# FINAL REPORT ON IMPLEMENTATION OF SOLID WASTE MANAGEMENT PLAN IN SANKHU CITY



Subarna Lal Shrestha Nepal Evaluation Society Kathmandu, Nepal March 2015

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### ABBREVIATIONS

| ADB        | Asian Development Bank                                  |
|------------|---|
| AEPC       | Alternative Energy Promotion Centre                     |
| CBS        | Central Bureau of Statistics                            |
| CDM        | Clean Development Mechanism                             |
| CSO        | Community Service Organization                          |
| DDC        | District Development Committee                          |
| DDWS       | Department of Drinking Water and Sewerage               |
| ECI        | Environment Conservation Initiatives                    |
| FGD        | Focus Group Discussion                                  |
| FY         | Fiscal Year   |
| GOs        | Government Organisations                                |
| GON        | Government of Nepal                                     |
| Govt.      | Government  |
| GTZ        | German Technical Cooperation                            |
| HHs        | Households  |
| JFGE       | Japan Fund for Global Environment                       |
| JES        | Japan Evaluation Society                                |
| J¥         | Japanese Yen  |
| KII        | Key Informant Interview                                 |
| KMC        | Kathmandu Metropolitan City                             |
| INGO       | International Non-Government Organization               |
| JICA       | Japan International Cooperation Agency                  |
| JFIR       | Japan forum on International Relations                  |
| LGP        | Liquefied Petroleum Gas                                 |
| MSW        | Municipal Solid Waste                                   |
| MuAN       | Municipal Association of Nepal                          |
| MOFALD     | Ministry of Federal Affairs and Local Development       |
| MOUD       | Ministry of Urban Development                           |
| NEPSEMAC   | Nepal Pollution Control and Environment Centre          |
| NES        | Nepal Evaluation Society                                |
| NGO        | Non-government organization                             |
| NPC        | National Planning Commission                            |
| NRs        | Nepali Currency (Rupees)                                |
| PPP        | Public Private Partnership                              |
| RRR        | Reduce, reuse, recycle                                  |
| SWM        | Solid Waste Management                                  |
| SSWMC      | Sankharapur Solid Waste Management Committee            |
| SWMRMC     | Solid Waste Management and Resource Mobilization Center |
| TYP        | Three-Year Plan   |
| UNDP       | United Nations Development Program                      |
| UN-Habitat | United Nations Human Settlement Programme               |
| UNICEF     | United Nations Children's Fund                          |
| VDC        | Village Development Committee                           |
| WEPCO      | Women Environment Preservation Committee                |
| WHO        | World Health Organization                               |

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#### 1. Background

Sankhu is a typical Newari town, with many fine old buildings and temples representing ancient city in the northeast foot hill of Kathmandu valley. It is made of eight localities namely Ghunla, Salkha, Chalakhu, Dugahiti, Suntole, Ippa tole, Illa tole and Pukhulakshi. All locality of Sankhu except Suntole and Pukhulakshi locality are in the former Bajrayogini Village Development Committee (VDC), and Suntol is located in the former Suntole VDC and Pukhupakshi is located in the former Pukhulakshi VDC. All the VDCs including neighboring VDCs Nanglebahar, Lapsifedi and Indrayani are now in the recently declared Sankharapur Municipality. Thus, Sankhu is now in Shankhrapur municipality, which is a traditional old dwelling of Kathmandu district. The municipality is located at about 17 km. to 25 km. northeast

of Kathmandu Metropolitan City at the height of 4700 feet to 7500 feet. This place is situated in Bagmati, Central, Nepal, its geographical coordinates are 27° 43' 0" North, 85° 27' 0" East and its original name (with diacritics) is Sānkhu. It is said that the ancient Sankhu city was designed by Mr. Jogdeva Bajracharya. Sankhu is the main and important part of the municipality, where settlement is composed of mainly Newar



community and highly dense. Believed to have been established in 1299 BC, it is the oldest urban center in the valley. Sankhu was once bustled as the terminal on the old trade route to Tibet. The artistic temple of Bajra Jogini the town's guardian goddess is a major pilgrimage site.

Sankhu is also the site of the month long worship to the God Madhav Narayan. The



brata (holy fasting) is a tribute to the God through fasting, meditation and ritual bathing by women and mens too. It begins on the full moon of the Nepali month of Poush and ends on the full moon of the Nepali month of Magh. Devotes spend whole month at the temple, sleeping, eating and meditating. It is

believed mens & women who perform this puja will have their wish granted. Outside the temple, the riverbank of the Sali Nadi is thought to be the site where Goddess Parvati bathed during her month of meditations dedicated to Swasthani

The main river of Sankhu is 'Sali Nadi' which has highly religious value, and a big festival is celebrated there in the month of Magh (January). The river is the main source of irrigation in all the villages. There are also some ponds. The ponds like Manichud pond, Mahadeva pond, Jogkunda pond, Pal pond are famous ponds of the

VDCs. The population of Sankhu city is about 4000. Majority of the people are Newar caste and other castes are Tamang, Chhetryi and others. According to religion, majority are Hindus, and then after Buddhists and very little number in Christianity.

There are four gates having their own significance, one of them is the entry and exit gate of goddess Bajrayogini from temple, next to bring bride to groom's house, another to send daughter after marriage and last one to take dead body of human out of Sankhu to burn or bury. These area within gates are considered as real Sankhu by people according to cultural beliefs and historical scripts and books but political division has extended its boundary

Agriculture is the main occupation other of the people. and occupations are trading, service and wage as shown in land use map of the city. Sankhu and surrounding Tamang areas in the hill is popular in supplying vegetables to Kathmandu. The area is connected by road with Kathmandu, Nagarkot and of Melamchi Sindhupalchowk district. Man made environment



problems and nature created environment problems like soil erosion, river pollution, deforestation, landslide and environmental degradation are seen in the areas. Environment is being degraded mostly due to the problem seen in waste management.



Land use map of Sankhu

### 2. Methodology

The methodology of reviewing the project implementation includes review of secondary information, FGD, KII, field observation, workshop and meetings mentioned below.

### 2.1 Review of secondary information

Published documents, reports, VDC profiles, SWM Plan of this project, Annual Action Plans, progress reports and other materials on the solid waste management of the city were collected and studied. Information collected from different sources like DDC Kathmandu, Environment Division of Kathmandu Metropolitan City, former VDC offices in Bajrayogini VDC, Pukhulachhi VDC and Suntol VDC, present Sankharapur Municipality, Waste Collection Centers, NGOs working in solid waste management and environment was reviewed and has been reflected in this report.

### 2.2 Focus Group Discussion

The Focus Group Discussions (FGD) was conducted separately with the females and males of the households of Sankhu. There were 16 participants in the female group and 7 participants in the male group discussions. The discussion was conducted based on the checklist prepared. The list of participants of FGD is in Annex 1.

### 2.3 Key Informant Interview (KII)

The KII was taken with six persons, who are intellectuals and known persons of Sankhu. The interview was done based on the checklist prepared. The name of key informants is in Annex 2.

### 2.4 Field observation

On-site visit of different places including the holy Sali River, ponds, sewerage system, household toilet and its disposal system, community septic tank, land site for bio-gas plant construction etc. were done to know about the solid waste management condition of the city.

### 2.5 Workshop

The Review and Interim Report on implementation of the SWM Plan in Sankhu was presented and discussed in the workshop held in Sankhu on 21 March 2015, which was participated by 45 persons including the people of Sankhu, SSWMC officials, Prof. Ryokichi Hirono and Prof. Naonobu Minato from JFIR and officials of the NES Team. The list of participants in the workshop is in Annex 4. Feedbacks from the workshop are incorporated in this report.

### 2.6 Consultation Meetings

JFIR and NES Joint Team lead by Prof. Ryokichi Hirono called officials of different GOs and international organizations for further support to take ahead solid waste management works in Sankhu. List of the officials visited is in Annex 5.

#### 3. Existing National Situation Analysis

Rapid and uncontrolled urbanization, lack of public awareness, and poor management by municipalities have intensified environmental problems in towns in Nepal, including unsanitary waste management and disposal. While solid waste management (SWM) has become a major concern for municipalities and the country as a whole, the status of SWM is not fully understood due to the lack of SWM baseline data, which are also essential for effective planning. The household survey conducted on May 2012 by ADB baseline study revealed an average per capita household waste generation rate of 170 grams (g)/capita/day. The study also uncovered that the household waste generation rates vary with the economic status and climatic conditions. On average, households with monthly expenditures of NRs40,000 (\$417) and above generate more than twice as much waste as households with monthly expenditures of less than NRs5,000 (\$52). Households in Terai municipalities generate nearly 80% more waste than those in mountain region municipalities. For institutional establishments, the average daily waste generation was 4.0 kilograms (kg) per school and 1.4 kg per office. Similarly, the average daily waste generation of commercial establishments was 1.4 kg per shop and 5.7 kg per hotel or restaurant. Based on the analysis and findings, it is estimated that waste from households in general contributes about 50%-75% of the total MSW generated. Thus, the average MSW generation was found to be 317 g/capita/day. Using these per capita waste generation rates and the population in 2011, the total MSW generation of the 58 municipalities was estimated at about 1,435 tons/day and 524,000 tons/year.

The analysis of household waste composition indicated that the highest waste category was organic waste with 66%, followed by plastics with 12%, and paper and paper products with 9%. The composition analysis of institutional wastes revealed

45% paper and paper products, 22% organic wastes, and 21% plastics. The studv found that commercial wastes comprised 43% organic wastes, 23% paper paper and products, 22% and plastics. In aggregate,



Source: Asian Development Bank.

MSW is composed of 56% organic waste, 16% plastics, and 16% paper and paper products. This indicates great potential for producing compost from organic waste, and reusing and recycling other materials, with only about 10% going to final disposal if resource recovery is maximized.



Source: Asian Development Bank.

The study uncovered that about 30% of surveyed households were practicing segregation of waste at source and composting using traditional methods. Such practices were found mainly in the rural areas of municipalities. Besides household composting, community or municipal composting plants are found in some municipalities and more are being planned. An analysis of the information provided by municipalities reveals that the present collection efficiency ranges between 70% and 90% in major towns, and is below 50% in several smaller towns, giving an average of 62%. In total, 37% of MSW in Nepal is disposed of in sanitary landfills, although not necessarily in a sanitary manner. While the majority of the municipalities have a separate section or unit responsible for SWM, 17 municipalities do not have a designated section or unit. These municipalities are either not providing any SWM services or have only a few sweepers who work under the ward offices or another unit.. On average, municipalities spend about NRs2,840 (\$30) per ton of waste for collection, transport, and disposal. In terms of revenue collection, some municipalities collect a SWM service fee, a door-to-door collection service fee, a surcharge on property or business tax, and a service fee from major waste generators.

