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Project Clean Environment for Healthy Kids

# ***INTRODUCTION TO ENVIRONMENTAL HEALTH***

*A training curriculum for lay health  
educators*



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<b>Activity</b>	<b>Methodology</b>	<b>Materials Needed</b>	<b>Time</b>
<b>Introduction</b> <i>Welcome participants; ice-breaker activity; establish workshop norms; review the workshop objectives</i>	Group Activity	<ul style="list-style-type: none"> <li>• Lotería game OR blank sheets of paper</li> <li>• Flip chart and markers</li> <li>• Handouts 1 &amp; 2: Workshop Objectives</li> </ul>	40 mins
<b>Environment and Environmental Health</b> <i>Discuss environmental hazards in the community</i>	Group Activity and Discussion	<ul style="list-style-type: none"> <li>• Drawing of tree trunk; cut-out shapes of fruits</li> <li>• Flip chart and markers</li> </ul>	40 mins
<b>Basic Concepts in Environmental Health</b> <i>Explain concepts such as risk assessment, dose-time relationship, the special vulnerability of children, and the risk of illness</i>	Group Discussion	<ul style="list-style-type: none"> <li>• Flip chart and markers</li> <li>• Handout 3: Exposure to Chemicals</li> <li>• Handout 4: Describing Risk</li> </ul>	1 hour
<b>Community Health Promoters</b> <i>Review the unique qualities of community health promoters; discuss the differences between popular and traditional education styles</i>	Group Discussion and demonstration	<ul style="list-style-type: none"> <li>• Flip chart and markers</li> <li>• Photo or drawing of pollution</li> </ul>	25 mins
<b>Implementing the Environmental Health Project</b> <i>Explain how the group will conduct their outreach activities</i>	Group Discussion	<ul style="list-style-type: none"> <li>• Flip chart and markers</li> </ul>	15 mins

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# **INTRODUCTION TO ENVIRONMENTAL HEALTH**

*(Total time: about 3 hours)*

## **Workshop Objectives**

- Introduce the facilitators and the participants
- Review overall course objectives
- Discuss the definitions of environment and environmental health
- Review key concepts of environmental health
- Understand what it means to be a promotor de salud
- Discuss how the Healthy Kids Project will be implemented

## **I. Overview**

The purpose of this opening session is to establish the basis for the workshop and set an appropriate tone for the following sessions. After the introductions and opening comments, the facilitator discusses with the participants the desired workshop norms in order to create a positive learning environment throughout the course. Next, the participants are given the opportunity to discuss expectations about the workshop during a group exercise. This exercise is intended to demonstrate that the facilitators value the opinions and expectations of the participants and support their active participation. The facilitators present the goals of the workshop while considering the expectations of the participants. The facilitators should clarify which of the participant expectations will be met throughout the sessions and which will not.

## **II. Introduction**

Give a brief welcome to the participants and introduce yourself. Start the session off with an ice-breaker that will help you and the participants get to know each other. Listed below are two examples, but feel free to use any ice-breaker that will assist you in getting to know the group.

### ***Lotería cards (Option 1)***

***Time: 30 minutes***

***Materials: Deck of Lotería cards, flip chart, markers***

Get a set of playing cards from the Latin American game “*Lotería*” (similar to Bingo). Distribute a card to each participant and ask him/her to think about how each card relates to something in his/her life. On a flip chart, write down the information you want each person to share about him/herself. For example:

- Your name
- Where you were born
- Where you live now
- Any experience you’ve had as a farmworker (or family members)
- Why you are interested in participating in this project
- How you identify with the *Lotería* card

Trainers should go first to set the tone of the exercise.

### ***Picture Presentations (Option 2)***

***Time: 30 minutes***

***Materials: Blank sheets of paper, markers, tape***

Give each participant a blank sheet of paper and a magic marker. Ask the participants to describe themselves by drawing pictures. Ask them to refrain from using words. Tell them that they are free to describe any aspect of their life, such as where they are from, their families, their hobbies, their work etc. When they have completed their drawings, ask the participants to introduce themselves to the group by explaining their pictures. Hang each drawing on the wall after each introduction. Trainers should also participate in this exercise.

