



REPORT

State Level Symposium

On

“E-Waste Management in Dehradun & Rudraprayag- Realizing the E-Waste to Resource Potential”

Project Funded by

Ministry of Environment, Forest and Climate Change (MoEF&CC) under National Mission on Himalayan Studies (NMHS) of G.B. Pant National Institute of Himalayan Environment & Sustainable Development, Kosi-Katarmal, Almora



Date- 22nd June, 2022

Venue- Graphic Era University, Dehradun
(Uttarakhand)



“E-WASTE MANAGEMENT IN DEHRADUN AND RUDRAPRAYAG- REALIZING THE E-WASTE TO RESOURCE POTENTIAL”

Background Note:-

Uttarakhand State Council for Science & Technology (UCOST) & Society of Pollution & Environmental Conservation Scientists (SPECS) are jointly implementing the project entitled *“E-Waste Management in Dehradun and Rudraprayag- Realizing the E-Waste to Resource Potential”*, funded by Ministry of Environment, Forest and climate change (GoI) under National Mission on Himalayan Studies (NHMS). District Dehradun (Doiwala, Vikasnagar, Sahaspur, and Raipur) and Rudraprayag (Ukhimath, Agastyamuni and Jakholi) of Uttarakhand have been selected for the project study area. The study was carried out using baseline survey to know the present status of e-waste management in both districts. After primary data collection, a training programme was organized on LED bulbs, tube lights making and repairing, and creation of decorative sticks and bamboo carved lamps with respect to E-waste minimization and handling for various stakeholders, which has provided their livelihood sources during COVID time period. In addition to this, folk media workshops (Nukkad natak, short film, rap song, posters, leaflets, standees, puppet plays) were also conducted and also launched EKV” (E-Waste Management and Minimization) campaign to spread awareness on E-waste minimization and management in local language. Under this project, e-waste minimization centers have been established in both districts on the basis of community recommendations. Under this project, we have proposed a business model for development of android app and web portal to make e-waste recycling in an efficient and safer mode.

Achievements under the project

- Authorized e-waste collection and minimization centers in Rudraprayag and Dehradun district – Total number 11
- Total manpower trained in e-waste handling in both districts – 162
- Established e-waste collection centers in 65 municipal wards of Dehradun district

Table 1: Activities have been achieved so far after the implementation of the project

Summary of the activity	Doiwala Block	Sahaspur Block
Established E-waste minimization centers	3	2
Training of decorative lights and Diwali lights	34 participants	27 participants
Training of LED bulbs, tube lights, bamboo lights and E-waste handling	34 participants	27 participants
Folk media campaign, awareness campaign (Print media), Awareness campaign (Digital media)	-	-

Table 2: E-waste minimization through LED bulb repairing

Area	Total bulb repaired	Saving of E-waste (in Kg)	Total Saving (in Rs.)	Cost Saving of Customer (after repairing)
Doiwala & Sahaspur	614	28.24 Kg	Rs 70610	Rs 57102
Dehradun	750	34.50 Kg	Rs 86250	Rs 69750
TOTAL	1364 bulbs	62.74 kg	Rs. 1, 56, 860	Rs 1,26,852

Significance of the project:

- Maximum numbers of Individuals were trained in E-waste collection and handling through the various hands-on training programmes/workshops.
- Well-equipped E-waste repair and collection centers were established in both districts of the state. These centers are fully equipped for repair and manufacturing of energy- efficient lights such as LED bulbs, tube lights, and decorative lamps, solar energy powered devices, battery handling and mobile phone repair.
- Development and launching of web portal and android mobile app to connect all established e-waste centers in both districts with larger E-waste buyers companies.