The data on waste quantity and composition are generally comparable with neighboring countries in South Asia and countries with a similar level of economic development. The relatively high ratio of recyclable materials, including plastics and paper, indicates a large potential for reuse and resource recovery, in addition to the potential for organic waste composting.

Different legislative provisions are in practice to manage solid waste management in Nepal. The Solid Waste Management Act 1987 was revised and Solid Waste Management Act 2011 is in force at present. The Act has emphasized on reduction, reuse and recycling of solid waste and maintain clean and healthy environment minimizing the adverse effects of the solid waste in public health and environment. The Local Self Governance Act 1999 is an Act relating to the operation of local bodies like DDC, VDC and municipalities, which has put responsibility of managing the solid waste to the local bodies. Other main legislations are Environment Protection Act 1997, Industrial Enterprise Act 1992 etc.

The Ministry of Federal Affairs and Local Development, Ministry of Environment and NPC are the main central government organizations of Nepal, which are responsible to frame policy and take actions to manage solid waste. Local bodies like DDC, VDC, municipality, local NGOs, local clubs and groups are working to manage the solid waste. Solid Waste Management and Resource Mobilisation Center (SWMRMC) is a central level autonomous and corporate organization established for managing solid wastes and mobilization of resources thereto. Different stakeholders including MuAN, community leaders, business entrepreneurs and their associations, local formal and informal sectors have been involved in waste management activities. International organizations and INGOs like World Bank, ADB, WHO, GTZ and JICA are helping Nepal's effort to improve solid waste management situation in the country.

Major priority issues in SWM as identified in various discussions and workshops are

- (i) Littering in haphazard places with negligence by people (attitude of *throw & forget about it*)
- (ii) Weak execution of acts and regulation
- (iii) Low recycling
- (iv) Lack of treatment of waste
- (v) Lack of awareness in people and local bodies leading to less priority in solid waste management aspects
- (vi) Capacity constraint of local bodies in SWM leading to weakness in implementing Acts and regulations
- (vii) Weak coordination between local government bodies, NGOs and private sector
- (viii) Lack of adequate collection centers in public places.
- (ix) Lack of sufficient land fill sites
- (x) Weak monitoring
- (xi) Less orientation of managing waste for income generation with multiple uses
- (xii) Lack of effective move to bring private sector with the vision of commercial venture

- (xiii) Weak organizational resources, and
- (xiv) Lack of persuasion of recycling and composting at households level

The working policies regarding solid waste management under different components in the Three Year (TYP) for the year 2011/012-2013/014 of the country are as follows.

- The construction of proper land fill site will be encouraged in all municipalities and urbanizing village development committees.
- Solid waste collection, separation, transportation, compost plant and sanitary land fill site development and operation related study of the urbanizing VDCs and Municipalities will be carried out and necessary policy, norms, guidelines/directives and working procedures will be prepared and program will be implemented.
- In the solid waste management, the concept of public private partnership will be adopted and this practice will be started in big municipalities in the participation of private sector.
- Private and community sector will be involved and given ownership in the waste management and cleanliness of the rural and urban area.
- To manage solid waste in the urbanizing VDCs, natural resources like rivers and lands will be managed to safeguard them from pollution.
- For the generation of energy through municipal waste for domestic use and for operating the pilot project in some places, partnership will be promoted with local bodies and private sector.
- The community and institutional bio-gas systems will be promoted and expanded.
- Awareness programs will be launched through different national and local communication media, local NGOs and community organizations to make the people aware of environment related issues at local levels.

Under the public private partnership, the local bodies (Municipalities and urbanizing Village Development Committees) have already started partnership with private sector including NGOs in the area of awareness campaign, compost manure making, management of landfill site, energy development, etc.

### 4. Solid Waste Management Plan of Sankhu

### 4.1 Goal of the plan

The goal of this plan is to make Sankhu a cleaned city free from pollution through effective management of solid waste.

### 4.2. Objectives

The objectives of this project are mentioned below.

- I. To develop solid waste management system in Sankhu
- II. To establish city level composting plants, explore and develop strategies to link with clean development mechanism (CDM) to generate revenues from solid waste
- III. To establish short and long term sanitary landfill sites for solid waste disposal
- IV. To encourage private sector in public private partnership (PPP) for the management of waste
- V. To raise public awareness and advocacy campaigns to follow waste management practices including household level composting
- VI. To build capacity of local communities/clubs/NGOs, public sector organizations and other stakeholders to manage waste in the city
- VII. To prevent disposal of waste in and around water bodies and temples and rehabilitate existing ponds of Sankhu
- VIII. To promote total sanitation (no open defecation) with best available technologies such as eco-san, biogas, safety tank, etc.
  - IX. To promote organic farming and discourage use of pesticide and chemical fertilizers

### 4.3. Working Strategy

The working strategies of the project are described shortly below.

- a) The system of solid waste collection, separation, transportation, and compost plant and land fill site will be carried out and implemented.
- **b)** The concept of public private partnership will be adopted in managing solid waste in the city.
- c) Land and rivers will be managed to safeguard Sali River and other natural resources of the city from pollution in managing the solid waste management of the city.
- d) The community bio-gas system will be promoted and implemented.
- e) The construction of proper land fill sites will be encouraged.
- **f)** Peoples' awareness programmes will be launched involving local community, women, youths and students.

**g)** Households will be encouraged to reduce and reuse solid wastes and practice to convert solid wastes as their income source.

### 5. Achievement of Targeted outcome and output of the Plan

### 5.1 Outcome Target Achievement:

The target outcome of the plan is "Solid waste management in the Sankhu city is improved and the city is cleaner." It has been understood from the discussion with the focused groups and key informants that the level of solid waste management in the city is improved and the city is clean in comparison to the three year back. But the improvement is still needed and cleanliness is improving but not in complete satisfactory, and thus, more efforts are necessary to improve the scenario and make the city clean.

### 5.2 Outputs Target Achievement:

Following table shows achievements found against the outputs.

| S.No. | Output Target              | Achievement                              |
|-------|----------------------------|--|
| 1     | Volume of waste is reduced | The participants in the FGD, key         |
|       | and the volume of reusing  | informants and others told that the      |
|       | solid waste is increased.  | project intervention in the city helped  |
|       |                            | the local people to separate their solid |
|       |                            | wastes as organic and non-organic,       |
|       |                            | reusing the organic wastes and           |
|       |                            | disposing only non-organic solid         |
|       |                            | wastes. So they expressed that the       |
|       |                            | volume of disposing household solid      |
|       |                            | wastes is reduced to some extent and     |
|       |                            | the habit of reusing solid waste by the  |
|       |                            | households is increased.                 |
| 2     | Disposal of solid waste is | It is known from the discussion,         |
|       | managed and the waste is   | interview and observation that disposal  |
|       | not disposed in the Sali   | of solid waste in the Sali River is      |
|       | River.                     | reduced, but still wastes disposed in    |
|       |                            | the river side can be seen.              |
| 3     | Bio-gas plant using solid  | AEPC has completed the feasibility       |
|       | waste is constructed and   | study of bio-gas plant construction and  |
|       | operated.                  | operation in Pukhulachhi of Sankhu,      |
|       |                            | but it is not yet implemented in the     |
|       |                            | absence of matching local finance        |
|       |                            | required. It is hoped that SSWMC will    |

|   |                               | be able to manage that with support       |
|---|-------------------------------|---|
|   |                               | from the newly formed Sankharapur         |
|   |                               | municipality and DDC.                     |
| 4 | Sewerage system is            | Sewerage system was not constructed       |
|   | constructed and all liquid    | and the traditional old system in         |
|   | wastes pass through the       | operation. It is hoped that the newly     |
|   | system to its final disposal. | formed Sankharapur municipality will      |
|   |                               | take up the problem and solve that with   |
|   |                               | support from the relevant GOs.            |
| 5 | Households in the city have   | SWMRMC has provided five compost          |
|   | used Compost bins or Pit      | bins with 2000 liter capacity and 12      |
|   | composting is in use.         | dust bins to SSWMC, Sankhu, which         |
|   |                               | are in use by household to dispose        |
|   |                               | non-organic solid wastes. Most of the     |
|   |                               | households are using Pit Composting       |
|   |                               | in their garden land. Non-organic solid   |
|   |                               | wastes particularly plastic materilas are |
|   |                               | being collected by SSWMC and send         |
|   |                               | to NEPSEMAC I Kathmandu. The local        |
|   |                               | households dispose their non-organic      |
|   |                               | waste to Collectors(Kabadis), who         |
|   |                               | come in the city occasionally to collect  |
|   |                               | such materials.                           |
| 6 | I raining programmes on       | The project conducted training on         |
|   | technical and managerial      | Compost Bin and it's role in solid waste  |
|   | aspects of solid waste        | management, vermi-Composting,             |
|   | management are conducted      | Zero-waste technology for the local       |
|   |                               | NCOs of Conkbuin 2012 2014 One            |
|   |                               | NGOS OF Sankhu In 2013-2014. One          |
|   |                               | solid waste Management training was       |
|   |                               | conducted on november 2014                |
|   |                               | regidente. These training have been       |
|   |                               | offective to aware the local people on    |
|   |                               | solid waste management, reduce the        |
|   |                               | volume of solid waste and rouse the       |
|   |                               | solid waste in the city                   |
| 7 | Workshops and campaigns       | Four workshops were conducted in          |
| ' | to raise public awareness on  | 2012-2013 Two workshops were              |
|   | solid waste management        | conducted which was one in                |
|   | are conducted                 | Kathmandu and another in Sankhu           |
|   |                               | One workshop was conducted in             |
|   |                               | Sankhu on March 2013 to discuss on        |
|   |                               | Sankhu on March 2015 to discuss on        |

| the plan document with the local           |
|--|
| stakeholders and other workshop was        |
| organized in Kathmandu to share the        |
| plan document to the GOs, INGOs,           |
| NGOs, and other stakeholders.              |
| Trained eighteen local women to work       |
| as the Solid Waste Management              |
| Promoters, formed three groups with        |
| four promoters in each group, and          |
| assigned them to visit the local houses    |
| and provide the households to raise        |
| awareness and manage solid waste.          |
| A workshop to raise awareness of the       |
| local people was conducted on              |
| December 2013, which was                   |
| participated by fifty three local persons. |
| A workshop was conducted in Sankhu         |
| on July 2014 for the local residents to    |
| raise their awareness to manage solid      |
| waste and reduce solid waste               |
| management cost. Sankharapur Solid         |
| Waste management Committee in              |
| Sankhu has done campaigns on the           |
| solid waste management involving the       |
| local women, youths and students time      |
| to time.                                   |
| All these workshops and campaigns          |
| helped in sharing the plan and the         |
| project and aware the local residents      |
| about the solid waste management           |
| need and skills.                           |

