

ENVIRONMENTAL AWARENESS TRAINING MANUAL (EATM)

FRIEDRICH EBERT FOUNDATION
LAGOS, NIGERIA

NIGERIAN ENVIRONMENTAL STUDY/ACTION TEAM
(NEST) IBADAN.

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ISBN: 97830889-2-0

First published November, 1995

Publishers:

Friedrich Ebert Foundation, New Access Road,
University of Lagos, Akoka, Lagos.

and

Nigerian Environmental Study/Action Team (NEST),
U.I. P.O.Box 22025, Ibadan.

MODULE 9: MATERIALS AND SOURCES

In this module, instructional "materials" for environmental awareness and the "sources" of such materials are outlined and discussed. At the end of the module, you should be able to know and differentiate among the very wide variety of materials and sources. More importantly, you should be able to know how best to use the 'materials' and 'sources' to enhance environmental awareness.

This module is therefore divided into two sections. Section A deals with instructional materials, and concludes with guidelines for effective use of such materials, while Section B treats 'sources' of the materials.

SECTION A: MATERIALS

In this section we shall examine the following instructional materials:

- * The prints
- * Instructional audios
- * The Audio-visuals (A-V)
- * The phenomenal instructional materials
- * The manipulatives
- * Storage facilities.

(i) The Prints

- All instructional materials in book form are categorized as the prints. Effective use requires the ability to read and write, but since only a proportion of what is read can be recalled, the print may not be the most effective medium for creating awareness.
- prints are available for creating awareness, and they include manuals, textbooks/coursebooks, reference books, journals, magazines, newspapers, newsletters and others, such as brochures, handbills, bulletins.

(ii) Instructional audios

- Anything which appeals to the sense of hearing and which can be used for teaching and learning is categorized as an audio instructional material. They require HARDWARES such as tape recorder, radio, telephone receivers, phonograph, computers and record player. They amplify, replicate, store, retrieve and channel sounds in the SOFTWARES such as audio tapes, phono-disc and compact disc.
- In order to maximize the effect of the audio instructional material upon the learners and the learning situation, the teacher should:

- * specify objectives clearly and justify the need for use of audio material.
- * preview the audio instructional material before using it
- * encourage learner active participation in the form of discussion, questions, constructions, quizzes, etc.
- * follow up all post-instructional activities such as assignments, commitments and self generated activities.

(iii) Instructional Visuals

- They are all equipment, materials and settings which communicate instructional contents through the sense of sight.
- In order to be categorized as instructional visuals they must be in non-book form
- **categories of instructional visuals include:**
 - * projected visuals (projectuals) such as still images produced directly or indirectly by *slide*, *overhead filmstrip* projections or indirectly by *opaque* projection. Projectuals need the use of hardwares such as the projectors, and softwares such as the films.
 - * non-projected visuals (non-projectuals) which are made up of simple instructional materials that do not require any form of projection. Three sub-categories of the non-projected visuals include: **BOARDS**, such as chalk-board, wall board, bulletin boards; **THREE DIMENSIONALS (3-Ds)**, such as real things (realia), specimens, samples, mock-ups, puppets; **GRAPHICS**, such as graphs, charts, maps, posters, diagrams, illustrations, cartoons, book covers.
- All non =projectuals can be processed into projectuals through various forms of camera.
- * The computer such as micro, mini and main-frame computers
- In preparing visuals the following should be taken into consideration: objectivespecification; visibility; aesthetics; balance (with their sizes, shape, colour and texture matching their focal point); simplicity; harmony.

- * Laboratory equipment (microscopes, projectors, burners, guages, balances, etc.).
- * Recording equipment (pencil, pen, camera, tape recorders, computers)
- * Miscellaneous (puppets, instructional games, etc.)