State Level Symposium

Uttarakhand State Council for Science & Technology, Dehradun has organized its 15th & 16th Uttarakhand State Science & Technology Congress (USSTC) 2022 during 22nd -24th June, 2022 at Graphic Era (Deemed to be University) Dehradun. Under this event a state level symposium on National Mission on Himalayan Studies (NMHS) funded project “**E waste management in Dehradun & Rudraprayag Realizing the E waste to Resource Potential**” was organized on 22nd June 2022. A group of experts comprising experts and peoples working on e waste management in Dehradun and Rudraprayag, Professors, Students, Entrepreneurs, Representatives from line departments and NGO’s participated in the event.

During symposium following experts were present:

S. No.	Expert Name	Address
1	Dr. Bhanu Prakash Vellanki	Associate Professor, Department of Civil Engineering IIT Roorkee
2	Dr Vasudha Agnihotri	Scientist D GBPNIHE Almora
3	Dr. D. P. Uniyal	Joint Director, UCOST
4	Mr. Vishal Kumar	CEO, Waste Warriors Dehradun
5	Mr. Shiv Chander Jha	ATTERO Recycling Pvt. Ltd. Noida (U.P)
6	Dr Shwetank Arya	Gurukula Kangri (Deemed to be University)
7	RJ Kavya	Oho Radio
8	Dr. Nihal Anwar Siddiqui	Professor, UPES Dehradun
9	Mr. Brij Mohan Sharma	Specs Dehradun
10	Dr Prashant Singh	DAV PG College Dehradun
11	Dr. Vijay Sridhar	Assistant Professor Doon University Dehradun
12	Prof. Prabhakar Badoni	Director & Head Department of Chemistry, H. N. B. Garhwal Central University, Campus Pauri, Garhwal, Uttarakhand
13	Dr. Sarvesh Uniyal	Project Officer HNB Garhwal University Srinagar Campus
14	Dr MS Rawat	UCOST
15	Ms. Deepika Dimri	UCOST
16	Mr. Santosh Rawat	UCOST
17	Mr. Pradeep Tewari	UCOST
18	Mr. Amrish	Gurukul Kangri

		Haridwar
19	Ms. Chandra Arya	SPECS Dehradun
20	Mr. Neeraj Uniyal	SPECS Dehradun
21	Mr. Ashish Kumar Garg Dehradun	Eco Group Society D-7, Kewal Vihar
22	Smt. Guddi Devi	Bhogpur, Dehradun
23	Ms. Tulsi Mehra	Haripur Kala
24	Ms. Seema Rayal	Haripur
25	Ms. Krishna Devi	Lohiya Nagar Brahmpuri
26	Smt Neetu Walia	Nischay Welfare Society Brahmpuri Dehradun
27	Smt Annpurna Bisht	Vijay Colony Hathibadkala Dehradun
28	Smt Bhawana Negi	Vaibhav Lakshmi Swyam Sahayta Samuh Vijay Colony Dehradun
29	Mr. Ram Krishna Mahto	Jhajara Dehradun
30	Mr. Ashish Kumar Saxena	87/35 Tyagi Road Dehradun
31	Mr. Mahipal Singh Kotwal	Village Mansoona Distt Rudraprayag
32	Mr. Kuldeep Panwar	Village & Post Mansoona Distt Rudraprayag
33	Pt Anuj Sharma	
34	Ms. Seema Tiwari	Prerna Swyam Sahayta Samuh
35	Dr Parul Singhal	Maya Group of Colleges Dehradun
36	Ms. Chandra Arya	Research Associate Specs
37	Mr. Manoj Benjwal	Sewa International Rudraprayag
38	Mr. Vikas	Haripur Kala Dist Dehradun
39	Mr. Ashish Garg	Dehradun
40	Mr. Paras Upadhyaya	UCOST
41	Gaurav Chamoli	UCOST
42	Digember Upadhyay	Dehradun Bulletin
43	Nupur Kukreti	Graphic Era Deemed University
44	Kuldeep Singh	DAV PG College Dehradun
45	Dr Hament Panwar	HVM PG College Raisi
46	Narendra Jassal	UCOST
47	Ram Lakhan Yadav	GBP-NIHE
48	Priya Thapliyal	HNBGU
49	Jagdish Joshi	GBP-NIHE
50	Dr Gaurav Verma	GEU-ECE Dept
51	Mr Sheetal	GKV
52	Esther Labringzo	AIIMS Dehradun
53	Nupur Pandey	DSB Campus Kumaon University Nainital
54	Priya Chaudhary	Graphic Era Deemed to be University
55	Rekha Goswami	Graphic Era Deemed to be University
56	Abhishek	Plant Physiology Research Centre HNB Garhwal University
57	Ankit Singh	HNB Garhwal University Srinagar Garhwal
58	Ashok Kumar	SPECS
59	Dr Monika	UCOST
60	Urmila Ghildiyal	UCOST

