DEVELOPING GOOD INDICATORS

Sarah Ivory sarah.ivory@unep-wcmc.org
Key concepts

- **Target**: a specified value or level of performance of something that is to be achieved or maintained

- **Indicator**: “A measure based on verifiable data that conveys information about more than itself” *BIP, 2010*
An example...

Target: By 2025, reduce the use of pesticides per area of cropland by 20% with respect to the 2005 level

Possible indicators...:
- 20% reduction in use of pesticides
- Reduced use of pesticides
- Amount of pesticides used
- Amount of pesticides used in kg/ha

Photo: Hanoi, Vietnam © Hoach Le Dinh
Key concepts

• Measure: a standard unit used to express size, amount or degree

• Index: a numerical scale used to compare variables with one another or with some reference number.

Both can be used as indicators!
Key messages for indicators:

• Specific, measurable targets help to identify ‘good’ indicators

• Indicators are purpose dependent:
  • always first determine your purpose

• Indicators are communication tools:
  Know your audience!
Indicators are purpose dependent

Mercury concentrations in lake trout (μg/g) could be used as an indicator of:

• Health of freshwater fish populations
• Levels of mercury in the atmosphere
• Progress in reducing mercury concentrations
• Intensity of threats to freshwater fish
• .......

The indicator produced from this data depends on the question you are asking!
What makes a successful indicator?

- Scientifically valid
- Based on available data
- Responsive to change in the issue of interest
- Easily understandable
- Relevant to user’s needs
- It is used!
What makes a ‘not so good’ indicator?

- Questionable science
- Data doesn’t exist, is expensive or too complicated to collect, or is of poor quality
- Long time-lags to show any change in the issue of interest
- Complicated to interpret and understand
- Doesn’t respond to the users’ question
- Is not used!
Indicator Development Framework

**PURPOSE**
- Identify & consult stakeholders/audience
- Identify management objectives & targets
- Determine key questions & indicator use
- Develop conceptual model
- Identify possible indicators
- Gather & review data
- Calculate indicators
- Develop monitoring & reporting systems
- Communicate & interpret indicators
- Test & refine indicators with stakeholders

**PRODUCTION**
- Identify possible indicators
- Gather & review data
- Calculate indicators
- Communicate & interpret indicators
- Test & refine indicators with stakeholders
Types of indicators

Targets can be set at the output, outcome or impact level

Indicators then respond to these targets:

**Impact indicators**
- for measuring trends and change (*impact*) in the environment. These focus on the impact targets

**Implementation indicators (performance/process indicators)**
- to track progress towards output or outcome targets. These might focus on the actor or the action – who or how.
In 2018, the WHO estimated the disease burden preventable through sound management and reduction of chemicals in the environment at around 1.6 million lives and around 45 million disability-adjusted life years (DALYs) in 2016 (Figure 7.1). This corresponds to 2.7 per cent of total global deaths and 1.7 per cent of the total burden of disease worldwide for that year (WHO 2018a). These figures are likely to be underestimates, given that they are based only on exposures to chemicals for which reliable global data exist (including lead causing intellectual disability, occupational carcinogens such as asbestos and benzene, and pesticides involved in self-inflicted injuries). As shown in Figure 7.1, cardiovascular disease caused the largest share of deaths attributed to these chemicals, followed by chronic obstructive pulmonary disease and cancers.

Source: Global Chemicals Outlook II, P150
According to a global survey undertaken by the FAO in 2017, 173 FAO member countries had developed pesticide legislation based on the Code of Conduct while five had not yet done so (three from the African region and two from the LAC region). For 18 countries no data were available. Figure 3.15 shows countries that have pesticide legislation based on the Code of Conduct (FAO 2018). Progress in this area is promising, but significant further work is needed to fully implement best practices and minimize adverse effects from the use of pesticides, in particular highly hazardous pesticides, as further explored in Chapter 4.
THANK YOU

Sarah.ivory@unep-wcmc.org
unep-wcmc.org

Facebook: @unepwcmc
Twitter: @unepwcmc
Linkedin: UNEP-WCMC
Youtube: UNEP-WCMC Communications