

Report of Phase I of Production and Utilization Scheme of Planet 3
(Local Adaptation of Package Learning Materials on Environment 3)
“Waste Management”

Background

NRC/NFE/LRC, Nepal received a letter from ACCU on 12 May, 2004 inviting our organization i.e. NRC-NFE/LRC, Nepal to participate in the Environment Education Program "Local Production and Utilization Scheme of PLANET 3" 2004-2005.

In response to the invitation of ACCU, NRC/NFE/LRC, Nepal submitted a project proposal on Local Production and Utilization Scheme of PLANET 3 "Waste Management" on June 30, 2004.

After examining our proposal ACCU raised some questions and they were answered properly. After a series of discussion through letter, email and personal contact, ACCU informed us that the proposal was agreeable. Subsequently we received an Agreement for Phase I of Production and Utilization Scheme of PLANET 3 (Package of Learning Materials on Environment) "Waste Management" on 24 September, 2004. NRC/NFE/LRC, Nepal signed the Agreement on 4 October, 2004 and returned to ACCU.

Following the Agreement, we received "Guidelines for the Report on Adaptation Process and Baseline Data for PLANET 3" Waste management on 22 November, 2004.

The report of the Production and Utilization of PLANET 3 (Package Learning Materials on Environment 3) "Waste Management" has been prepared according to the Guidelines provided.

1. Expected outcome

Expected Outcome and impact:

The expected outcomes and impact of the program activities would be to impart knowledge skills and awareness among target population especially:

- Basic knowledge/information on waste management to the target population
- Idea of cooperation and living together for healthy life and maintaining better environment and take concrete actions for proper waste management: segregating different waste materials such as organic materials and inorganic materials like papers, plastics, clothes, metals, glass, rubbers and landfill materials.
- Awareness, knowledge, skills etc for disposal, reduction, reuse and recycling of waste materials.
- Information on prevention of health hazards arising from wastes

- Ways and means of better waste management for better living and
- Produce, disseminate and utilize reading, writing and exercise materials on waste management and environment protection.

Indicators

Problems and Actions by some organizations

- a) Area and amount of the waste materials production in selected places.
- b) Activities employed for waste management.
- c) Waste management system.
- d) Environment Education Program Materials used in selected areas.
- e) Organization which were playing prominent roles.

We have selected following areas for collecting data.

1. Kathmandu Metropolitan Area.
2. Lalitpur sub Metropolitan Area
3. Bhaktpur Municipality Area
4. Madhapur Thimi Municipality Area
5. Kirtipur Municipality Area

The collected data are given below:

Kathmandu Metropolitan Area

| | |
|-------------|------------------|
| Area | - 49.45 Sq. km |
| Population | - 741,008 (2004) |
| Growth rate | - 3.32% |
| Households | - 152,155 |
| No of Wards | - 35 |

It area produces about 308 tons of waste management daily. Among them only 250 tons were collected by the Metropolitan office .The office told us that its budget of 149.0 million Nepali Rupees per year was not sufficient.

Latitpur Sub Metropolitan Area

| | |
|---------------------------|-----------------------------|
| Area | - 15.15 sq km |
| Population | - 178,987 (2004) |
| Population growth rate | - 3.44% (annual) |
| Household | - 34,996 |
| Wards | - 22 |
| Daily Waste Production | - 75 tons |
| Daily Collection of Waste | - 52 tons |
| Budget | - N.Rs. 25 million per year |

Bhaktpur Municipality :

| | |
|------------------------|--------------|
| Area | - 6.56 sq km |
| Population | - 80,476 |
| Population growth rate | - 3.52% |
| Household | - 12133 |

| | |
|---------------------------|-----------------|
| Wards | - 17 |
| Daily Waste Production | - 26 tons |
| Daily Collection of Waste | - 19 tons |
| Budget | - N.Rs1,598,000 |

Madhapur Thimi Municipality

| | |
|---------------------------|------------------|
| Area | - 11.11 sq km |
| Population | - 53,853 |
| Population growth rate | - 4.07% (annual) |
| Household | - 9,551 |
| Wards | - 17 |
| Daily Waste Production | - 14 tons |
| Daily Collection of Waste | - 5 tons |
| Budget | -N.Rs 500,000 |