## **5.3 Achievement in Implementation of the Action Plans:**

### 5.3.1 In FY 2012-2013

| Prog<br>Mana | Progress report on JES/NES Joint Study Project on Solid Waste<br>Management In Nepal up to March 24, 2013 |   |                |   |  |  |  |
|--------------|---|---|----------------|---|--|--|--|
| No.          | Description   | Progress  | Responsibility | Remarks   |  |  |  |
| 1.0          | Opening of the project  |   |                |   |  |  |  |
| 1.1          | Initial workshop in<br>Kathmandu  | A half-a-day<br>workshop was<br>organized on 9<br>July at the KFA | NES/JES        | Dr. D.G.J.<br>Premakumara,<br>Researcher,<br>Kitakyushu |  |  |  |

|     |                                | Business          |                |                 | Urban Center,    |
|-----|--------------------------------|-------------------|----------------|-----------------|------------------|
|     |                                | School jointly    |                |                 | IGES visited the |
|     |                                | by NES/JES to     |                |                 | project from     |
|     |                                | brief the project |                |                 | July 6-12, 2013  |
|     |                                | and to share      |                |                 | and participated |
|     |                                | the               |                |                 | in the           |
|     |                                | experiences of    |                |                 | workshop.        |
|     |                                | solid waste       |                |                 |                  |
|     |                                | management in     |                |                 |                  |
| 1.0 | laitial wardeek en in Openlehu | Nepai and Asia    |                |                 |                  |
| 1.2 | Initial workshop in Saankhu    | A workshop        | NES/JES        |                 | Dr. D.G.J.       |
|     | City                           | was organized     |                |                 | Premakumara,     |
|     |                                | on 12 July to     |                |                 | Kesearcher,      |
|     |                                | brief the project |                |                 | Lirban Contor    |
|     |                                | and also to       |                |                 | IGES visited the |
|     |                                | understand the    |                |                 | nroject from     |
|     |                                | nresent           |                |                 | July 6-12 2013   |
|     |                                | situation on      |                |                 | and participated |
|     |                                | solid waste       |                |                 | in the           |
|     |                                | management        |                |                 | workshop         |
|     |                                |                   |                |                 |                  |
| 2.0 | Establishment of Solid Waste   | Management Pl     | an Review Com  | nittee of Saank | chu Citv         |
| 2.0 | Identify relevant mombors      |                   |                |                 |                  |
| 2.1 | and formation of the           | A commutee        | NES            |                 |                  |
|     | committee (including different | established       |                |                 |                  |
|     | stakeholders)                  | (including        |                |                 |                  |
|     |                                | members from      |                |                 |                  |
|     |                                | NES. DDC.         |                |                 |                  |
|     |                                | VDC.              |                |                 |                  |
|     |                                | sanitation        |                |                 |                  |
|     |                                | committee,        |                |                 |                  |
|     |                                | representatives   |                |                 |                  |
|     |                                | from              |                |                 |                  |
|     |                                | households)       |                |                 |                  |
|     |                                | and is            |                |                 |                  |
|     |                                | functional.       |                |                 |                  |
| 2.2 | Conduct 4 review meetings      | Completed         |                |                 |                  |
|     | in Kathmandu and Saankhu       |                   |                |                 |                  |
|     | City as scheduled              |                   |                |                 |                  |
|     |                                |                   |                |                 |                  |
| 3.0 | Review and analysis of the cu  | rrent solid waste | e management p | lan of Governm  | ent of Nepal     |
| 3.1 | Review national policies and   | Completed         | NES            |                 |                  |
|     | Acts related solid waste       |                   |                |                 |                  |
|     | management (Solid Waste        |                   |                |                 |                  |
|     | Management Act 2011)           |                   |                |                 |                  |
| 3.2 | Prepare an issue paper         | Completed and     | NES            |                 |                  |
|     |                                | Submitted the     | IES had to     |                 |                  |
|     |                                | IES on            | provide        |                 |                  |
|     |                                | December          | provide        |                 |                  |
|     |                                | 2012              | technical      |                 |                  |
|     |                                | 2012.             | assistance     |                 |                  |
| 33  | Document the best practices    | Completed and     | NFS            |                 |                  |
| 0.0 | on community-based solid       | submitted the     |                |                 |                  |
|     | waste management and 3R        | document to       |                |                 |                  |
|     | practices in Kathmandu         | JES on March      |                |                 |                  |
|     |                                | 2013              |                |                 |                  |

| 34  | Preparation of case study                  | Completed and                                     | NES                 | -              | -          |
|-----|--|---|---------------------|----------------|------------|
| 0.7 | reparation of case study                   | completed and                                     | NEO                 |                |            |
|     |  |   |                     |                |            |
|     | learned for replication                    | Best Practice                                     | JES had to          |                |            |
|     |  | document as                                       | provide             |                |            |
|     |  | mentioned in                                      | necessary           |                |            |
|     |  | 3.3.  | technical           |                |            |
|     |  | 0.0.  | assistance          |                |            |
|     |  |   | 45515141100         |                |            |
|     |  |   |                     |                |            |
| 4.0 | Conduct a sample study to un Saankhu City. | derstand the act                                  | tual situation of s | olid waste mar | agement in |
| 4.1 | Carrvout a sample survey/                  | Completed and                                     | NES                 |                |            |
|     | site visit and identify the                | submitted the                                     |                     |                |            |
|     | existing challenges                        | final survey                                      | IES had to          |                |            |
|     | existing challenges,                       | ninai Suivey                                      |                     |                |            |
|     | possibilities and local                    | report on   | provide some        |                |            |
|     | resources at Saankhu City for              | January 2013.                                     | guidelines for      |                |            |
|     | establishing solid waste                   |   | this survey         |                |            |
|     | management system                          |   |                     |                |            |
| 4.2 | Draft a new waste                          | First Interim                                     | NES                 |                |            |
|     | management plan for                        | Draft of the                                      |                     |                |            |
|     | Saankhu City                               | Waste   | In collaboration    |                |            |
|     | Saanking City                              | Managamant  | and technical       |                |            |
|     |  | Management  | and technical       |                |            |
|     |  | Plan submitted                                    | assistance          |                |            |
|     |  | to JES on 21st                                    | from JES            |                |            |
|     |  | January 2013                                      | (based on their     |                |            |
|     |  | -   | experiences in      |                |            |
|     |  |   | Japan and           |                |            |
|     |  |   | other Asian         |                |            |
|     |  |   | Countrion)          |                |            |
| 1.0 |  |   |                     |                |            |
| 4.3 | Organize 4 exchange visits                 | Organized one                                     | NES                 |                |            |
|     | for VDC members, CSO                       | exchange visit                                    |                     |                |            |
|     | members and any other NGO                  | for VDC   |                     |                |            |
|     | or private groups between                  | members,  |                     |                |            |
|     | Saankhu City, its neighboring              | CSO   |                     |                |            |
|     | villages and Kathmandu                     | members.  |                     |                |            |
|     | -9   | NGOs and  |                     |                |            |
|     |  | othor privato                                     |                     |                |            |
|     |  |   |                     |                |            |
|     |  | groups of   |                     |                |            |
|     |  | Saankhu city in                                   |                     |                |            |
|     |  | Environment                                       |                     |                |            |
|     |  | Conservation                                      |                     |                |            |
|     |  | Initiative,                                       |                     |                |            |
|     |  | Ratopul   |                     |                |            |
|     |  | Kathmandu   |                     |                |            |
| I   |  | i tati ina ila ila ila ila ila ila ila ila ila il |                     |                |            |
|     |  | - ( - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1           | 0                   |                |            |
| 5.0 | Conduct a workshop with the                | stakeholders in S                                 | Saankhu City        | [              | l          |
| 5.1 | Discuss the draft waste                    | A workshop  | NES                 |                |            |
|     | management plan with the                   | was organized                                     |                     |                |            |
|     | stakeholders                               | in Saankhu on                                     |                     |                |            |
|     |  | March 2013  |                     |                |            |
|     |  | and presented                                     |                     |                |            |
|     |  | the survey  |                     |                |            |
|     |  | report and Eirot                                  |                     |                |            |
|     |  | report and First                                  |                     |                |            |
|     |  | Interim Draft                                     |                     |                |            |
|     |  | Plan.   |                     |                |            |
| 5.2 | Getting common agreement                   | Completed   | NES                 |                |            |
|     | to the proposed action plan                |   |                     |                |            |
|     | •  |   | In consultation     |                |            |
|     |  |   | with other          |                |            |
|     |  |   | partners            |                |            |

| 5.3 | Conduct orientation for<br>implementation                                    | Completed        | NES<br>In consultation<br>with other<br>partners   |  |
|-----|--|------------------|--|--|
| 6.0 | Documentation and information  | on dissemination |  |  |
| 6.1 | Preparation of interim and final reports                                     | Completed        | NES<br>In collaboration<br>with JES  |  |
| 6.2 | Organize a grand workshop<br>in Kathmandu for sharing the<br>project outputs | Completed        | NES<br>In collaboration<br>with JES,<br>inviting both<br>policy makers<br>and<br>practitioners |  |

