INTRODUCTION

RESEARCH LABORATORY

PROGRAMMES

PRODUCTS & SERVICES

ENVIRONMENT AND PUBLIC HEALTH INSTITUTE (ENPHI)

RESOURCE CENTER: KNOWLEDGE MANAGEMENT AND ADVOCACY

FINANCIAL MANAGEMENT

WAY FORWARD

PARTNERS
ENPHO is one of the unique NGOs in Nepal that works in both research study and community development amenities creating eco-societies. It has been working in Environment and Public Health sectors since its establishment period.

ENPHO has been providing its services through research and development studies, installation of rain water harvesting, the construction of Decentralized Wastewater Treatment System (DEWATS), promotion of Point of Use (POU) techniques at school and household levels, climate change initiatives, implementation of sustainable sanitation practices in rural and urban communities. ENPHO research laboratory is also providing services to various stakeholders by analyzing the quality of drinking water, wastewater, air, soil, and other environmental limitations.

In the area of community development, we also joined hands with various national and international partners to implement the Safe Water, Sanitation and Hygiene programmes in some of the underprivileged communities all over Nepal.

ENPHO has still lot of challenges though having marvelous opportunities. We believe in overcoming these challenges with the support from the committed and professional board, general and staff members. We further express our gratitude to our donors and partners for their continuous moral and sensible support.

Best Regards,

Dr. Kunjani Joshi
Chairperson
Environment and Public Health Organization
ENPHO has commenced to revise its strategies and focused its limited human and financial resources to bring the biggest impact on the field of laboratory based research and service delivery programmes in environment, public health and WASH sectors.

We believe ENPHO still has a long way to go. Our services need scaling up in environmental research, sustainable sanitation, climate change, energy, and community development of WASH sector. We need to inspire capacity of our human resources through education and trainings for more output oriented approach.

We plan to establish ourselves as a center of excellence in knowledge management & advocacy sectors and explore new avenues to better serve communities of Nepal as well as in abroad. We look forward to receiving the valuable support of all our members and well-wishers in this course.

Finally, I would like to express my gratitude to all the well-wishers of ENPHO.

Best Regards,

Dr. Suman K. Shakya
Executive Director
Environment and Public Health Organization
Introduction

Established in 1990, ENPHO is a service-oriented, scientific, national NGO that envisages contributing in sustainable community development by combining research and actions through the integrated programmes in the areas of environment and public health. ENPHO runs a government accredited laboratory and started to promote eco-friendly technologies/options such as wastewater treatment through constructed wetland system, PIYUSH, Solar Water Disinfection (SODIS), Kanchan Arsenic Filter and dry Ecological Sanitation (ECOSAN) toilets.

ENPHO develops and promotes integrated community based approaches endorsing Safe Water, Sustainable Sanitation, Hygiene Behavior, Improving Indoor Air and environmental and air quality monitoring to create healthy societies. Furthermore, knowledge-based education and advocacy campaigns support on achieving ENPHO’s overall mission.

ENPHO is cooperating with government organizations, NGOs, Community Groups, Private Sectors and Academic Institutions on meeting possible national MDGs. So far, ENPHO has contributed on water, sanitation, women empowerment and gender mainstreaming through its various programmes.

In order to extend its reach, ENPHO has also initiated programmes in climate change and energy. Also to scale up our efforts we are developing local capacities through Environment and Public Health Institute (ENPHI).
Targets
- Conduct research and develop appropriate technologies that are acceptable to local communities using local resources.
- Demonstrate eco-friendly technologies and practices.
- Develop and implement effective strategies to promote eco-friendly technologies.
- Network with partners for coordination and advocacy.
- Enhance organizational capacity.
- Develop local capacities through Environment and Public Health Institute (ENPHI).

Achievements
ENPHO believes in working with the community in coordination with local individuals and government bodies. The community based Water, Sanitation and Hygiene (WASH) projects alone served more than 5000 Households (hhs) benefitting over 30,000 individuals during the FY 2010/11.