61	Sanskriti Singh	Graphic Era Deemed to be University
62	Rudransh Agarwal	Graphic Era Deemed to be University

Joint Director UCOST Dr. D. P. Uniyal welcomed all the experts and participants. He briefed about the project activities and highlighted work done till now. He presented the project outlines, objectives, methodology, and project overview through power point presentation. He described about the E-waste management status in Uttarakhand.

Dr Bhanu Prakash Vallenki, Associate Professor, Department of Civil Engineering, IIT Roorkee and chairman of the symposium shared his experience in e-waste management. He explained about the harmful effect of E-waste on human health and our environment. He said that growth in the IT and communication sectors have enhanced the usage of the electronic equipment exponentially. Faster upgradation of electronic product is forcing consumers to discard old electronic products very quickly, which, in turn, adds to e-waste to the solid waste stream. The growing problem of e-waste calls for greater emphasis on recycling e-waste and better e-waste management. He also said that E-waste typically consists of metals, plastics, cathode ray tubes (CRTs), printed circuit boards, cables, and so on. Valuable metals such as copper, silver, gold, and platinum could be recovered from e-wastes, if they are scientifically processed. The presence of toxic substances such as liquid crystal, lithium, mercury, nickel, polychlorinated biphenyls (PCBs), selenium, arsenic, barium, brominated flame retardants, cadmium, chrome, cobalt, copper, and lead, makes it very hazardous, if e-waste is dismantled and processed in a crude manner with rudimentary techniques. E-waste poses a huge risk to humans, animals, and the environment. The presence of heavy metals and highly toxic substances such as mercury, lead, beryllium, and cadmium pose a significant threat to the environment even in minute quantities.

Dr. Brijmohan Sharma from Society of Pollution and Environmental Conservation Scientists (SPECS) highlighted the work done by SPECS in Dehradun & Rudraprayag under the project. He told that SPECS worked in E waste minimization by repairing LED bulbs, lab establishment, training of people in repairing etc. Mobile repairing centre has been started and people have given training. He told that at the starting maximum people did not know about separation of e waste & E waste Management rule. E waste collection centres in 3 development blocks of Dehradun district (Doiwala, Sahaspur and Vikasnagar) and Rudraprayag district (Augustmuni, Ukhimath & Jakholi) have been established. Now the

trained manpower is 162 and total bulb repaired is 12670. Rap songs, short films were shown to disseminate e waste awareness. 3 days training for e waste campaign was organized.

Dr Prashant Singh, District Co-ordinator, UCOST told about the e waste management campaign. He said that India is ranked fifth in the world amongst top e-waste producing countries after the USA, China, Japan, and Germany and recycles less than 2 per cent of the total e-waste it produces annually formally. He told that no primary data is available for e waste generation in Uttarakhand. Huge gap is between the generation and recycling of e waste channelization & collection. Challenges in e waste management are travel, time, collection centre etc. He said that expert lecture, awareness campaign, concerned user meeting were conducted for the E-waste management under the project.

Dr Swetank Arya from Gurukul Kangri University said that they are developing a mobile application for E-waste management. He explained about the features of mobile application and its buyer and seller section. He told that discussion with buyers is necessary before designing of e-waste buyer section. Online verification of the user will be focused so that company can buy the e waste.