### 5.3.2 In FY 2013-2014

| JFIR/I<br>Actio | NES Joint Study Project o<br>n Plan for the FY 2013 ( A   | n Solid<br>oril 201:          | Waste Mana<br>3 to March 20 | gement In Nep<br>)14) | al   |
|-----------------|---|-------------------------------|-----------------------------|-----------------------|--|
| No.             | Description   | Time                          | Responsibility              | Progress              | Remarks  |
| 1.0             | Establishment of Solid Waste Ma   | anagemer                      | nt Committee (S             | WMC) of Sankhu (      | City   |
| 1.1             | Identify relevant members and<br>formation of the committee<br>(including different<br>stakeholders)  | July                          | NES                         | Formed                | The committee<br>will be composed<br>of different<br>stakeholders<br>from all three<br>VDCs of Sankhu. |
| 1.2             | Conduct 4 review meetings in<br>Sankhu City as scheduled  | July,<br>Sept,<br>Dec,<br>Feb | SWMC                        | Completed             | JFIR and NES<br>will join the<br>meetings.   |
| 1.3             | Implement Solid Waste<br>Management Plan of Sankhu<br>with support of different funding<br>agencies   | July-<br>March                | SWMC                        | in process            | JFIR and NES<br>will facilitate in<br>finding funding<br>agencies and<br>implement it.                 |
| 2.0             | Conduct an Awareness Raising  | Workshop                      | on solid waste              | management in Sa      | ankhu  |
| 2.1             | Conduct a workshop in Sankhu<br>for local residents to raise their<br>awareness to manage solid<br>waste  | July                          | NES                         | Conducted             |  |
| 3.0             | Conduct Solid Waste Manageme  | ent trainin                   | g for the local re          | esidents in Sankhu    | City   |
| 3.1             | Conduct training on Compost<br>Bin and its role in solid waste<br>management for the local<br>residents including women,<br>youths and NGOs of Sankhu       | Oct/Nov                       | NES                         | Conducted             | This training will<br>be organized by<br>NES jointly with<br>SWMC.                                     |
| 3.2             | Conduct training on Vermi-<br>composting and its role in solid<br>waste management for the local<br>residents including women,<br>youths and NGOs of Sankhu | Oct/Nov                       | NES                         | Conducted             | This training will<br>be organized by<br>NES jointly with<br>SWMC.                                     |
| 3.3             | Conduct training on Zero Waste Technology and its role in solid   | Oct/Nov                       | NES                         | Conducted             | This training will<br>be organized by  |

|     | waste management for the local<br>residents including women,<br>youths and NGOs of Sankhu   |                             |                 |                                 | NES jointly with SWMC.  |
|-----|---|-----------------------------|-----------------|---------------------------------|---|
|     |   |                             |                 |                                 |   |
| 4.0 | Form a group of trainers and mo   | bilizers to                 | promote solid w | vaste management                | t in Sankhu   |
| 4.1 | Form three group of Solid<br>Waste Management Promoters<br>(four persons from three VDC)<br>to raise awareness and<br>promote solid waste<br>management in Sankhu | Sept/Oct                    | SWMC            | Formed                          | The formation<br>will be done by<br>SWMC in<br>consultation with<br>NES |
| 4.2 | Trainers and Social Mobilizers<br>provide necessary consultation<br>to households to raise<br>awareness and manage solid<br>waste in Sankhu                       | Oct,<br>Nov,<br>Dec,<br>Jan | SWMC            | in operation                    | NES will monitor<br>the activity and<br>facilitate.                     |
| 5.0 | Organize exchange visits  |                             |                 |                                 |   |
| 5.1 | Organize exchange visits for<br>VDC members, CSO members<br>and NGO or private groups<br>between Sankhu City, its<br>neighboring villages and<br>Kathmandu        | Sep/Jan                     | NES             | Two exchange<br>visit organized |   |
|     |   |                             | I               | I                               |   |
| 6.0 | Review implementation of Solid  | Waste Ma                    | anagement Plan  | of Sankhu                       |   |
| 6.1 | Review implementation of Solid<br>waste management plan of<br>Sankhu  | Jan                         | NES             | Reviewed                        |   |
| 6.2 | Prepare a review paper  | Jan                         | NES             | prepared as<br>interim report   | JFIR will provide<br>necessary<br>technical<br>assistance               |
| 6.3 | Conduct a workshop in Sankhu<br>to appraise the implementation<br>progress and take feedback  | Feb                         | NES             | Conducted                       |   |
| 6.4 | Conduct a workshop in<br>Kathmandu to appraise the<br>implementation progress, take<br>feedback and recommend<br>changes necessary.                               | March                       | NES             | Not completed                   | JFIR will provide<br>necessary<br>technical<br>assistance               |
|     |   |                             | -               |                                 |   |
| 7.0 | Documentation and information   | dissemina                   | ition           | 1                               |   |
| 7.1 | Preparation of interim report   | Oct                         | NES             | Prepared                        | In collaboration<br>with JFIR   |
| 7.2 | Preparation of final report   | March                       | NES             | Prepared                        | In collaboration<br>with JFIR   |

### 5.3 In FY 2014/2015

| JFIR<br>Revi | R/NES Joint Study Project on Solid Waste Management In Nepal<br>ised Action Plan for the FY 2014/2015 ( April 2014 to March 2015)        |                  |                  |                                     |  |  |  |
|--------------|--|------------------|------------------|-------------------------------------|--|--|--|
| No.          | Description  | Time             | Responsibility   | Supporting agency                   | Progress up to   |  |  |
|              |  |                  |                  |                                     | Jan 2015   |  |  |
| 1.0          | Operationalisation of Sankhu City  | of Sankhara      | apur Solid Waste | Management Committe                 | e (SSWMC) of   |  |  |
| 1.1          | Acquire land for<br>collection and<br>segregation of solid<br>wastes of Sankhu<br>city   | Apr-Sep,<br>2014 | SSWMC            | Local community,<br>VDCs            | SSWMC has<br>taken initiative to<br>acquire land and<br>discussion with<br>newly formed city<br>office is in<br>progress.  |  |  |
| 1.2          | Manage tricycle,<br>plastic buckets and<br>other materials and<br>equipments<br>necessary for<br>collecting<br>household solid<br>wastes | Apr-Sep,<br>2014 | SSWMC            | DDC, VDC, SWMRMC,<br>INGOs,<br>NGOs | SWMRMC has<br>provided 5<br>compost bins and<br>12 waste<br>collection buckets<br>to SSWMC. NES<br>has provided one<br>compost bin to<br>SSWMC. Effort is<br>made to acquire<br>tri-cycle and<br>equipments from<br>GOs and NGOs,<br>but still not<br>successful.<br>JFIR/NES team<br>approached<br>UNDP, UNICEF,<br>JICA Nepal, UN-<br>Habitat, MOLD,<br>SWMRMC for<br>support to<br>SSWMC in<br>managing such<br>materials and |  |  |
| 1.3          | Appoint necessary<br>manpower for<br>collecting,<br>segregating and<br>disposing sold<br>wastes  | Apr-Sep,<br>2014 | SSWMC            | Local community,<br>VDCs            | This has not<br>been done.   |  |  |
| 1.4          | Establish and<br>operate collection,<br>segregation and<br>disposal center   | Apr-Sep,<br>2014 | SSWMC            | Local community,<br>VDCs            | SSWMC has<br>identified lands<br>for the collection<br>centers, but not<br>started as land<br>for the work is not<br>yet available.  |  |  |
| 1.5          | Collect household solid wastes, segregate and  | Apr-Sep,<br>2014 | SSWMC            | Local community,<br>VDCs            | Partially done   |  |  |

|      | dispose solid  |   |                |  |  |  |
|------|--|---|----------------|--|--|--|
| 1.6  | Manage dumping<br>sites for disposing<br>not reusable solid<br>wastes  | Apr-Sep,<br>2014                        | SSWMC          | VDCs, DC, KMC                              | Not yet done.  |  |
| 1.7  | Manage<br>networking to sell<br>reusable solid<br>wastes   | Apr-Sep,<br>2014                        | SSWMC          | NGOs involved in solid<br>waste management | Trying to<br>establish network<br>with NEPSEMAC<br>and other solid<br>waste<br>management<br>NGOs.   |  |
| 1.8  | Conduct minimum<br>six meetings of the<br>SSWMC within two<br>months after each<br>meeting.  | Apr'14-<br>Mar'15                       | SSWMC          |  | Meeting<br>conducted   |  |
| 1.9  | Trainers and Social<br>Mobilizers provide<br>necessary<br>consultation to<br>households to raise<br>awareness and<br>manage solid<br>waste in Sankhu | August,<br>October,<br>December<br>2014 | SSWMC          | JFIR,NES                                   | Social Mobilizers<br>provided<br>consultation and<br>raised awareness  |  |
| 1.10 | Prepare and<br>display hoarding<br>boards/Radio<br>communication for<br>Public Notice  | July 2014                               | SSWMC          | VDC, SMRMC                                 | Not yet done<br>due to funding<br>problem.   |  |
| 1.11 | Survey design and<br>establishment of<br>Biogas plant at or<br>near Slaughter<br>House and<br>formation of a sub-<br>committee for the<br>management | May-July<br>2014                        | AEPC,<br>SSWMC | VDC,DDC                                    | Survey design<br>conducted by<br>AEPCC<br>Consultant As<br>informed by<br>AEPC, Draft<br>report including<br>land planning,<br>pipe layout<br>planning,<br>piping and<br>instrumentation<br>diagram,<br>environmental<br>and social<br>management<br>framework is<br>prepared. |  |
| 1.12 | Develop and<br>conduct Training<br>Programs for<br>operation and<br>maintenance of the<br>Collection centre,<br>Biogas plant and<br>Compost Plant    | October<br>2014                         | AEPC,<br>SSWMC | VDC,DDC,SWMRMC                             | Not yet done   |  |
| 2.0  | Environment Protec   | tion Program                            | m              |  |  |  |
|      |  |   |                |  |  |  |

