From Pollution to Solution

Step: Three - Explore more!

Time: 30 min.

Space and materials:

- Laminated cards depicting reasons, outcomes and solutions for environmental pollution;
- Bigger cards depicting the name of the problem.
- Blu-tack.

Description of the tool

The activity is designed to accommodate a variety of topics that include an issue, its possible reasons, outcomes and potential solutions to tackle the specific problem.

1. Prepare the cards and scatter them on a table or the floor.
2. Instruct the participants to take random cards, read them and proceed to begin a conversation with other participants and see whether their cards match.
3. Ask the participants to stick their cards on a wall or a board and create a visual map of how problems are caused and how they can be possibly solved. The activity requires discussion and thought processing on behalf of the participants which may lead in identifying more solutions to different problems. Allow for participants to access the Internet, if possible, so that they can reference terms and processes.

   Example:

   Participants will, for instance, select a card that says 'Industrial waste ends up in the ocean'. Another participant will have a card that reads 'Death of aquatic (water) animals', and there will be a card reading 'Try buying environmentally safe cleaning liquids' somewhere in the group. These three participants have the cards for problem cause and solution that can be grouped together on the wall around the issue of 'WATER POLLUTION'.
4. After the activity is done, discuss with the participants their learning, the challenges they faced throughout the exercise and the complexity of issues. You can discuss the effectiveness of the different solutions proposed, brainstorm other solutions and discuss the impact of the participants' individual behaviour on the whole picture.

Additional remarks

Depending on the size of the group, you can decide to only limit the activity to a couple of issues rather than exploring all of them – the more issues are included, the more complicated the exercise gets.

Pay attention that the activity is multidimensional, meaning that there may be common reasons for a problem and various possible solutions.

WATER POLLUTION

Oil Pollution by oil industries (routine shipping, run-offs and dumping of oils on the ocean surfaces)	Industrial waste such as Sulphur, Asbestos, Lead and Mercury, Oils, Nitrates and Phosphates	Sewage and waste water	Atmospheric deposition (pollution of water bodies caused by air pollution)	Ocean and marine dumping of waste	Underground storage of petroleum products and tube leakages
Death of aquatic (water) animals		Disruption of food-chains		Diseases (hepatitis, cholera)	Destruction of ecosystems
Stop discarding various chemicals, oils, paints and medicines down the sink drain, or the toilet	Try buying environmentally safe cleaning liquids	Dispose of rubbish in the correct waste bin	Use water wisely	Avoid using pesticides and fertilisers	

OVERFISHING

Unsustainable fishing		Overcapacity of fishing companies	Economic and food needs	
Ghost fishing	Pollution	Reducing biodiversity	Negative economic impact on small companies	Destruction of ecosystems
Pressure governments to monitor and punish companies which fish in an unsustainable way		Try to lower our demand for fish		

GLOBAL WATER SCARCITY

Urbanisation		Pollution	Vegetation destruction and deforestation		Climate change
Insects like mosquitos that can spread malaria breed on still, dirty water	People that don't have access to clean water can get contaminated with different diseases (also the life threatening) after drinking the dirty one	Enormous issues of sanitation	Water is necessary to grow plants and breed animals, so its lack leads to hunger	In many countries, children are responsible for bringing water for the family. To do so, they need to walk several miles. This reduces the time they could spend at school.	Negative influence on the economy
Use water wisely			Get involved in campaigns and organisations that aim to preserve the water		

OCEAN ACIDIFICATION

Absorption of CO2 by water			
Change of ecosystems comprising calcifies	Reducing the ocean's capacity to perform its role as a carbon sink	Shells' dissolving potentially altering the food webs	Economic losses
Cut Carbon Dioxide emissions	Move subsidies on Fossil Fuels to Renewables	Sustainable fishing must be enforced to reduce by-catch, overfishing and destructive fishing practices	Bring awareness about things happening in the oceans

NOISE POLLUTION

Household sources	Social events	Commercial and industrial activities	Transportation
Hearing impairment	Anxiety and stress reaction	Headaches, irritability and nervousness, feeling of fatigue and decreases of work efficiency	Injuries and deaths of whales and other marine animals