### ***Workshop Norms (Optional)***

***Time: 5 minutes***

***Materials: Flip chart and makers***

Explain that you would like to have a positive and comfortable learning environment for all of the workshops. For instance, the group should feel free to actively participate in the learning process. Explain that it is helpful if everyone agrees on what this environment should be. Ask the participants to brainstorm with you the norms or ground rules for the workshop. Write their response on a flipchart. Try to encourage some of the following responses:

- the responsibility of learning needs to be shared by everyone
- everyone should participate actively in all the activities of the sessions
- the sessions should begin and finish on time
- respect the views of others



- learn from each other's experiences
- no smoking
- maintain the confidentiality of any personal information shared by the participants
- no cell phones

Remind the group that the only way the workshops will be successful is if they actively participate in the training. It is not the job of the facilitator to “teach” the participants. Instead everyone needs to share the responsibility of learning. Hang the flip chart on the wall after completing the exercise.

### ***Workshop Objectives***

***Time: 5 minutes***

***Materials: Handouts 1 and 2***

Distribute Handout 1: Introduction to Environmental Health Workshop Objectives and review them with the participants. Explain that you will be covering this information in the next few hours. Ask if they have any questions or concerns. Next, distribute Handout 2: Environmental Health Training Objectives and review them with the participants. Explain that you will be covering this information over 4 days of training. If you feel their expectations greatly differ from the objectives of the session or the course, be sure to address this with the group.

## **III. Defining Environment and Environmental Health**

### ***Group Discussion***

***Time: 10 minutes***

***Materials: Flip chart and markers***

Ask the participants how they define “environment.” Ask them what they think of when they hear the word environment. Write their responses on a flip chart.

Next, ask them how they define “pollution.” Write their responses on a flip chart. To help the group better understand pollution, it may help to give them the following example.

Earth is very much like a fish bowl. Both are contained environments – what goes in stays in. So if we dump garbage or toxins into the rivers, soil, and air, it will not disappear.

Finally, ask them to define “health” and what it means to be “healthy.” Write their responses on the flip chart.

### ***Problem Tree Exercise***

***Time: 30 minutes***

***Materials: Flip chart, markers, colored paper cut-outs in the form of fruit, tape***

On a flip chart, draw a picture of a tree, including its roots, a trunk, and several branches. On the trunk of the tree, write the words “Environmental Hazards” or “Peligros Ambientales.” Ask the group to think about some of the health hazards that exist in the world around them, in their homes and workplaces and ask for one or two responses. Write these responses inside the roots of the tree.

Divide the group into two smaller groups and tell each group to draw its own tree and write inside the roots all the possible health hazards in the environment in their community that they can think of. (It may be easier to have them write their responses on strips of paper, which are then taped to the roots.) Give them five minutes to write down their ideas. Reassemble the groups into one and have a representative of each group review the hazards they discussed. Their responses might include the following:

- pesticide residues on crops
- bacteria in their water supply
- soot in air
- toxic chemical waste dump near their neighborhood

Next, ask the group to think of ways to reduce their exposure to these hazards. Ask for one or two responses and write these on the tree branches or inside the outline of a fruit (such as lemon, lime or orange). Have them divide into their small groups again and give each group a different set of pre-cut fruit shapes (about 10 each). Give each group about 5 minutes to write their ideas on the fruits and to tape them onto their trees. Reassemble the groups into one and have a representative of each group review the “solutions” they discussed.

Solutions might reflect a range of options from systemic changes, to regulatory and enforcement actions to individual behavior changes including the following:

- switch from conventional farming to organic farming
- tighter government regulations of air pollutants
- regulation requiring scrubbers on all smoke stacks
- better enforcement of laws against dumping industrial waste into waterways
- passing local or state laws against using pesticides in schools



- community education about environmental risks
- bringing garbage to city dump rather than burning it

#### **IV. Basic Concepts in Environmental Health**

##### ***Group Discussion***

***Time: 45 minutes***

***Materials: Flip chart and markers, Handouts 3 and 4***

Explain to the group that before we can go forward with a discussion on environmental health hazards, we need to go over some basic concepts about toxins and human health.

