of embankment/at-grade
  - Minimal forest intrusion (from 65ha to 24 ha)
- **Construction method**
  - “Hand dug” caisson method instead of conventional piling
  - Movable scaffolding system (MSS)
  - Geo-grid & precast interlocking slab

Jambatan Kota Tinggi

- Info
  - Replace existing bypass bridge across Sg. Johor
  - To resolve water overflow issue and social/tourism conflict
  - Higher clearance bridge
- Prescribed activity
  - Schedule 1 (20c): Road
  - Construction of road, tunnel or bridge traversing or adjacent or near ESA

- Environmental Issues
  - Firefly populations downstream of project site (tourism attraction)
  - Adjacent to ESA

Jambatan Kota Tinggi

Potential environmental impact

- Disruption of wildlife population
- Endangerment to aquatic life populations
- Flooding risk to the surrounding

Proposed mitigation measures

- Soil erosion and sedimentation control
  - LD-P2M2
- Design
  - Upgrading of drainage system (shoulder drain, intercept drain, toe drain culvert and sump)

Mixed Development (Hypothetical)

- Info
  - 101 ha government complex in Cameron highland
  - New administrative capital for Pahang
- Prescribed activities
  - Schedule 2 (5) & (13): Slope area
  - Development area >100 ha
  - More than 50% development area in slope Class III (>25^{o})

- Environmental issues
  - Steep slope
  - Soil erosion and sedimentation
  - Flooding risk
  - Upstream of water treatment plant

Mixed Development (Hypothetical)

Potential environmental impacts

- Soil erosion and sedimentation
  - Landslide
- Water pollution
  - Disrupt WTP operation
- Flooding risk
  - Flood entire Cameron highland town

Proposed mitigation measures

- Adoption of eco-design
  - Maintain natural contour
  - Industrialized building system (finish construction within 6 months)
- Active treatment system (ATS)
  - Silt trap/sediment basin discharge
- Advance flood mitigation system
  - Stormwater harvesting