|                               | Construction and  | Nov-Dec.  | SSWMC, Local                    | DDC  | No progress due  |     |
|-------------------------------|---|---|---------------------------------|--|--|-----|
|                               | operation of  | 2014  | community,                      |  | to funding   |     |
|                               | community toilet  |   | Local VDC                       |  | problem.   |     |
| 2.2                           | Conduct public  | August-   | SSWMC, Local                    | DDC  | Conducted one  |     |
|                               | rallies campaign  | Sept.   | community,                      |  | time   |     |
|                               | and street drama  | 2014  | Local VDC                       |  |  |     |
|                               | with participation of   |   |                                 |  |  |     |
|                               | the local women,  |   |                                 |  |  |     |
|                               | youths and  |   |                                 |  |  |     |
|                               | students focusing   |   |                                 |  |  |     |
|                               | on managing   |   |                                 |  |  |     |
|                               | household waste   |   |                                 |  |  |     |
|                               | by each household   |   |                                 |  |  |     |
|                               | and make the city   |   |                                 |  |  |     |
|                               | clean preserving  |   |                                 |  |  |     |
|                               | environment.  |   |                                 |  |  |     |
|                               |   |   |                                 |  |  |     |
| 30                            | Conduct an Awaran   | ess Raieir  | ng Workshop op s                | olid waste management                              |  |     |
| 3.0                           | in Sankhu   | 033 1/01311   |                                 | ond waste management                               |  |     |
| 31                            | Conduct a   | July 2014   | NES                             | SSWMC  | Completed  |     |
| 0.1                           | workshon in   | 501y 2014   |                                 |  | Completed  |     |
|                               | Sankhu for local  |   |                                 |  |  |     |
|                               | residents to raise  |   |                                 |  |  |     |
|                               | their awareness to  |   |                                 |  |  |     |
|                               | manage solid  |   |                                 |  |  |     |
|                               | waste and reduce  |   |                                 |  |  |     |
|                               | solid waste   |   |                                 |  |  |     |
|                               | management cost   |   |                                 |  |  |     |
|                               | inanagement cost  |   |                                 | I  |  |     |
| 1.0                           |   |   |                                 |  |  |     |
| 4.0                           | Conduct Solid Wast  | e Manage  | ment training for               | the local residents in Sar                         | iknu City  |     |
|                               |   |   |                                 |  |  |     |
| 4.1                           | Conduct one   | Oct/Nov   | NES                             | SSWMC  | Completed  |     |
| 4.1                           | training on solid   | Oct/Nov<br>2014   | NES                             | SSWMC  | Completed  |     |
| 4.1                           | Conduct one<br>training on solid<br>waste   | Oct/Nov<br>2014   | NES                             | SSWMC  | Completed  |     |
| 4.1                           | training on solid<br>waste<br>management for  | Oct/Nov<br>2014   | NES                             | SSWMC  | Completed  |     |
| 4.1                           | training on solid<br>waste<br>management for<br>the local residents   | Oct/Nov<br>2014   | NES                             | SSWMC  | Completed  |     |
| 4.1                           | Conduct one<br>training on solid<br>waste<br>management for<br>the local residents<br>including women,  | Oct/Nov<br>2014   | NES                             | SSWMC  | Completed  |     |
| 4.1                           | training on solid<br>waste<br>management for<br>the local residents<br>including women,<br>youths and NGOs  | Oct/Nov<br>2014   | NES                             | SSWMC  | Completed  |     |
| 4.1                           | Conduct one<br>training on solid<br>waste<br>management for<br>the local residents<br>including women,<br>youths and NGOs<br>of Sankhu  | Oct/Nov<br>2014   | NES                             | SSWMC  | Completed  |     |
| 4.1                           | Conduct one<br>training on solid<br>waste<br>management for<br>the local residents<br>including women,<br>youths and NGOs<br>of Sankhu  | Oct/Nov<br>2014   | NES                             | SSWMC  | Completed  |     |
| 4.1                           | Conduct one<br>training on solid<br>waste<br>management for<br>the local residents<br>including women,<br>youths and NGOs<br>of Sankhu<br>Mobilize 12 Promote   | Oct/Nov<br>2014<br>ers to raise   | NES                             | SSWMC  | Completed<br>anagement in Sank   | ſhu |
| 4.1                           | Conduct one<br>training on solid<br>waste<br>management for<br>the local residents<br>including women,<br>youths and NGOs<br>of Sankhu<br>Mobilize 12 Promote<br>Trainers and Social  | Oct/Nov<br>2014<br>ers to raise<br>August.  | NES<br>e awareness and<br>SSWMC | SSWMC<br>to promote solid waste m<br>JFIR          | Completed<br>anagement in Sank   | khu |
| 4.1<br>5<br>5.1               | Conduct one<br>training on solid<br>waste<br>management for<br>the local residents<br>including women,<br>youths and NGOs<br>of Sankhu<br>Mobilize 12 Promote<br>Trainers and Social<br>Mobilizers provide  | Oct/Nov<br>2014<br>ers to raise<br>August,<br>October.  | NES<br>e awareness and<br>SSWMC | SSWMC<br>to promote solid waste m<br>JFIR          | Completed<br>anagement in Sank<br>Social Mobilizers<br>provided  | (hu |
| 4.1<br>5<br>5.1               | Conduct one<br>training on solid<br>waste<br>management for<br>the local residents<br>including women,<br>youths and NGOs<br>of Sankhu<br>Mobilize 12 Promote<br>Trainers and Social<br>Mobilizers provide<br>necessary   | Oct/Nov<br>2014<br>ers to raise<br>August,<br>October,<br>Dec,                                      | NES<br>e awareness and<br>SSWMC | SSWMC<br>to promote solid waste m<br>JFIR          | Completed<br>anagement in Sank<br>Social Mobilizers<br>provided<br>consultation and                                  | shu |
| 4.1<br>5<br>5.1               | Conduct one<br>training on solid<br>waste<br>management for<br>the local residents<br>including women,<br>youths and NGOs<br>of Sankhu<br>Mobilize 12 Promote<br>Trainers and Social<br>Mobilizers provide<br>necessary<br>consultation to  | Oct/Nov<br>2014<br>ers to raise<br>August,<br>October,<br>Dec,<br>2014                              | NES                             | SSWMC<br>to promote solid waste m<br>JFIR          | Completed<br>anagement in Sank<br>Social Mobilizers<br>provided<br>consultation and<br>raised awareness              | khu |
| 4.1<br>5<br>5.1               | Conduct one<br>training on solid<br>waste<br>management for<br>the local residents<br>including women,<br>youths and NGOs<br>of Sankhu<br>Mobilize 12 Promote<br>Trainers and Social<br>Mobilizers provide<br>necessary<br>consultation to<br>households to raise   | Oct/Nov<br>2014<br>ers to raise<br>August,<br>October,<br>Dec,<br>2014                              | NES                             | SSWMC<br>to promote solid waste m<br>JFIR          | Completed<br>anagement in Sank<br>Social Mobilizers<br>provided<br>consultation and<br>raised awareness              | khu |
| 4.1<br>5<br>5.1               | Conduct one<br>training on solid<br>waste<br>management for<br>the local residents<br>including women,<br>youths and NGOs<br>of Sankhu<br>Mobilize 12 Promote<br>Trainers and Social<br>Mobilizers provide<br>necessary<br>consultation to<br>households to raise<br>awareness and  | Oct/Nov<br>2014<br>ers to raise<br>August,<br>October,<br>Dec,<br>2014                              | NES                             | to promote solid waste m                           | Completed<br>anagement in Sank<br>Social Mobilizers<br>provided<br>consultation and<br>raised awareness              | khu |
| 4.1<br>5<br>5.1               | Conduct one<br>training on solid<br>waste<br>management for<br>the local residents<br>including women,<br>youths and NGOs<br>of Sankhu<br>Mobilize 12 Promote<br>Trainers and Social<br>Mobilizers provide<br>necessary<br>consultation to<br>households to raise<br>awareness and<br>manage solid  | Oct/Nov<br>2014<br>ers to raise<br>August,<br>October,<br>Dec,<br>2014                              | NES                             | SSWMC<br>to promote solid waste m<br>JFIR          | Completed<br>anagement in Sank<br>Social Mobilizers<br>provided<br>consultation and<br>raised awareness              | (hu |
| 4.1<br>5<br>5.1               | Conduct one<br>training on solid<br>waste<br>management for<br>the local residents<br>including women,<br>youths and NGOs<br>of Sankhu<br>Mobilize 12 Promote<br>Trainers and Social<br>Mobilizers provide<br>necessary<br>consultation to<br>households to raise<br>awareness and<br>manage solid<br>waste in Sankhu   | Oct/Nov<br>2014<br>ers to raise<br>August,<br>October,<br>Dec,<br>2014                              | NES<br>e awareness and<br>SSWMC | SSWMC<br>to promote solid waste m<br>JFIR          | Completed<br>anagement in Sank<br>Social Mobilizers<br>provided<br>consultation and<br>raised awareness              | thu |
| 4.1<br>5<br>5.1               | Conduct one<br>training on solid<br>waste<br>management for<br>the local residents<br>including women,<br>youths and NGOs<br>of Sankhu<br>Mobilize 12 Promote<br>Trainers and Social<br>Mobilizers provide<br>necessary<br>consultation to<br>households to raise<br>awareness and<br>manage solid<br>waste in Sankhu   | Oct/Nov<br>2014<br>ers to raise<br>August,<br>October,<br>Dec,<br>2014                              | NES<br>e awareness and<br>SSWMC | SSWMC<br>to promote solid waste m<br>JFIR          | Completed<br>anagement in Sank<br>Social Mobilizers<br>provided<br>consultation and<br>raised awareness              | ŝhu |
| 4.1<br>5<br>5.1<br>6.0        | Conduct one<br>training on solid<br>waste<br>management for<br>the local residents<br>including women,<br>youths and NGOs<br>of Sankhu<br>Mobilize 12 Promote<br>Trainers and Social<br>Mobilizers provide<br>necessary<br>consultation to<br>households to raise<br>awareness and<br>manage solid<br>waste in Sankhu   | Oct/Nov<br>2014<br>ers to raise<br>August,<br>October,<br>Dec,<br>2014<br>visits                    | NES                             | SSWMC<br>to promote solid waste m<br>JFIR          | Completed<br>anagement in Sank<br>Social Mobilizers<br>provided<br>consultation and<br>raised awareness              | (hu |
| 4.1<br>5<br>5.1<br>6.0<br>6.1 | Conduct one<br>training on solid<br>waste<br>management for<br>the local residents<br>including women,<br>youths and NGOs<br>of Sankhu<br>Mobilize 12 Promote<br>Trainers and Social<br>Mobilizers provide<br>necessary<br>consultation to<br>households to raise<br>awareness and<br>manage solid<br>waste in Sankhu<br>Organize exchange<br>Organize 1  | Oct/Nov<br>2014<br>ers to raise<br>August,<br>October,<br>Dec,<br>2014<br>visits                    | NES                             | SSWMC<br>to promote solid waste m<br>JFIR          | Completed<br>anagement in Sank<br>Social Mobilizers<br>provided<br>consultation and<br>raised awareness              | (hu |
| 4.1<br>5<br>5.1<br>6.0<br>6.1 | Conduct one<br>training on solid<br>waste<br>management for<br>the local residents<br>including women,<br>youths and NGOs<br>of Sankhu<br>Mobilize 12 Promote<br>Trainers and Social<br>Mobilizers provide<br>necessary<br>consultation to<br>households to raise<br>awareness and<br>manage solid<br>waste in Sankhu<br>Organize exchange<br>Organize 1<br>exchange visit for  | Oct/Nov<br>2014<br>ers to raise<br>August,<br>October,<br>2014<br>visits<br>October<br>2014         | NES e awareness and SSWMC       | SSWMC<br>to promote solid waste m<br>JFIR<br>SSWMC | Completed<br>anagement in Sank<br>Social Mobilizers<br>provided<br>consultation and<br>raised awareness              | (hu |
| 4.1<br>5<br>5.1<br>6.0<br>6.1 | Conduct one<br>training on solid<br>waste<br>management for<br>the local residents<br>including women,<br>youths and NGOs<br>of Sankhu<br>Mobilize 12 Promote<br>Trainers and Social<br>Mobilizers provide<br>necessary<br>consultation to<br>households to raise<br>awareness and<br>manage solid<br>waste in Sankhu<br>Organize exchange<br>Organize 1<br>exchange visit for<br>VDC members   | Oct/Nov<br>2014<br>ers to raise<br>August,<br>October,<br>2014<br>visits<br>October<br>2014         | NES                             | SSWMC<br>to promote solid waste m<br>JFIR<br>SSWMC | Completed<br>anagement in Sank<br>Social Mobilizers<br>provided<br>consultation and<br>raised awareness              | shu |
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| 4.1<br>5<br>5.1<br>6.0<br>6.1 | Conduct one<br>training on solid<br>waste<br>management for<br>the local residents<br>including women,<br>youths and NGOs<br>of Sankhu<br>Mobilize 12 Promote<br>Trainers and Social<br>Mobilizers provide<br>necessary<br>consultation to<br>households to raise<br>awareness and<br>manage solid<br>waste in Sankhu<br>Organize exchange<br>Organize 1<br>exchange visit for<br>VDC members,<br>CSO members and<br>NGO or private                 | Oct/Nov<br>2014<br>ers to raise<br>August,<br>October,<br>Dec,<br>2014<br>visits<br>October<br>2014 | NES                             | SSWMC<br>to promote solid waste m<br>JFIR<br>SSWMC | Completed<br>anagement in Sank<br>Social Mobilizers<br>provided<br>consultation and<br>raised awareness              | shu |
| 4.1<br>5<br>5.1<br>6.0<br>6.1 | Conduct one<br>training on solid<br>waste<br>management for<br>the local residents<br>including women,<br>youths and NGOs<br>of Sankhu<br>Mobilize 12 Promote<br>Trainers and Social<br>Mobilizers provide<br>necessary<br>consultation to<br>households to raise<br>awareness and<br>manage solid<br>waste in Sankhu<br>Organize 1<br>exchange visit for<br>VDC members,<br>CSO members and<br>NGO or private<br>groups between                    | Oct/Nov<br>2014<br>ers to raise<br>August,<br>October,<br>Dec,<br>2014<br>visits<br>October<br>2014 | NES                             | SSWMC<br>to promote solid waste m<br>JFIR<br>SSWMC | Completed<br>anagement in Sank<br>Social Mobilizers<br>provided<br>consultation and<br>raised awareness<br>Completed | shu |
| 4.1<br>5<br>5.1<br>6.0<br>6.1 | Conduct one<br>training on solid<br>waste<br>management for<br>the local residents<br>including women,<br>youths and NGOs<br>of Sankhu<br>Mobilize 12 Promote<br>Trainers and Social<br>Mobilizers provide<br>necessary<br>consultation to<br>households to raise<br>awareness and<br>manage solid<br>waste in Sankhu<br>Organize 1<br>exchange visit for<br>VDC members,<br>CSO members and<br>NGO or private<br>groups between<br>Sankhu Citv_its | Oct/Nov<br>2014<br>ers to raise<br>August,<br>October,<br>2014<br>visits<br>October<br>2014         | NES                             | SSWMC<br>to promote solid waste m<br>JFIR<br>SSWMC | Completed<br>anagement in Sank<br>Social Mobilizers<br>provided<br>consultation and<br>raised awareness<br>Completed | (hu |