Kirtipur Municipality

| | |
|---------------------------|------------------|
| Area | - 14.76 sq km |
| Population | - 43424 |
| Population growth rate | - 2.07% (annual) |
| Household | - 9,487 |
| Wards | - 19 |
| Daily Waste Production | - 12 tons |
| Daily Collection of Waste | - 4 tons |
| Budget (annual) | - N.Rs 200000 |

Three staffs of NRC_NFE/LRC visited different offices both government and NGOs to learn about the various ways they were adopting to recycle, reuse and reduce the waste materials. During the visit the relevant officials of the Metropolitan Area office of Kathmandu, and Lalitpur Sub Metropolitan Area offices informed us that they were providing information and training for the residents of those area to make compost manures from organic wastes and they also have published many materials to raise awareness among community people in there respective areas. They also admitted that the municipalities have not been able to collect all the waste materials produced by the residents of the of cities. Therefore we see the dirt or waste dumps here and there in the cities. The data given above are taken from a booklet called "Clean Kathmandu Valley Study" Published jointly by Ministry of Local Government, JICA and Clean Environment Nepal.

Some NGOs were also working in the field of cleaning the environment. They told us that they were demanding that the government to make a legislation that the plastic bag factories should not produce very thin plastic bags. According to them if the plastic bags were thick and attractive people will use them again and again. They were also educating the people that burning plastic bags were very harmful for the health and environment.

Activities

The municipalities have been collecting the waste materials using trucks, vans, tractors and human efforts.

They have classified the waste materials as given.

Types of Waste Materials generated in different Areas

| Name of Area | Organic Waste in P.C | Non Organic Waste Materials in % | | | | | | Land Field Waste Materials in % |
|-----------------|----------------------|----------------------------------|----------|---------|--------|---------|----------|---------------------------------|
| | | Papers | Plastics | Clothes | Metals | Glasses | Rubberes | |
| Kathmandu | 75 | 8 | 5 | 2 | 2 | 2 | 1 | 5 |
| Bhaktpur | 76 | 6 | 5 | 3 | 1 | 2 | 2 | 5 |
| Madhapur Thimi | 76 | 6 | 5 | 1 | 3 | 2 | 2 | 5 |
| Banepa | 75 | 5 | 9 | 3 | 1 | 1 | 1 | 5 |
| Sidharthan agar | 75 | 5 | 5 | 3 | 3 | 2 | 2 | 5 |
| Hिताुदा | 70 | 12 | 9 | 1 | 1 | 2 | – | 5 |

Source : UDLE/GTZ

The Municipalities and some NGOs were engaged in:

1. Recycling the waste materials specially to make compost manures.
2. Some NGOs were doing similar things.
3. Some were making plastic pots, pans and pipes utilizing waste plastic materials.
4. Rack pickers pick up the waste materials in the dumps and dumping sites .One of the most serious problems was that they throw unwanted things randomly.

Reuse

1. It is true that some people reuse the bags but the plastic bags were becoming common. They were so thin that they could not be used again.
2. Carrying jute bags for shopping had become rare.
3. Sometimes some people use tins, glass and plastic bottles again and again.
4. But it has not been systematic.

Reduce

It is one most the difficult task. But if the wastes are recycled and reused, the waste materials are automatically reduced.

Adaptation Process

After collecting data/information on waste materials management, NRC-NFE/LRC, Nepal adapted all three materials i.e. video, poster and booklet on waste management published originally by ACCU.

Experts Workshop to Review the Materials

Once the draft of Nepali version video, poster and booklet on waste management adapting original produced by ACCU were prepared, about 20 experts of NFE, waste management and environment were invited to review the materials.

Their comments and suggestion were as given below.

Comments on the Booklet:

In the booklet in the page 4 and 5 there is a lesson titled "What is Waste?"

The answer given to the question was "In simple terms, any material that is no longer useful is called Waste. Waste comes from us humans and human activities. This is what we discard or throw away after we have used something." In our opinion it may be misleading to say that "any material that is no longer useful is called waste." We have an impression that the PLANET 3 materials are trying to convey a message that, from the waste materials we could prepare "compost". Similarly some other materials could be reused and some recycled. That way we could reduce really waste materials if we could manage them properly.