##### ***Protect yourself from danger***

Exposure to hazardous substances poses a real and serious danger to our health and our children's health and it is worth taking the time and effort to prevent such exposure. Explain to the group that this workshop is meant to show not only the dangers posed but also a variety of ways to reduce our risk of injury.

Take the example of automobile accidents. Tell the group that car accidents cause 40,000 deaths a year in the U.S. There are a wide variety of ways in which we can reduce the risk of injury or death from such accidents.

? What are some easy ways to reduce this risk?

- wearing seat belts
- air bags
- driving slower
- building a safer car

? What are some broader solutions to the problem?

- buying a new car with the latest safety features
- stop driving altogether

? What are the responsibilities of the car manufacturer to protect the driver?

- build a safer car
- make airbags mandatory

? What factors do you consider when you think about whether to adopt a safety measure?

- seriousness of the harm
- likelihood of the harm
- ease or difficulty in adopting the safety measure
- cost of the safety measure

### *Dose-Time Relationship*

Explain to the group that additional factors come into play when evaluating risks from exposure to chemicals or other toxic substances. For example, it is important to consider the quantity of the substance to which a person is exposed, whether the substance actually enters the body, the time period of exposure, and the possibility of repeated exposures over time when determining whether a person will be injured by a substance.

To help the group better understand these factors, ask them to consider the following questions:

- What would happen to an adult who went to a party and drank one beer in one hour?
- What would happen if the same person drank 12 beers in an hour? Which would have more of an effect: one beer in an hour or 12 in an hour?
- What would happen if an adult at that party drank no beer? Nothing, because the alcohol didn't get into her body at all.
- What would happen if the person drank 12 beers per day for his entire life?

Explain that the presence of the beer at a party is not hazardous to health at all if it is not consumed; drinking one beer in one hour is probably not harmful. Some people might feel some effect but many would feel no effect at all. Drinking 12 beers in an hour is a different story. Drinking 12 beers in an hour would cause someone to become extremely inebriated and probably sick. This would be an ACUTE effect (i.e., headache, nausea, dizziness from alcohol).

While the quantity consumed is important, its effect is also dependent on the time period in which it is consumed. Drinking 12 beers all day long may not cause someone to get inebriated or sick that day.

Adverse health effects may also be caused by repeated exposure to small amounts over a long period of time. Drinking 12 beers per day over many years would likely cause damage to the liver, such as cirrhosis of the liver or liver cancer. These effects would be chronic health effects. Chronic health effects can be caused by low level exposures which would not cause acute or immediate effect. Thus, the time period of exposure is often as significant as the quantity of exposure in determining whether a person is harmed.

The same factors which determine how harmful beer may be (e.g., quantity and time period) also play a role in determining how

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harmful a pesticide or other toxin may be on the body (e.g., how much of it the person is exposed to and how long the exposure lasts). But unlike beer, which always has about the same alcohol content, pesticides differ from each other in chemical composition and therefore in the immediate and/or long term health effects that they may cause. To demonstrate this, ask participants to compare beer to rum or tequila, which has much more alcohol content, and so is more toxic per ounce.

#### *Other Factors that Influence Toxicity or Harmfulness*

Ask the group if they know what other factors might influence how harmful a substance will be to a particular person. Write their responses on a flipchart and try to elicit the following factors:

- Age
- Sex
- Pregnancy
- Status of health (chronic illness, weak immune system, etc.)
- Nutrition
- Other chemical interactions (medication or drugs/alcohol)
- Tolerance

Distribute Handout 3: Exposure to Chemicals (ATSDR Factsheet).

#### *Vulnerability of Children*

Remind the group that this project is called Clean Environment for Healthy KIDS. We focus on children for several reasons. First, we believe that parents will be more likely to change their harmful habits if they know that this will have a beneficial effect on the health of their children. More importantly, we focus on kids because their bodies are especially vulnerable to the harmful effects of environmental hazards.