|     | villages and                                    |               |                  |                     |                 |  |
|-----|---|---------------|------------------|---------------------|-----------------|--|
|     | Kathmandu                                       |               |                  |                     |                 |  |
|     |   |               |                  |                     |                 |  |
| 7.0 | Review implementa                               | tion of So    | lid Waste Manage | ment Plan of Sankhu | <u> </u>        |  |
| 7.1 | Review  | Jan           | NES              |                     | Completed       |  |
|     | implementation of                               | 2015          |                  |                     |                 |  |
|     | Solid waste                                     |               |                  |                     |                 |  |
|     | management plan                                 |               |                  |                     |                 |  |
| 7.0 | of Sanknu                                       | lan           |                  |                     | O a man la ta d |  |
| 1.2 | Prepare a review                                | Jan           | NES/JFIR         |                     | Completed       |  |
| 7.0 | paper<br>Canduat a                              | 2015<br>Marah |                  |                     | Completed       |  |
| 1.5 | workshop in                                     | 2015          | INEO/JFIK        |                     | Completed       |  |
|     | Sankhu to annraise                              | 2015          |                  |                     |                 |  |
|     | the implementation                              |               |                  |                     |                 |  |
|     | progress and take                               |               |                  |                     |                 |  |
|     | feedback  |               |                  |                     |                 |  |
|     |   | •             |                  |                     |                 |  |
| 8.0 | 8.0 Documentation and information dissemination |               |                  |                     |                 |  |
| 8.1 | Preparation of                                  | Feb.          | NES/JFIR         | SSWMC               | Prepared        |  |
|     | interim report                                  | 2014          |                  |                     |                 |  |
| 8.2 | Preparation of final                            | March         | NES/JFIR         | SSWMC               | Prepared        |  |
|     | report  | 2015          |                  |                     |                 |  |

### 5.4 Targets Not Achieved:

The following activities are not yet completed:

#### FY 2013-2014

- a. Implement Solid Waste Management Plan of Sankhu with support of different funding agencies was targeted in the FY 2012-2013. It's responsibility was given to the SSWMC, and JFIR and NES had to facilitate in finding funding agencies and implement it. However, the target could not be completed in the year and could not be completed even after the year despite some efforts.
- b. A workshop was targeted in Kathmandu on March 2014 to appraise the implementation progress, take feedback and recommend changes necessary. The workshop could not be conducted due to resource problems.

### FY 2014-2015

- a. Acquire land for collection and segregation of solid wastes of Sankhu city within September 2014 is the responsibility assigned to the SSWMC, which is not yet completed. It is understood that SSWMC has taken initiative to acquire land and discussion with newly formed Sankharapur Municipality office.
- SWMRMC has provided 5 compost bins and 12 waste collection buckets to SSWMC. NES has also provided one compost bin to SSWMC. SSWMC has requested tri-cycles and necessary waste collecting equipments from GOs and NGOs.

i. .



SSWMC has consulted with newly formed Municipal office for supports of compost bins, tri cycle and equipments

- c. Establish and operate collection, segregation and disposal center by SSWMC is not yet complete. It is understood that SSWMC has identified lands for the collection centers, but not forwarded the process.
- d. Appoint necessary manpower for collecting, segregating and disposing sold wastes is another target given to the SSWMC, which is not yet done due to absence of collection centre.
- e. Collect household solid wastes, segregate and dispose solid wastes to be conducted by the SSWMC are not yet fully functional. Once the SSWMC collected household non-organic solid wastes, but is not carried on continuously.
- f. Manage dumping sites for disposing not reusable solid wastes is not done.
- g. Manage networking to sell reusable solid wastes is the operational responsibility to the SSWMC. It is understood that some efforts were done to establish network with NEPSEMAC and other solid waste management NGOs, but it is not yet complete.
- h. Prepare and display hoarding boards/Radio communication for Public Notice by the SSWMC is not complete although some activities were seen in the Sali River one month long festival during January-February.
- i. AEPC has completed survey design of Biogas plant at Pukhulachhi, but it's construction, formation of a sub-committee for the management, develop and conduct training programs for operation and maintenance of the Collection centre, Biogas plant and Compost Plant are not started. The work seems delayed due to lack of counterpart finance required from the local level.
- j. No progress is seen in the construction and operation of community toilet.

### 6. Organization Development Efforts

Absence of an organization to work on SWM in Sankhu was seen as a problem in creating awareness, provide technical and managerial knowledge and skills for SWM and manage solid wastes to increase the living standard of the local people making the city clean and healthy.

So JFIR/NES project on SWM in its Action Plan of 2013-2014 targeted to establish a solid waste management committee in Sankhu, and supported and facilitated to establish SSWMC in Sankhu on September 2013 as a NGO registered in District Administration Office, Kathmandu. The committee has eleven members in its Board represented from Bajrayogini, Suntol and Pkulachhi of Sankhu , and is located in Pkhulacchi, Sankhu. The Committee held its AGM some months ago, and elected new board members. Some dsions of the committee are (a) to organize interaction with the local VDCs, Police Office, business communities, school representatives and households on the solid waste management in Sankhu, (b) conduct awareness raising rallies, (c) cleaning campaign in the city, (d) networking with NEPSEMAC to

send plastic wastes collected from the households, (f) selection of land for collection center, bio-gas construction and dumping site, and (g) inspection and monitoring of the work of SWM promoters. Since its establishment, JFIR/NES project has facilitated and supported the committee to work on solid waste management in Sankhu by developing their skill and knowledge and skill on SWM, and has implemented its activities through the committee. The committee has not been able to take up the SWM fully and effectively due to manpower and resource constraints. It is encouraging to note that women composition in the SSWMC Board and women participation in the workshop, training and other programs on the SWM are more.

SSWMC initialized collectively effort NGOs combining clubs. and community mobilizations for cleaning and awareness campaign. Effectiveness is seen espally in urban area. Most (more than 95%) of the households in Sankhu Town are farmer and have their own land. They require fertilizer for their crops but it is expensive and not available, on time. So, they make also bio-



fertilizer from household waste in traditional way. However, it meets only smaller part of their total requirement. Sankhu city catchment land is well known for commercial cultivating of potato and some other vegetable. The farmers grow paddy in the main season (summer), and potato and green vegetables in winter. They use chemical fertilizer, as the supplement.

### 7. Lessons Learned

Lesson learned from the project are listed below.

(a). *Encouraging participation*: It is encouraging that the local people mainly females have shown keen interest in the solid waste management work. They have participated in workshop, training and familiarization visit program actively. So, it seems that the solid management work will be taken efficiently and effectively.

External Different (b) support: organizations in Kathmandu including SWMRMC, AEPC, municipality, ECI. NEPSEMAC and WEPCO supported the activities like training program and familiarization visits to the people from Sankhu with whole heart and almost voluntarily. They have shown interest to provide technical and other support to the



work. The newly established Sankharapur Municipality has started collecting household solid waste once a week using a van. It can be hoped that, in future, such support will help in effectively managing the solid waste management in Sankhu.

(c) *Resource constraints:* The project is running with acute resource constraint. The budget is much reduced in comparison to FY 2012/2013 and FY2013/2014, whereas activities are not reduced. NES portion of the total budget J¥ 2,100,00 in FY 2013/2014 was J¥ 710,000, which reduced to J¥ 544,00 for NES in FY 2014/2015. Inadequate finance and non-availability of fund at time made it hard for NES to carry on project activities as targeted in time. The hardship was felt in conducting workshop, training and in organizing familiarization visit of the people from Sankhu to different SWM NGOs.

(d)*Time limitation:* The JFIR/NES Action Plan and NES budget for FY 2014/2015 was finalized only in July 2013, three months after the beginning of the new FY. Therefore, the time and attention for the implementation of the one year Action Plan was limited.

(e) Volume of solid waste: The volume of solid wastes to be disposed is reduced in comparison to the last three year. The solid wastes are separated in the households into organic and non-organic. The organic solid wastes are collected in the container for making manure and the non-organic wastes are given away to the municipality. Thus, the reuse of organic wastes a manure is increased, and the use of plastics is reduced in the city. The local households are promoting organic farming and discouraging use of pesticide and chemical fertilizers.