(vii) Storage Facilities

- There is need to store and readily retrieve instructional materials, to ensure that:
 - their quality and relevance are maintained;
 - they are preserved for future use;
 - there is an inventory to know what is (or is not) available;
 - there is instant accessibility to the materials, etc.
- Storage space could constitute a serious constraint to adequate storage and retrieval, hence the teacher should aim at storing only things that are relevant, using classroom walls, the library, cupboards, empty external parts of standing book racks to store flat visuals such as pictures, charts and diagrams.
- * For example, flat visuals on pollution of the Nigerian environment can be filed under:
 - (a) Nigeria environment - general
 - (b) Nigeria environment - air pollution
 - (c) Nigeria environment - water pollution
 - (d) Nigeria environment - soil pollution, etc.
- In order to locate and retrieve slides easily, the following systems could be used: plastic sheets, projector trays, slide boxes.
- In view of the fact that instructional materials come in various forms, sizes, shapes and other characteristics, accessioning, classifying, and cataloguing, are very important elements in storage and retrieval of information.
- An accession record is a simple ledger file, a card-file or even computer-taped file which can preserve data on each instructional material acquired. It should show details such as:
 - (a) Titles
 - (b) Author, compiler or editor
 - (c) Producer or publisher
 - (d) Date of publication
 - (e) Cost of purchasing
 - (f) Source of purchase or marketer/vendor

(g) Original conditions.

These pieces of information are necessary for inventory checking and evaluation of the status of the materials.

- Different classification systems exist which can be used to arrange available instructional materials from books to slides. One of these is the Dewey Decimal system. In this system materials are arranged according to subject and then divided into ten broad categories with three figures before the decimal point and several figures after it. The ten major groupings are:

000: general books	500: pure science
100: philosophy	600: applied science
200: religion	700: fine arts
300: sociology	800: literature
400: languages	900: travel, history, biography.

The second and third figures before the decimal point define the subject more closely, so also are those after.

- Cataloguing consists of a list of items arranged in one or two ways:

- (a) separate set of cards arranged according to author/title and subject.
- (b) alphabetical order with author, title and subject in a single alphabet.

(viii) Guidelines for Effective use of Instructional Materials

- * **Objective specification** teachers should clearly specify their objectives in behavioural terms. This can guide their selection and use of instructional materials.
- * **Planning** - The use of instructional materials should be properly planned at the lesson planning stage as related to when and where to use a particular instructional material. Where a variety of instructional materials are to be used, the sequence of such use should be clearly planned.
- * **Preparation** - The teacher should prepare his lesson, himself, the learners and the learning environment before the lesson starts.
- * **Preview** - All forms of instructional materials should be previewed before presentation to the class whether it is a textual, visual or audio.

- * **Presentation** - The presentation of the lesson should reflect adequacy of content as well as emphasis on the effective relationship with the environment. Presentation should be in the most persuasive manner.
- * **Participation** - Both the teacher and the learners must actively participate in the lesson through a wide variety of environmentally - relevant activities.
- * **Evaluation** - At every stage of the presentation, it is important that the lesson be evaluated formatively through guiding, leading and problem - solving questions.
- * **Feedback** - Learners need immediate feedback which should be given consciously and courageously but with adequate encouragement.
- * **Follow-up** - The use of take home assignments as related to environment and the lesson at hand, can extend the teacher's capacity beyond the confines of the classroom; they are necessary for concretizing environmental awareness.

ACTIVITIES

1. Specify the types of prints, their examples and uses:
2. (a) During the period of one week, list the titles or headings of any information or news in print form about the environment from any five types of prints.
- (b) Does any of the information you derive appear relevant to the state of the environment in your area of residence? Explain to the other learners the nature of this relevance.
3. Using audio-recording (if available) record a ten-minute instructional programme on Environmental Education. Play the recording back and let the learners discuss the highlights of the programme.
4. Guide the learners to distinguish between the two categories of phenomenals.
5. Demonstrate various aspects of using manipulative instructional materials. E.g, identify some areas of the school compound, the community or local government headquarters that are overgrown with grass or threatened by erosion and organize the class to bring appropriate work tools to address these problems.
6. Discuss with learners why storage facilities are necessary for instructional materials; and guide learners to list some ways of solving storage problems in the classroom.