Dr Vasudha Agnihotri from GB Pant Institute Kosi Katarmal Almora briefed about National Mission on Himalayan Studies including E waste management. She told that this is one of the first kind of project in uttarakhand related to the E-waste management. She told that consumers are the key to better e-waste management in India. Initiatives such as Extended Producer Responsibility; Design for Environment; (3Rs) Reduce, Reuse, Recycle technology platform for linking the market facilitating the circular economy aim to encourage consumers to correctly dispose of the e-waste, with an increased reuse and recycling rates, and also adopt sustainable consumer habits.

Mr. Vishal Kumar, CEO of Waste Warrior explained about E-waste collection & segregation center at Harrawala, Dehradun. He said that the citizens have a very important role to play in e-waste management. We casually throw many small gadgets along with dumped waste and many people openly burn those accumulated waste. A number of hazardous substances such as dioxins and furans are released in the process which we breathe. This is a very unhealthy practice, which we should immediately stop.

Prof Prabhakar Badoni, Director & Head Department of Chemistry, H. N. B. Garhwal Central University, told that we can make group of stakeholders, experts, and students for sharing important information related to the E-waste. Different campaigns can be organized to aware public and communities.

Dr. Nihal Anwar Siddiqui, Professor, UPES University, explained about E-waste collection centre and E-waste collection facility at University level.

Mr. Shiv Chander Jha from ATTERO Recycling Pvt. Ltd. Noida (U.P) said that almost all e-wastes contain some form of recyclable material, including plastic, glass, and metals; however, due to improper disposal methods and techniques these materials cannot be retrieved for other purposes. If e-waste is dismantled and processed in a crude manner, its toxic constituents can wreak havoc on the human body. He explained about the recycling process of E-waste and how their company is working in E-waste management. He told that E-waste is a rich source of metals such as gold, silver, and copper, which can be recovered and brought back into the production cycle. There is significant economic potential in the efficient recovery of valuable materials in e-waste and can provide income-generating opportunities for both individuals and enterprises.

Mr Manoj from Sewa International and Entrepreneurs from Dehradun and Rudraprayag district shared their experience related to the E-waste management. They also shared their success story with the experts.

Recommendations:

- Capacity building and awareness is critical to promote environment friendly e-waste management programmes.
- The competent authorities need to establish mechanisms for handling and treatment of e-waste in a safe and sustainable manner.
- Efforts are urgently required on improvement of the current practices such as establishment of collection centres and management practices to reduce the e-waste.
- Reducing the amount of hazardous substances in e-products will also have a positive effect in dealing with the specific e-waste streams.
- Electronic gadgets manufacturer companies should be responsible for creating channels for proper collection and disposal of e-waste.
- Government must develop e-waste collection centres and processing centres in every city. So that public can donate their useless electrical and electronic equipment. Also there should be a concept of consumers paying for disposal of the e-waste they generate
- Campaign by state governments to increase public awareness about the hazards associated with e-waste and its management in scientific manner.
- Government must promote and fund research that develops innovative, future-oriented technologies for recycling and transforming new e-waste streams into high-value products.
- There should be role and responsibilities for government institutions, private companies, industries, Universities, IT companies, electronic gadgets manufacturing companies etc. for the E-waste management.

Conclusion

During the state level symposium it was discussed that E-waste management is a great challenge for governments of many developing countries such as India. This is becoming a huge environment and public health issue and is exponentially increasing by the day. In order to separately collect, effectively treat, and dispose of e-waste, as well as divert it from conventional landfills and open burning, it is essential to integrate the informal sector with the formal sector. The competent authorities need to establish mechanisms for handling and treatment of e-waste in a safe and sustainable manner.

PHOTO GALLERY









Dr. D. P. Uniyal, Joint Director, UCOST



Dr Bhanu P Vallenki explaining about E waste



Dr Brijmohan Sharma explaining about project



Dr Prashant Singh explaining about E waste



RJ Kavya - about awareness campaign



Dr NA Siddiqui



Dr Swetank Arya



Dr Badoni explaining about E waste