(f) *Waste in Sali River:* The participants in the FGD agreed that the disposal of solid waste has been drastically reduced in the river due to the awareness created by the project program. The solid waste disposal in the river has been prohibited, and if someone caught disposing, will be fined. Observation at the river immediately after the one month long festival showed some wastes disposed in some river side, but the volume is greatly reduced in comparison to the project start year.

(g) Awareness level: The level of awareness of the local people to manage increased. solid wastes is The FGD participants and the Key Informants are of the view that training, workshop. familiarization visits and other programs of the JFIR/NES project are very good to raise awareness of the people on solid waste management. They opined that continuity of such programs is necessary to further improve the awareness level.



(h) Capacity development: The local people have expressed that trainings conducted by the project helped them to enhance their skill, knowledge and capacity to manage the solid waste. They requested for further training program on reuse of the waste materials, particularly reuse of the plastic wastes.

*(i)* Collection Centre: The SSWMC has not yet acquired a land for collecting the solid



waste, segregate as reusable and not reusable, and dispose the not-usable wastes. so collection centre is not yet established in the city. It is highly necessary that land is acquired and collection centre is established and make it operational.

(j) *Tricycles, vehicles and equipments:* The SSWMC has not been able to manage tricycles, vehicles and equipments for collection, segregation and disposal of the solid waste in the city. At present, the committee is not in position to purchase that and external support is necessary.

(k) *Open Defecation Free:* Almost all houses in the city have their own toilet, and the city has been almost free of open defecation.

(I) Household toilet: Household toilets are poorly managed and its safety tanks also get mixed in sewerage canal (of waste water). There are some common reserve safety tanks for toilet disposal but due to their low capacity, they do not seem to be the permanent solution. They are also not well insulated from rainwater and get over flown frequently. From the reserve tanks, they are drained to open field in some interval, which ultimately gets in to Sali Nadi (River of religious importance). The Sali River finally gets mixed to the Bagmati River, the main river of Kathmandu. The pollution created in Sankhu town has to be born also by downstream areas of Bhaktapur, Madhaypur and Kathmandu municipality and areas, further down

(m) *Membership of Sankharapur Solid Waste management Committee:* The Committee established in September 2013 at the project facilitation has 11 board members and 10 other members totaling 21. The committee should be more functional, pro-active and effective increasing more members of the city.

### 8. Conclusion

JES/NES started the solid waste management work in Sankhu from FY 2012/2013, which was based on situation analysis and studies and survey. The present JFIR/NES joint project is to facilitate implementation of the plan by the local SSWMC. The committee has gradually started to work ahead and implement the plan with the support of JFIR/NES, SWMRMC and other agencies. The committee is recently established, and it may take certain time to be fully functional. Therefore, it is

necessary to support the committee in implementation of the plan, and the role of the national and international agencies in this regard will be highly expected. The newly formed Sankharapur Municipality should take proper measures to manage solid and liquid wastes in the city and support the SSWMC as its partner organization.

### 9. Way Forward

The SSWMC with support and collaboration of the Sankharapur municipality will have the following tasks as way forward to it.

- 1. Acquire land for bio-gas installation and solid waste collection center.
- 2. Acquire enough dustbins, tricycle and other equipments necessary for the solid waste management with the local support and external support, and make full use of the equipments.
- 3. Acquire necessary manpower to collect, segregate and dispose the waste.
- 4. Initiate to segregate solid wastes at household level and a few blocks of households.
- 5. Train manpower to manage the solid waste.
- 6. Initiate to use the local households as volunteers to work for collecting, segregating and disposing the wastes.
- 7. Manage landfill site for dumping non-reusable solid waste.
- 8. Develop networking with other agencies like NEPSEMAC, ECI, WEPCO and others working in solid waste management and environment preservation as soon as possible.
  - 9. Increase participation and involvement of the local residents and the local GOs and NGOs in implementation of the SWM management and function in sustainable way.
- 10. Get support of the MOLD, DDC, VDCs and other GOs, UNDP, UNICEF, UN-Habitat, JICA and other INGOs and NGOs in its work for infrastructure development and equipments.
- 11. Establish collection centers.
- 12. Conduct awareness raising programs with the participation of the local residents, and effective use of the local promoters increasing their number as well.
- 13. Conduct capacity developing training including reuse of plastic wastes and workshops on the solid waste management with the support of the local VDCs, NGOs, INGOs, GOs and foreign support.
- 14. Enhance the local support increasing its members as well.
- 15. Initiate revenue generation works from the solid wastes collection charging collection fee as being done elsewhere in Kathmandu.

## Annex 1 Progress on Action Plan of FY 2014/2015

| JFIR/I<br>Revis | JFIR/NES Joint Study Project on Solid Waste Management In Nepal<br>Revised Action Plan for the FY 2014/2015 ( April 2014 to March 2015)                                  |  |                        |   |  |  |
|-----------------|--|--|------------------------|---|--|--|
| No.             | Description  | Time   | Respo<br>nsibilit<br>v | Supporting<br>agency                          | Progress up to Dec<br>2014   | Review-Jan 2015  |
| 1.0             | Operationalisation of Sankharapur S  | Solid Wast   | e Manage               | ment Committee (S                             | SWMC) of Sankhu  |  |
| 1.1             | Acquire land for collection and segregation of solid wastes of Sankhu city   | Apr-Sep,<br>2014                                     | SSWMC                  | Local community,<br>VDCs                      | No report  | SSWMC has taken initiative to acquire land and discussion with newly formed city office is in progress.  |
| 1.2             | Manage tricycle, plastic buckets and<br>other materials and equipments<br>necessary for collecting household<br>solid wastes   | Apr-Sep,<br>2014                                     | SSWMC                  | DDC, VDC,<br>SWMRMC, INGOs,<br>NGOs           | No report  | SWMRMC has provided 5compost bins and 12<br>waste collection buckets to SSWMC. NES has<br>provided one compost bin to SSWMC. Effort is<br>made to acquire tri-cycle and equipments from<br>GOs and NGOs, but still not successful. |
| 1.3             | Appoint necessary manpower for<br>collecting, segregating and disposing<br>sold wastes   | Apr-Sep,<br>2014                                     | SSWMC                  | Local community,<br>VDCs                      | No report  | This has not been done.  |
| 1.4             | Establish and operate collection, segregation and disposal center  | Apr-Sep,<br>2014                                     | SSWMC                  | Local community,<br>VDCs                      | No report  | SSWMC has identified lands for the collection centers, but not completely commenced.   |
| 1.5             | Collect household solid wastes, segregate and dispose solid wastes   | Apr-Sep,<br>2014                                     | SSWMC                  | Local community,<br>VDCs                      | Collection done  | Partially done   |
| 1.6             | Manage dumping sites for disposing not reusable solid wastes   | Apr-Sep,<br>2014                                     | SSWMC                  | VDCs, DC, KMC                                 | No report  | Not yet done.  |
| 1.7             | Manage networking to sell reusable solid wastes  | Apr-Sep,<br>2014                                     | SSWMC                  | NGOs involved in<br>solid waste<br>management | Networking with<br>NEPSEMAC  | Trying to establish network with NEPSEMAC and other solid waste management NGOs.   |
| 1.8             | Conduct minimum six meetings of the SSWMC within two months after each meeting.  | Apr'14-<br>Mar'15                                    | SSWMC                  |   | Meeting conducted  | Targeted activities completed.   |
| 1.9             | Trainers and Social Mobilizers provide<br>necessary consultation to households<br>to raise awareness and manage solid<br>waste in Sankhu<br>Prepare and display hoarding | August,<br>October,<br>December<br>2014<br>July 2014 | SSWMC                  | JFIR,NES                                      | Social Mobilizers<br>provided<br>consultation and<br>raised awareness<br>No progress | Consultation and awareness raising activities are done as targeted.  |
| 1               | · · · · · · · · · · · · · · · · · · ·  | ·, = • · ·   |                        | -,  |  |  |

|      | boards/Radio communication for<br>Public Notice   |                          |   |                    |                                       |                        |  |
|------|---|--------------------------|---|--------------------|---------------------------------------|------------------------|--|
| 1.11 | Survey design and establishment of<br>Biogas plant at or near Slaughter<br>House and formation of a sub-<br>committee for the management  | May-July<br>2014         | AEPC,<br>SSWMC                                  | VDC,DDC            | Survey design<br>conducted by<br>APEC | Activity is completed. |  |
| 1.12 | Develop and conduct Training<br>Programs for operation and<br>maintenance of the Collection centre,<br>Biogas plant and Compost Plant   | October<br>2014          | AEPC,<br>SSWMC                                  | VDC,DDC,SWM<br>RMC | Not yet done                          | Not yet done           |  |
| 2.0  | Environment Protection Program  |                          | 1   |                    |                                       |                        |  |
| 2.1  | 2.5 Construction and operation of<br>community toilet   | Nov-Dec.<br>2014         | SSWMC<br>, Local<br>communi<br>ty, Local<br>VDC | DDC                | No progress                           | Not yet done           |  |
| 2.2  | Conduct public rallies campaign and<br>street drama with participation of the<br>local women, youths and students<br>focusing on managing household<br>waste by each household and make<br>the city clean preserving environment. | August-<br>Sept.<br>2014 | SSWMC<br>, Local<br>communi<br>ty, Local<br>VDC | DDC                | No report                             | Not yet done           |  |
| 3.0  | Conduct an Awareness Raising Wor<br>Sankhu  | kshop on s               | solid wast                                      | te management in   |                                       |                        |  |
| 3.1  | Conduct a workshop in Sankhu for<br>local residents to raise their<br>awareness to manage solid waste and<br>reduce solid waste management cost   | July 2014                | NES   | SSWMC              | Completed                             | Completed              |  |
| 4.0  | Conduct Solid Waste Management tr   | raining for              | r the local                                     | residents in Sankh | u City                                |                        |  |
| 4.1  | Conduct one training on solid waste<br>management for the local residents<br>including women, youths and NGOs of<br>Sankhu  | Oct/Nov<br>2014          | NES   | SSWMC              | Completed                             | Completed              |  |
| 5    | 5 Mobilize 12 Promoters to raise awareness and to promote solid waste management in Sankhu  |                          |   |                    |                                       |                        |  |

| 5.1 | Trainers and Social Mobilizers provide<br>necessary consultation to households<br>to raise awareness and manage solid<br>waste in Sankhu                 | August,<br>October,<br>Dec,<br>2014 | SSWMC     | JFIR        | Social Mobilizers C<br>provided a<br>consultation and<br>raised awareness | onsultation and awareness raising activities re done as targeted |
|-----|--|-------------------------------------|-----------|-------------|---|--|
| 6.0 | 6.0 Organize exchange visits   |                                     |           |             |   |  |
| 6.1 | Organize 1 exchange visit for VDC<br>members, CSO members and NGO<br>or private groups between Sankhu<br>City, its neighboring villages and<br>Kathmandu | October<br>2014                     | NES       | SSWMC       | Completed   | Completed  |
| 7.0 | Review implementation of Solid Was   | te Manag                            | ement Pla | n of Sankhu |   |  |
| 7.1 | Review implementation of Solid waste management plan of Sankhu   | Jan 2015                            | NES       |             | Completed   | Completed  |
| 7.2 | Prepare a review paper   | Jan 2015                            | NES/JFIR  |             | Prepared  | Prepared   |
| 7.3 | Conduct a workshop in Sankhu to appraise the implementation progress and take feedback   | March<br>2015                       | NES/JFIR  |             | Completed   | Completed  |
| 8.0 | 8.0 Documentation and information dissemination  |                                     |           |             |   |  |
| 8.1 | Preparation of interim report  | Feb.<br>2014                        | NES/JFIR  | SSWMC       | Prepared  | Prepared   |
| 8.2 | Preparation of final report  | March<br>2015                       | NES/JFIR  | SSWMC       | Prepared  | Prepared   |