SECTION B: SOURCES OF INSTRUCTIONAL MATERIALS FOR ENVIRONMENTAL AWARENESS

In this section we shall consider the following sources of instructional materials:

- * Local Community
- * Public radio and television programmes
- * Market place
- * Newspapers, magazines and other publications
- * Farms and fish-ponds
- * Public and private libraries
- * Museums, Art galleries and Exhibition
- * Improvisation.

(i) Local Community

This is the neighbourhood of a school, or of one's residential area. It could be as small as village, town, local government or as large as the state in which the learner lives.

Every community is filled with natural and man-made resources which provide worthwhile learning opportunities.

Teachers or facilitators can arrange instructional visits to nearby parks, forests, museums, hospitals, farms, zoos, aquaria, etc., and collect in the process plant specimens, seeds, soil sample, rocks, etc. These are brought back for closer study and discussion.

(ii) Public Radio and Television Programmes

- These are used to disseminate information to a larger and scattered audience and are usually faster.
- A documentary on soil erosion-prevention and control aired on radio and television can considerably enhance environmental awareness related to this aspect of environmental damage.

(iii) The Market Place

- This is a very important place for inculcating environmental awareness. The exercise should take the form of educating and informing people about conservation, a clean environment, use of waste bins, and why litters should be avoided since a lot of litter or land pollution takes place in market places. These range from banana and orange peels, cellophane bags that hardly decompose, to dirt dumps.
- A large group of people can be addressed at the same time in market places on important environmental issues, through public address system.

(iv) Newspapers, Magazines and other Publications

- These are mainly concerned with informing and teaching people about events and issues in and around us. They are as a result, very useful for spreading information on environmental issues.
- Some newspapers and magazines devote some sections to issues of the environment as a way of enhancing awareness.
- It is necessary to keep files of newspaper cuttings on environmental issues for reference purposes.

(v) Local Industries and Workshops

- From local industries and workshops various instructional materials can be derived. A local industry can be used to demonstrate the concept of sustainability.
- For example, a rice mill which burns the rice husk to generate its power for running the mill, cools and recycles the water needed for the machines, and is located close to the rice field, can be seen as adopting appropriate technology which is environmentally friendly.
- Local industries can also produce a wide variety of environmentally-related instructional materials in the form of models, graphics and other visuals using locally available inputs.

(vi) Farms and Fish-ponds

- By visiting relevant farms, integrated farming systems, agroforestry and alley cropping, can be seen practically.

(vii) Public and Private Libraries

- Such libraries as are found in schools, colleges, universities, Non-governmental Organizations (NGOs), such as Nigerian Environmental Study/Action Team (NEST), Nigerian Conservation Foundation (NCF), World Wildlife Fund (WWF) and government ones such as United States Information Service (USIS), British Council, can provide invaluable sources of information related to the environment and its proper management.

(viii) Museums, Art Galleries and Exhibitions

- These sources make it possible for educators to assist learners to project into the future, as well as retrospectively introject into the distant past in terms of the quality of the environment, the plants, animals, birds, insects, and fishes that are now extinct. The same

is done in terms of those that could be extinct in the near future if nothing positive is done to modify our attitude towards them.

(ix) Improvisation

- This is a situation in which the teacher or learner improvises some functionally relevant instructional materials for use by the learners to acquire or evaluate knowledge, skills and attitudes.

ACTIVITIES

1. Let each learner make a list of five to ten instructional materials that can be found in his or her neighbourhood. Let the class or learners discuss the relevance of each of the things listed for environmental awareness.
2. Discuss with learners, how the market can be useful for excursion for the teaching and learning of environmental awareness.
3. Take the learners to the market place to have first hand experience of the nature of pollution in the place. Let them suggest possible solutions to the problems.
4. Encourage any learner who has useful "morning information" obtained from newspapers, etc., about the environment, to give out such information to the rest of the school/class at the end of a formal morning assembly of teachers and learners.