#### *Questions for discussion*

- ? If both a 5-year old child and an adult had a cold, which one would need a larger amount of cold medicine to get better?
  - An adult would take a larger amount .
- ? Why would the adult take more medicine?
  - An adult is bigger. Children take a smaller amount of medicine (also known as a smaller DOSE) because they are smaller. The amount of medicine it takes to treat a person is calculated in relation to the person's weight. Similarly, it takes less of a poison to affect a child than an adult.

? Are there other reasons why children would be more affected by toxins than adults would be?

- Children are more affected by poisons than adults because their bodies are still developing. For a fetus developing in the mother's womb, the initial development of the limbs and organ systems occurs during the first three months. Therefore, a fetus is the most vulnerable if exposed to a poison during this time period. There are other crucial moments of development when exposure to a toxic substance could result in life long damage.

? At what life stage are people most susceptible to the harmful effects of chemicals?

- Generally, a fetus in the mother's womb is most susceptible.

? How could the developing fetus be exposed to poisons?

- If the mother is exposed to pesticides, lead or other harmful chemicals during pregnancy, the chemical can enter the mother's blood stream and cross over to the fetus through the placenta.

? Are a baby's organs fully developed at birth?

- No. There are organs that continue to develop after birth. This includes the brain (which continues to develop significantly until the child is approximately 8 years old) and the liver.

? Do you know what role the liver plays in the body?

- The liver plays an important role in detoxifying chemicals that enter the body. If a baby is exposed to poisons before the liver is fully mature, she will not be as able to detoxify the substance and avoid its harmful effects, as an adult would be.

? What is the immune system?

- The immune system helps the body fight off exposures to harmful substances (e.g., germs and toxic chemicals). When a baby is born, its immune system is also immature and doesn't help it fight off toxic exposures as effectively as would an adult's immune system.

? Are there ways in which children would be more exposed to harmful substances in the home than adults would be?

- Babies and toddlers have more exposure because they crawl on the floor or the ground. Babies also have more exposure because they put their hands in their mouths and ingest the dust and dirt from the floor that may contain lead dust, pesticides, or other chemicals.

Summarize the above points by explaining that infants and children are more susceptible to the harmful effects of exposure to toxins than are adults because: 1) they are smaller; 2) their brain and liver are still developing; 3) their immune system is not fully mature; and 4) they breathe more and eat more, pound for pound, than do adults.

### *Risk of Illness*

To begin explaining the concept of risk of illness, ask the following questions:

- ? How many of you smoke? (Please raise your hands.)
- ? How many of you know someone who smokes?
- ? What serious health effects are associated with smoking?
  - lung cancer (2<sup>nd</sup> leading cancer in adults in the US), heart disease, emphysema, ulcers, etc.
- ? Does everyone who smokes develop lung cancer?
  - No.
- ? Is a smoker more likely to develop a health problem?
  - Yes. About 1 in 4 long-term smokers develops lung cancer. This puts them at high risk for lung cancer.
- ? Who is more likely to get lung cancer: (1) someone who never smokes; (2) some one who smokes 1 cigarette a day for 20 years; (3) someone who smokes a half pack a day for 20 years' (4) someone who smokes a pack a day for 10 years?
  - # 3 and 4, because they have consumed the same dose.

Ask the group to count off in sequence of 1, 2, 3, 4. Tell all of the number 1's to please stand. Ask the following question:

- ? If we imagined for a moment that everyone in this room is a long-term smoker, and 1 in 4 smokers get lung cancer, would the people standing all get lung cancer?
  - No. When we say that one in four people get lung cancer that means that, on average, based on everyone who is a long-term smoker, in a defined group, that 25% or 1 in 4 get lung cancer (often the entire country). In a smaller group, the number of people who develop lung cancer may be greater or smaller.

Even when you are exposed to a substance that can cause cancer, it does not automatically mean that you will develop cancer.