ENPHO also continues to promote household water treatment through PoU options, preparation of Water Safety Plans (WSP) and various arsenic mitigation projects all over Nepal. This has benefitted more than 2, 80,000 individuals.

Various WASH forums, trainings and programmes organized by ENPHO/ENPHI have benefitted more than 18,000 students, youths, professionals and technical experts during 2010/2011. ENPHO further plans to extend its reach all over Nepal and at international level with the support from its members and partners.
<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>Water Quality Monitoring of Bagmati River and Kathmandu’s Water Supply System</td>
</tr>
<tr>
<td>1992</td>
<td>Initiated Air Quality Monitoring for the first time in Nepal within Kathmandu Valley</td>
</tr>
<tr>
<td>1994</td>
<td>Production and distribution of PIYUSH® Chlorine Solution</td>
</tr>
<tr>
<td>1997</td>
<td>Introduced Constructed Wetlands for Wastewater Treatment System in Nepal</td>
</tr>
<tr>
<td>2000</td>
<td>Production of ENPHO test kit, Arsenic Testing and Mitigation activities initiated in the Terai</td>
</tr>
<tr>
<td>2001</td>
<td>Initiated Research on SODIS and ECO-SAN</td>
</tr>
<tr>
<td>2003</td>
<td>Received Award for KanchanTM Arsenic Filter at World Bank Development Marketplace</td>
</tr>
<tr>
<td>2005</td>
<td>Environment Award from Ministry of Environment, Science &amp; Technology</td>
</tr>
<tr>
<td>2006</td>
<td>Carried out Country Environment Analysis for the World Bank</td>
</tr>
<tr>
<td>2007</td>
<td>Initiation of Integrated Community based WATSAN Programme &amp; Declaration of ODF at community level</td>
</tr>
<tr>
<td>2008</td>
<td>Scaling up of waste water treatment system at municipal level and integration of bio-gas system</td>
</tr>
<tr>
<td>2009</td>
<td>Received “Partnership for Clean Indoor Air (PCIA)” Award for Air Quality Improvement</td>
</tr>
<tr>
<td>2009</td>
<td>Establishment of Environment &amp; Public Health Institute (ENPHI) within ENPHO</td>
</tr>
<tr>
<td>2009</td>
<td>Initiation of Paschim Paaila- A Youth Campaign against Diarrhea Epidemic in Western Nepal</td>
</tr>
<tr>
<td>2009</td>
<td>Establishment of Nepal Node for Sustainable Sanitation</td>
</tr>
<tr>
<td>2010</td>
<td>ODF Defecation at VDC level</td>
</tr>
<tr>
<td>2011</td>
<td>ECO-SAN poster attained the 1st prize in pre-SACOSAN IV in Colombia, Sri-Lanka</td>
</tr>
</tbody>
</table>
FIELDS OF SPECIALIZATION

- Air Quality Assessment (Outdoor and Indoor)
- Baseline survey and study
- Capacity building program, Trainings & training materials
- Climate Change
- Community Development & Consultation
- Disaster Risk Reduction
- Drinking water quality management (PoU, WSP, Water Quality Testing and Research)
- Ecological Sanitation
- Environmental Impact Assessment
- Forestry and Conservation
- Health and Sanitation Education
- Health Impact Assessment
- Knowledge Management and Advocacy
- Lake and Pond Restoration
- Natural Resource Management
- Promotion of appropriate technologies for environmental management
- Research and Development
- Waste Management (Community Solid Waste Management-SWM, Household SWM, Decentralized Solid Waste Management-DESWAM, Medical Waste Management)
- Wastewater Management ( Constructed Wetland, DEWATS)
- Water Supply and Sanitation
Since 1990, ENPHO has contributed on testing and monitoring drinking water, wastewater, natural water, compost, soil, noise and air quality analysis through its well-equipped laboratory. ENPHO Lab is accredited by Nepal Bureau of Standard and Metrology (NBSM) under the NEPLAS criteria based on ISO 17025.

