Nuclear Energy: task descriptions

Task 1 – Mind map

This task is the first activity completed by the working group. It serves as a group building exercise, as well as a way for facilitators to get to know the personalities of the participants. The group uses a large sheet of paper to record what they already know about nuclear energy. The facilitator should direct the group to create a **mind map** that shows connections and categories. Depending on the discussion, the group may want to add in a section on nuclear energy myths, things they have heard but do not believe, or topics they want to learn more about. The facilitator may choose to do the writing in order to keep the level of discussion fast and flowing. If students seem initially unwilling to participate, the facilitator may have to use tactics such as having students write their own words on the paper or adding X marks to existing categories. Where possible, it can be desirable for students to write on the paper (even if is recording their name as a member of the group) as this creates a visual group feeling and greater ownership of the activity.

Task 2ab – Nuclear accidents (Internet and fact sheets)

This task encourages participants to examine the causes behind two major nuclear accidents: the incident at Three Mile Island (USA) in 1979, and the incident at Chernobyl (former USSR, now Ukraine) in 1986. These two accidents received large amounts of press coverage, and contributed to the formation of strong opinions in the nuclear energy debate. By examining the relative implications of the accidents participants have the opportunity to evaluate nuclear safety and the role it plays in the current debate.

The task sheet provides very basic instructions on conducting effective Internet searching. This is an important skill for completing Internet research of any kind, and inexperienced participants may benefit from additional instruction on the use of Boolean search terms such as AND, OR, and NOT.

Task 3 – Public service announcements

The purpose of this task is for participants to examine how information can be presented through the media in one particular format, the public service announcement. By creating an appropriate slogan and co-ordinating it with relevant images, participants are encouraged to create a nuclear energy "sound bite" that summarises one viewpoint in a visual manner.

Task 4 – Building a reactor

The purpose of this task is to provide participants with an understanding of the mechanical processes that occur within a basic nuclear reactor. There are many

types of reactors presently in operation and the Boiling Water Reactor (BWR) was chosen for this exercise as it has a simple schematic. The major difference between the BWR and the Pressurized Water Reactor (PWR) is the pressure of the water used in the cooling system. PWR's use a second cooling loop in addition to the main loop and condenser.

The overall goal of the exercise is to understand how nuclear fuel is eventually turned into electrical energy. Participants work with a series of cards to lay out the basic structure of the reactor, attaching appropriate cards to explain the function of each part.

Task 5 – Fuel cycle

The purpose of this task is to expose participants to the major processes that occur in the fuel cycle. Participants are given a series of cards to be placed in order in the life-cycle of uranium during the nuclear process. This exercise shows the important role of many of the important, and often controversial steps, including reprocessing and waste management.

Task 6 – Cartoon opinions

The purpose of this task is to provide students with the opportunity to explore how various stakeholders in the nuclear debate may feel through a visual and creative exercise. This activity is especially appropriate with participants who have no difficulty understanding the issues involved, but are shy or reluctant to share their views through discussion and are more comfortable expressing themselves visually.

Task 7 – Energy use

The purpose of this task is to provide participants with an understanding of the input-output relationship in creating nuclear energy – that is: how much fuel is used compared to the amount of energy created. The task consists of a series of mathematical problems to be worked out with a calculator to arrive at a final answer. This task is most appropriate to participants who enjoy logical or mathematical work, but is structured enough to be successful for any participants.

Task 8 – Newspaper and magazine articles

The purpose of this task is to allow participants the opportunity to examine how the national media reports issues relevant to the nuclear energy debate, and to begin to critically evaluate these. Participants work through at least two articles, and identify which sections they believe to be fact and which are opinion. This exercise provides participants with experience in identifying sources and bias, as well as looking at the relative amounts (fact vs. opinion) of information in different print sources.

Task 9 – Nuclear proliferation

This statement sorting activity allows the group to work through the complex issue of nuclear proliferation. The group is given six statements that they must arrange according to how much they agree. The statements deliberately include unfamiliar terms and ideas that will need explanation from the facilitator. This content provides opportunities for learning and discussion.

Task 10 – Group presentation

The purpose of this task is for all of the participants in a group to co-ordinate their views in a discussion through creating a group presentation. This is not necessarily a consensus building activity, and it is not necessary for all participants to agree on one view. The presentation should include all participants, and should reflect the diversity of skills and opinion within the group.

Some examples are given of alternative presentation formats that are more performance based. These may encourage participants to think outside the traditional presentation techniques eg. OHPs, flipcharts, PowerPoint.

Aside from the fact that participants may not find traditional presentations very exciting to watch or take part in, they take no additional work from the group. It can simply lead to them repeating the points that have already been discussed. Giving them the opportunity to create a presentation in their own style and format may encourage the group to clarify their views.