Similarly, if you are exposed to a harmful substance, it doesn't automatically mean that you will become ill. It depends on a number of factors, including the quantity and duration of exposure, in addition to individual characteristics of the person exposed.

Distribute Handout 4: Describing Risk.

## **V. Community Health Promoters**

### ***Group Discussion***

***Time: 20 minutes***

***Materials: Flip chart and markers***

Remind the group that when they first introduced themselves, most of them said they were interested in the project because they wanted to learn more about the environment and how it affects health so that they may help their peers address some of the health problems associated with the environment. If they listed "community education" as one of the solutions to environmental pollution in the Problem Tree Exercise, remind them that this is where they fit into the "larger picture." They are in the workshop because they want to work as "*promotores de salud*" in the community. Ask the group to brainstorm with you about the characteristics of a "*promotor de salud*" or what is meant by "*promotor de salud*". Write their responses on a flip chart. Try to elicit some of the following answers:

- Is from the community
- Understands or is able to identify problems in the community
- Motivated to learn
- Wants to improve the health of the community
- Is objective
- Shares his or her knowledge
- Respects the ideas/traditions of the people in the community
- "Practices what she/he teaches"
- Enjoys working in the community
- Helps to link people in need with resources in the community
- Communicates the needs of the community with local leaders and health care providers
- Does not express his/her judgment about the practices of the community member with whom he or she is speaking
- Teaches by asking questions rather than lecturing and "telling people how it is", showing people they have understanding and solutions.



- Believes that people are not powerless, and that both individual approaches and collective action can provide solutions

Ask the group what behaviors they think a *promotor de salud* should NOT exhibit. Try to elicit the following:

- Telling people what they do is wrong
- Acting like they know everything
- Telling people what they must do
- Forgetting to listen

? Does a *promotor de salud* need a formal education or high school diploma or a college degree?

- No!

? Will you be “experts” in environmental health when you finish this training?

- No! People will ask you many questions they you cannot answer, so don't be afraid to answer, “I don't know.” But be willing to help the person find the answer by asking someone in the community who does know.

Finally, explain that the most important task of the community health educator is to encourage the process of sharing knowledge, abilities, experiences and ideas. Explain that during these next 2 days, we will attempt to make the training as interactive as possible. We want to encourage every person to participate and share their knowledge and ideas with the rest of the group.

In these workshops, we are trying to practice a form of education called popular education, which is active and draws on the experiences of the participants. We want this to be a model they can use when they conduct their own outreach in the community.

### ***Demonstration of popular and traditional education styles***

***Time: 5 minutes***

***Materials: photograph or drawing of pollution***

Before the workshop, prepare a 1-minute lecture on contaminated water (or some other environmental contaminant). Present the information in the style of a professional expert, say a professor, dressed in a white coat, who comes out and gives a formal “lecture.” Next, use a prop, like a photo or drawing of water being contaminated, and take 1 minute to ask people what they see, if they have seen that in their neighborhood, why they think it is happening, what they can do to change it, and what would be the first steps to making their water safer. Ask the group to compare

the two styles of teaching and say which style they think would be more effective in their community.

## **VI. Implementing the Environmental Health Project**

### ***Group Discussion***

***Time: 15 minutes***

***Materials: Flip chart and markers***

Explain to the group how they will conduct their outreach. Explain each of the following steps:

- Work in pairs or teams
- select the family/individual/group where you will discuss environmental health
- introduce yourself & purpose of visit/scope of project
- discuss the environmental health topic with the household/group
- distribute referral list, other educational materials
- after the visit, fill out a contact report

Review the “*Promotor de Salud Agreement*” with the group and ask them if they have any questions about the benefits or responsibilities of being a *promotor*.

## **VII. Sources**

*Agua Para Beber: A Training Manual for Community Volunteers in Hygiene Education and Water Purification Techniques, El Paso: Center for Environmental Resource Management, University of Texas at El Paso, 1995.*

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*David Werner, Where There Is Not Doctor ((Palo Alto, CA: The Hesperian Foundation, 1977).*