ENPHO lab is equipped with sophisticated instruments like analytical balance, UV-visible spectrophotometer, atomic spectrometer, gas chromatograph, high power liquid chromatography (HPLC), ambient air quality sampler, stack monitoring set and indoor air quality equipment. Besides, ENPHO laboratory is also engaged in R&D to produce various water testing kits.
ANNUAL REPORT 2011

PROGRAMMES

Safe Water
ENPHO believes that everyone should have access to adequate amounts of safe drinking water at an affordable price. ENPHO is promoting community based water supply systems, application of water safety plans and strengthening the supply and demand for appropriate point-of-use water treatment options. In this context, ENPHO has helped in developing and promoting simple technologies such as PIYUSH chlorine solution, Solar Water Disinfection (SODIS) and biosand filters in households as well as schools.

ENPHO is involved in research, development and promotion of arsenic mitigation measures. EHPHO has developed Kanchan Arsenic Filter (KAF) which has successfully proved to remove arsenic, turbidity, iron, smell and pathogens from drinking water. ENPHI has been taking the lead on developing local entrepreneurs for assembling and marketing of filters and creating demand through awareness campaigns.

Community based WASH
ENPHO promotes integrated community-based safe water, sanitation and hygiene (WASH) through various projects. The major aim of the integrated WASH approach is to work with the community to make them environment-friendly and healthy through SWASTHA approach -Safe Water, Air, Sanitation and Hygiene for All. This could be achieved through water safety plans, PoU treatment, sustainable sanitation, Water and Sanitation (WATSAN) plans, ODF declaration, indoor air quality control and hygiene promotion.
Sustainable Sanitation

Sustainable sanitation has been characterized by the Sustainable Sanitation Alliance (SuSanA) as - The main objective of a sanitation system is to protect and promote human health by providing a clean environment and breaking the cycle of diseases. In order to be sustainable, a sanitation system has to be not only economically viable, socially acceptable and technically and institutionally appropriate; it should also protect the environment and the natural resources. Hence reflecting its importance on preserve the quantity and quality of resources and has the lowest costs with respect to the physical, socio-cultural and economic environment.

ENPHO encourages Total Sanitation Campaigns, promotion of ECOSAN toilets and biogas systems to strengthen sustainable sanitation all over Nepal. It has been planned to promote SWASTHA communities, where people have access to safe water, sanitation facilities, and improved stoves and practice good hygiene behavior. Apart from that, ENPHO encourages waste composting and promotes 3Rs (Reduce, Reuse and Recycle) through its programmes and campaigns.

ENPHO has successfully scaled up promotion of Decentralized Waste Water Treatment Systems (DEWATS) in Nepal. As a result, many agencies including hotels, hospitals and private sectors have requested ENPHO to provide technical support to establish DEWATS.

Under sustainable sanitation, ENPHO is also promoting Decentralized Solid Waste Management (DESWAM) in various parts of Nepal with the planning to demonstrate and promote the system in both community and business sector. During the FY 2010/11, ENPHO has constructed and operated community managed compost plant at Ramnagar-12 of Butwal Municipality in coordination with the municipality and PPPUE. Similarly community managed biogas system for managing waste of slaughter house and households in Purano VDC tole of Gularia Municipality has been constructed and operated. Both followed the PPP approach under SWASHTHA project.
Climate Change and Adaptation

During the FY 2010/11, ENPHO has conducted research on governance of climate change and organized a study cum assessment of understanding vulnerabilities, impacts and adaptation to climate change in Nawalparasi district. EHPhO further plans to reduce the impact of climate change and carbon footprint by incorporating them in the existing and future programmes.

Research based advocacy

ENPHO/Paschim Paaila Youth Network aims to focus on environmental health with WASH and disasters/epidemics as social concern through youth led initiatives. Various sensitization and advocacy regarding different issues related to WASH has been conducted at different sites and dynamics through campaigns, events and exhibitions. This benefits more than 10,000 school children and youths every year. Through research based advocacy, ENPHO is also conducting studies on nutrient recycling and Water Pasteurization through Improved Cook Stove (WAPIC).
Besides analytical work in the Laboratory, ENPHO has been studying and developing water testing kits and water purifying products. Following are the brief description of those products.