Soundproof rooms for noisy machines in industrial and manufacturing installations	Ban using horns with jarring sounds, motorbikes with damaged exhaust pipes, noisy trucks	Place noise producing industries, airports, bus and transport terminals and railway stations away from inhabited areas

AIR POLLUTION

Emissions from industries and manufacturing activities	Burning fossil fuels	Household and farming chemicals

Acidification (ongoing decrease in the pH of the Earth's oceans)	Eutrophication (when the environment becomes enriched with nutrients)	Ground-level ozone	Irritation to the eyes, nose and throat, upper respiratory infections, headaches, nausea, allergic reactions, chronic respiratory disease, lung cancer, heart disease, damage to the brain, nerves, liver, or kidneys

Green energy	Energy efficient cars	Less polluting manufacturing activities	Use public transport or a bike instead of a car	Wise usage of energy at home and workplace	Recycle and reuse things

LAND POLLUTION

Waste produced by crop, animal manure and farm residues	Chemical leftovers of pesticides, fertilisers and insecticides	Ashes produced while waste and solid fuels are burned	Mining	Garbage or waste	Deforestation	Chemical and nuclear plants	Oil Refineries	Construction sources	Sewage treatment Industrial sources
Health problems in the human respiratory system, skin and various types of cancer					Landfills are the sources of bad smell, can pollute the air while being burnt, and are the places where insects and rats breed which can, later on, spread diseases				

LIGHT POLLUTION

Electronic advertising boards and commercial centres	Night sports grounds	Streetlights and car lights	City parks, airports, public places	Residential Areas
Health implications like disability glare, eye strain, loss of vision and stress	Artificial lights can negatively influence lives of the sea turtles and distract animals living close to the roads, like deers, which in consequence can lead to their death in a car accident	Waste of resources (like oil and coal) used to produce the energy		
Reduce amount of lights escaping upwards through using a new lighting technology	Reduce the usage of lights, use motion sensor and saving energy lights			

WASTEWATER

Domestic sewage		Non-sewage (water from floods, rain water, water from swimming pools, water from car garages and cleaning centres, etc.)	
Water pollution and scarcity	Eutrophication of fresh water bodies and oceans	Negative impact on ecosystems	Water-related diseases
Reduce the volume of wastewater (through designing new laws, policies and advocacy)	Capture the wastewater immediately	Recycle and reuse water	Treatment of wastewater before discharging into the environment

CLIMATE CHANGE

Greenhouse gas emission (for example from using cars and electricity at home)		
Rising sea and water levels	More extreme weather	Distortion of the natural habitats and lives of many plants and animals
Protect and plant trees	Recycle, reduce and reuse items	Reduce emissions of CO2 (by using bus, bike or your own legs instead of the car)	Improve energy efficiency

POOR WASTE DISPOSAL

Producing too much waste and bad waste management						
Surface water contamination	Soil contamination	Air pollution	Health problems	Leachate (harmful liquid that forms as water trickles through contaminated areas)	Poor living standards in the cities filled with waste	Lack of revenues from recycling
Reduce, reuse and recycle						

HUNGER AND MALNUTRITION

Extreme weather and climate change	Wars and conflicts	Poverty
Diseases and deaths	Migration and social issues	Negative influence on the economy
Support organisations which deal with the issue		

DEFORESTATION

Logging	Making room for human settlement and urbanisation	Making room for mining	
Soil erosion destruction	Loss of biodiversity	Negative influence on the atmosphere, water bodies and the water table	Climate change
Join organisations, forest-preservation societies and pressure groups that aim to help preserve the rest of our natural resources		Reduce the use of artificial items, recycle and reuse more	

FOREST DEGRADATION AND FRAGMENTATION

Climate change	Forest fires	Pests and diseases	
Soil erosion destruction	Loss of biodiversity	Negative influence on the atmosphere, water bodies and the water table	Climate change
Join organisations, forest-preservation societies and pressure groups that aim to help preserve the rest of our natural resources		Reduce the use of artificial items, recycle and reuse more	

OZONE DEPLETION

Chemicals from cars, power plants and factory emissions				
Skin cancer	Cataracts	Negative impact on phytoplankton and development stages of fish, shrimp, crab, amphibians and other animals	Negative influence on water ecosystems	Negative effects on biogeochemical cycles
Reduce the usage of CFCs				