The suggestions were numbered the boxes in the booklet picture:

No1. The title could be: "Why people waste things? Why people throw things as waste? Throwing everything as waste will create problems for all of us- human beings, animals and the "Earth" our Planet itself.

No 2. is OK

No 3. In No. 3 it may be written like this: "Yes, people throw them as waste whereas they could be very useful".

No 4. is OK.

No 5. In No. 5, "we" word could be substituted by "people".

No 6. is OK

No 7. Construction Waste and another box No 8 which show " Bricks, concrete, fiberglass, scrap metal, etc are from construction sites" could be in one box.

No 9. Waste from office and No 10 example is not suited. It would be better to show pieces of papers, pins, clip etc as mentioned in the Guidebook. Thus we gave them No.9 and 10. Both boxes could be in one box.

No 11. OK

No 12. OK

No 13. OK

No 14. In No. 14 where do the waste end up? Seems a difficult question.

Comment on Booklet Guide book:

The guide for the Booklet seems a little difficult. In our opinion if we make difficult guide book it may be beyond the comprehension level of the Literacy and Post Literacy teachers (Facilitators). As a result they won't be able to use it and will be waste of money and effort on the part of ACCU and adapting LRC.

Comment on Video :

We screened the video. In the video, village looks very clean. When the people started collecting some reusable materials, we saw only small proportions of waste materials. It would have been better if litters are shown in different places of the village. It is complicating.

Reasonable comments and suggestions were incorporated in the materials. Then final drafts were prepared.

Field Test of Materials

The materials (video, poster and booklet) on Waste Management Nepali Version were field tested in the following areas.

1. Kapilbastu District:

- Phulika village Dev. committee
- Patariya village Dev. committee
- Rajpur village Dev. committee

2. Rupendehi District:

- Madhubani VDC
- Kudabagar VDC
- Tenuhawa VDC

3. Lalitpur District:

- Lalitpur Municipality areas
- Siddhipur VDC
- Khokana VDC

Altogether there were 29 participants mostly facilitators and supervisors of non-formal education field workers who were working for literacy and out of school programs. Some were Community Learning Center Management Committee members. Some were health workers who came to participate in the program. The participants activity participated in video show, poster discussion and booklet study. The materials presentation were followed by discussion and adaptation possibilities in their respective areas.

After the completion of the training workshop, two villages were selected to see the effect of the materials in actual situation with the participation of villagers, school children and community people.

Effectiveness of the materials:

The effectiveness of the materials were noted as expressed by the audience especially in actual situations. The orientation and training in the actual field areas

were facilitated by the supervisors and facilitators in their respective areas. The effectiveness were measured in terms of the following activities:

1. Expression from the audience what they understood from video, poster and booklet.
2. Comparison of waste materials seen in the materials and actual condition of waste materials in their own villages.
3. Types of materials and usefulness.
4. Possible ways of waste materials management in their surrounding.
5. Most of the participants were ready to prepare compost manure from the waste and reducing the waste.
6. Some were ready to sell the solid waste materials and earn money.
7. Mostly the participants expressed their opinion that that the materials should be made available in sufficient quantity so that they could use to educate and hold dialogue to convince the villagers in their villages. Because they think that the waste management was very important.
8. They were convinced not to burn the plastic made bags and other plastic made materials as indicated in the materials.
9. They expressed to manage the waste segregating the types of materials.
10. They were found ready to participate in waste management programs if implemented in their areas.
11. They also suggested to have materials in their local languages and situation for raising awareness in the community.
12. The participants were mostly women and girls from different culture background.
13. From the discussion it was also noted that each family produce approximately 3 kilos of waste materials a day.