### Annex 2 List of FGD participants

Group: Female

### Date: 7 February 2015

Venue: Bajrayogini, Sankhu

| S.No. | Name                        | Address     |
|-------|-----------------------------|-------------|
| 1     | Ms. Sharmila Shrestha       | Chalankhu   |
| 2     | Ms. Laxmi Shrestha          | Pukhulachhi |
| 3     | Ms. Ram Devi Shrestha       | Pukhulachhi |
| 4     | Ms. Chanda Shrestha         | Pukhulachhi |
| 5     | Ms. Ram Devi Gorkhali       | Chalankhu   |
| 6     | Ms. Ramita Ranjitkar        | Chalankhu   |
| 7     | Ms Rita Singh               | Chalankhu   |
| 8     | Ms. Nirjana Shrestha        | Chalankhu   |
| 9     | Ms. Rita Kapali             | Pukhulachhi |
| 10    | Ms. Parbati Ranjitkar       | Pukhulachhi |
| 11    | Ms. Laxmidevi Shrestha      | Chalankhu   |
| 12    | Ms. Bina Shrestha           | Chalankhu   |
| 13    | Ms. Purna Shova Bajracharya | Pukhulachhi |
| 14    | Ms. Maiya Shrestha          | Pukhulachhi |
| 15    | Ms. Kamala Shrestha         | Pukhulachhi |
| 16    | Ms. Ganesh maya Shrestha    | Pukhulachhi |

## Group: Male

# Date: 7 February 2015

### Venue: Pukhulachhi, Sankhu

| S.No. | Name                        | Address        |
|-------|-----------------------------|----------------|
| 1     | Mr. Prem Krishna Shrestha   | Sankharapur    |
| 2     | Mr. Sanjeev Manadhar        | Sankharapur    |
| 3     | Mr. Prakash Malla           | Sankharapur    |
| 4     | Mr. Ganesh Shrestha         | Sankharapur-8  |
| 5     | Mr. Satya narayan Shrestha  | Sankharapur-8  |
| 6     | Mr. Renu Lal Singh          | Sankharapur-11 |
| 7     | Mr. Ananda Bahadur Shrestha | Sankharapur-11 |

# Annex 3 List of Key Informants

| S.No. | Name                                 | Address                  |
|-------|--------------------------------------|--------------------------|
| 1     | Mr. Lakash Shrestha, Campus Chief    | Sakwo Campus             |
| 2     | Ms. Jamuna Dangol, Chairperson,      | Bajrayogini Women Group  |
| 3     | Mr.Rajendra Fuyal, Executive Officer | Sankharapur Municipality |
| 4     | Mr. Ganesh Shrestha                  | Sankharapur-8            |
| 5     | Mr. Renu Lal Singh                   | Sankharapur-11           |
| 6     | Mr. Ananda Bahadur Shrestha          | Sankharapur-11           |

| S. No. | Name                   | Address                       |
|--------|------------------------|-------------------------------|
| 1.     | Anusha Shrestha        | Sankhu, Kathmandu             |
| 2.     | Suvarna Laxmi Shrestha | Salkha Tole, Sankhu           |
| 3.     | Ram Devi Shrestha      | Pukhulachhi, Sankhu           |
| 4.     | Ashim Shrestha         | Pukhulachhi, Sankhu           |
| 5.     | Sharmila Shrestha      | Ipa Tole, Sankhu, Kathmandu   |
| 6.     | Ganesh Maya Shrestha   | Ipa Tole, Sankhu, Kathmandu   |
| 7.     | Bina Shrestha          | Ipa Tole, Sankhu, Kathmandu   |
| 8.     | Maiya Keshari Napit    | Ipa Tole, Sankhu, Kathmandu   |
| 9.     | Kamala Shrestha        | Ipa Tole, Pukhulachhi, Sankhu |
| 10.    | Bijaya Shrestha        | Pukhulachhi, Sankhu           |
| 11.    | Indra Maya Shrestha    | Chalakhu, Sankhu              |
| 12.    | Jamuna Dangol          | Bajrayogini, Chalakhu         |
| 13.    | Sharmila Shrestha      | Bajrayogini, Salkha           |
| 14.    | Bina Shrestha          | Sankharapur -11               |
| 15.    | Samita Shrestha        | Sankharapur -11               |
| 16.    | Ramita Ranjit          | Sankharapur -11               |
| 17.    | Niru Singh (Dangol)    | Sankharapur -11               |
| 18.    | Shankar Man Shrestha   | Suntole                       |
| 19.    | Jagadish Man Shrestha  | Dhulla Tole, Sankhu           |
| 20.    | Prakash Malla          | Suntole, Sankhu               |
| 21.    | Prem Krishna Shrestha  | Suntole, Sankhu               |
| 22.    | Ganesh Shrestha        | Suntole - 3                   |
| 23.    | Rama Shrestha          | Suntole - 8                   |
| 24.    | Purna Keshari Shrestha | Suntole - 8                   |
| 25.    | Subarna Laxmi Shrestha | Salkha                        |
| 26.    | Ambika Shrestha        | Suntole - 8                   |
| 27.    | Sharmila Shrestha      | Suntole - 8                   |
| 28.    | Mina Shrestha          | Suntole - 8                   |
| 29.    | Parbati Ranjitkar      | Pukhulachhi - 9               |
| 30.    | Rameshwori Shrestha    | Suntole - 8                   |
| 31.    | Timila Shrestha        | Suntole - 8                   |
| 32.    | Gita Shrestha          | Pukhulachhi - 10              |
| 33.    | Rita Kapali            | Pukhulachhi - 10              |

## Annex 4 List of Participants in the Workshop on Review Report

| S. No. | Name                   | Address                   |
|--------|------------------------|---------------------------|
| 34.    | Naonobu Minato         | Shinyuku, Tokyo, Japan    |
| 35.    | Riyokichi Hirono       | Sekei University, JFGE    |
| 36.    | Devi Prasad Acharya    | Jawalakhel, Lalitpur      |
| 37.    | Laxmi Prasad Ghimire   | Jawalakhel, Lalitpur      |
| 38.    | Paban Lal Shrestha     | Lawanya Sandesh Shaptahik |
| 39.    | Ananda BahadurShrestha | Shankhapur - 10           |
| 40.    | Subarna Lal Shrestha   | NES                       |
| 41.    | Madhav N. Shrestha     | NES                       |
| 42.    | Madhab Raj Ghimire     | NES                       |
| 43.    | Raju Manandhar         | NES                       |
| 44.    | Santosh K. Shah        | NES                       |
| 45.    | Baburam Dumre          | NES                       |

| S.No. | Name                | Designation        | Office                          |
|-------|---------------------|--------------------|---------------------------------|
| 1     | Mr. Gopi Khanal     | Joint Secretary    | Ministry of Federal Affairs and |
|       |                     |                    | Local Development               |
| 2     | Mr. Mahendra Subba  | Joint Secretary    | Ministry of Urban Development   |
| 3     | Ms. Sumitra Amatya  | Executive Director | Solid Waste Management and      |
|       |                     |                    | Resource Mobilisation Centre    |
| 4     | Dr. Hemanta Duwadi  | Executive Director | Nepal Chamber of Commerce       |
|       |                     |                    | and Industry                    |
| 5     | Mr. Devi Prashad    | Chairperson        | NEPSEMAC                        |
|       | Acharya             |                    |                                 |
| 6     | Mr. Shimizu Tsutomu | Country            | JICA Nepal                      |
|       |                     | Representative     |                                 |
| 7     | Mr. Padma Sundar    | Habitat            | UN-Habitat, Pulchowk, Lalitpur  |
|       | Joshi               | Programme          |                                 |
|       |                     | Manager            |                                 |
| 8     | Mr. Hozumi          | Chief              | UNICEF                          |
|       |                     | Representative     |                                 |
| 9     | Mr. Vijaya Singh    | Assistant Country  | UNDP                            |
|       |                     | Director           |                                 |

## Annex 5 List of Officials Visited by JFIR and NES Joint Team

#### Annex 6 Bibliography

- 1. Solid Waste Management Plan of Sankhu, prepared by JES/NES
- 2. Three Years Interim Plan (2011/012-2013/2014), National Planning Commission, Nepal
- Status and Issues of Waste Generation and Management with focus to System Operation in Kathmandu Valley- A paper submitted by NES to JES
- 4. Household Survey Report on Solid Waste Management in Sankhu City- A report prepared and presented by NES and submitted to JES
- 5. Solid Waste Management and Resource Mobilization Act, 2011, GON, Nepal
- 6. Local Self-Governance Act, 1999., GON, Nepal
- 7. Solid Waste Management in Nepal, 2013, ADB
- 8. Environmental Protection Act and Environmental Protection Rules, 1997, GON, Nepal
- 9. Industrial Enterprise Act, 1992, GON, Nepal
- 'The Study On The Solid Waste Management For The Kathmandu Valley' Nippon Koei Co., Ltd. and Yachiyo Engineering Co., Ltd , September, 2005, JICA/ Ministry of Local Development.
- 11. Annual Action Plan to Implement SWM Plan in Sankhu
- 12. Progress Reports on Implementation of Action Plans of Sankhu
- 13. District Profiles of Bajrayogini VDC, Suntol VDC and Pukhulachhi VDC-Prepared by the concerned VDC offices

## Annex 7 Some Activity Photos





























