Basic Data of the Participating VDC's Rupandehi & Kapilbastu District

| S.No | District | VDC | Populataion | | | Househol d No | Pop. Growth Rate | Daily Waste (approximately) |
|------|------------|---------------|-------------|--------|-------|------------------|---------------------|--------------------------------|
| | | | Male | Female | Total | | | |
| 1 | Rupandehi | i) Madhubani | 2670 | 2846 | 5516 | 824 | 5.8% District) | 2472.0 kg |
| | | ii)Khudabagar | 2272 | 2321 | 4593 | 605 | 5.8% (District) | 1815.0 kg |
| | | iii) Tenuhawa | 4520 | 4731 | 9251 | 1193 | 5.8% (District) | 3579.0 kg |
| 2 | Kapilbastu | i) Phulika | 2983 | 3255 | 6238 | 906 | 4.6 (District) | 2718.0kg |
| | | ii) Patariya | 3333 | 3576 | 6909 | 964 | 4.6 (District) | 2892.0 kg |
| | | iii) Rajpur | 2041 | 2177 | 4218 | 604 | 4.6 (District) | 1802.0 kg |

The field testing procedures were as given below:

- The supervisors/facilitators were trained to utilize the materials in the classrooms and other situations.

- Then the facilitators along with supervisors used the materials in the literacy classes/village situation.
- Video was shown first in the literacy class and collected the information.
- Then there was discussion on poster and its use.
- After the learners were given booklet to read followed by discussions.
- Finally, the discussion was made in the possibility three Rs in local situation.

List of environmental education materials we have been able to collect so far are listed below:

We have collected following learning materials and information at present. We shall be collecting more.

**1. Gharelu Phohor Maila Baibasthapan
(Domestic Waste Management)**

- Publisher - Kathmandu Metropolitan area
- Type - Booklet
- Use - Awareness raising training

**2. Kina Phalne Phohor, Banaun yeslai Mohar
(Why Wasting Waste, Let's Make Earning Farm It)**

- Publisher: CKV Clean Kathmandu.
- Type: Booklet
- Use: Information, awareness raising, training materials

**3. Tapain Ko, Ghar Thatha Chimekko Batabaran Ramro Garako
(Make Your Environment and Neighbor's Environment Better.)**

- Publisher: UDLE
- Type: Booklet
- Use: Information

**4. Phohormaila Ko Samuchit Baibastha Garaun, Sahyata ko Pahichan Diwon
(Let's Manage Waste and Be Civilized)**

- Publisher: National Environment Pollution Control, Nepal 1998
- Type: Pamphlets
- Use: Information sheet

**5. Sarba Sulav Charpi Banaun, Batabaran Swacha Bauan
(Let's Make Simple Latrine and Keep Environment Safe)**

- Publisher: Literacy and Non-Formal Education Project, National Resource Center for Non-Formal Education, Nepal 2004
- Type: Training materials
- Use : Used during the trainings of facilitators

6. Hamro Dainik Jeevan Ko Lagi Upayogi Gyan

(Useful Knowledge for Our Daily Life)

- Publisher: Literacy and Non-Formal Education Project, National Resource Center for Non-Formal Education, Nepal 2004
- Type: Calendar (wall)
- Use: Information/ Training materials

7. Swabalamban

(Self Reliance) (Bulletin 1&2)

- Publisher: Society for Urban Poor (Soup), 2004
- Type: Bulletin
- Use: Information including some case studies.

8. Safai Bhaiya

(Cleanness)

- Publisher: Literacy and Non-Formal Education Project, National Resource Center for Non-Formal Education, Nepal 2004
- Type: Booklet in local language
- Use: Training materials for facilitators

9. NEPSEMAC Sandesh

(NEPSEMAC News)

- Publisher: Nepal Pollution Center & Environment Management Center, 2004
- Type: Journal
- Use: Information and News

10. Phohor Ko Mohor

(Earning from Waste)

- Publisher: National Environment Pollution Center, Nepal 2004
- Type: Magazine
- Use: Information

11 CKV Newsletter 2004

- Publisher: CKV study
- Type: Newsletter
- Use: Information

12 Gharelu Compost Mal

(Domestic Compost)

- Publisher: Society for Urban Poor (Soup)
- Type: Information Sheet
- Use: Awareness raising
-

13.

- Waste Management System of YUMS (Sa : Pucha)
- Type : An Article
- Use: Training handout