**Field Test Kits**

ENPHO lab produces simple, portable and low cost water testing kits such as ENPHO water field test kit, arsenic field test kit, Presence/Absence H₂S test kit for coliform detection and free residual chlorine test kit.

ENPHO water field test kits include the parameters such as iron, hardness, nitrate, phosphate, nitrite, and alkalinity test kit depending upon the need of various programmes. ENPHO also provides additional reagents for refilling as per the requirement.
Piyush and Piyush Plus

ENPHO initiated the production and distribution of ‘Piyush’ Chlorine solution in 1994 and commenced the promotion of ‘Piyush Plus’ in 2010. Piyush is a chlorine solution used for disinfecting drinking water at the household level. One bottle of Piyush can disinfect 400 liters of drinking water. Due to aggressive marketing campaigns and strengthening of supply chain, the sale of ‘PIYUSH’ is increasing.

This product has been registered in the Department of Cottage Industries (Kathmandu) under the trade mark number 17486/056. ENPHO has also been promoting 1% chlorine solution for treating water storage tanks, reservoirs and large volume of water to individuals and institution on demand. Many agencies such as DWSS, UNICEF, Nepal Red Cross Society regularly supplies Piyush to disaster affected communities.
Kanchan Biosand Filter
ENPHO is one of the leading organizations to develop and promote Kanchan Arsenic Filters (KAF) and Biosand Filters for removal of arsenic, iron, turbidity and pathogens from drinking water at household levels. KAF was developed in partnership with MIT and RWSSP while biosand filters with CAWST.

KAF can easily be constructed using locally available materials such as iron nails, sand, gravel, plastic buckets, and PVC pipes. ENPHO also trains local entrepreneurs on constructing biosand filters through ENPHI and various other community based programmes.

Environment and Public Health Studies
**Environment and Public Health Institute (ENPHI)**

**ENPHI** is the learning platform set by ENPHO to design and deliver professional training programmes with the sole objective of providing innovative tools for capacity building at community and organizational level. Professionals and decision makers are especially focused so that these empowered individuals can bring about changes through proper delivery of environmental services at local and national level.

The trainings and capacity building programmes organized by ENPHI are usually short term, ranging from one day to one month. ENPHI is also working with CHRDU in designing and delivering training programmes. Overall ENPHI has directly benefitted more than 8500 individuals among which 32% were female and 68% male during the FY 2010/11.

**Water Expertise and Training Center (WET Center)**

In order to provide leadership, training, technical consulting, educational resources and networking services to NGOs, government agencies and
community groups in local water and sanitation sector, ENPHI has been actively involved in the concept of WET Center since 1994 with the support from Helping Hands of Hope, CAWST and NRN Canada.

**Nepal Node for Sustainable Sanitation (NNSS)**

Nepal Node for Sustainable Sanitation (NNSS) is a knowledge centre for promoting various approaches to sustainable sanitation in Nepal and South Asia. NNSS, which is one of eight international nodes that was established with the assistance of Stockholm Environment Institute (SEI)’s EcoSanRes Programme, is facilitating the scaling up of sustainable sanitation options and institutionalize their promotion through coordination, information sharing and capacity building among stakeholders. The Node has been active in promoting ecological sanitation in more than 10 districts throughout the country, building local capacity, conducting research on urine application and establishing resource centres to decentralize knowledge management.
Resource Center (RC)

As ENPHO’s mission is to promote appropriate technologies and practice to enable communities become environment friendly, knowledge-based education and advocacy campaigns are one of the core activities of ENPHO. In order to reach out to the general public, respond to public demand for information and launch education and advocacy campaigns, ENPHO has established a Resource Centre (RC).

The RC collects, stores and disseminates information and uses them to conduct education and advocacy campaigns on environment and public health. RC is a member of the Water, Sanitation and Hygiene -Resource Centre Network Nepal (WASH-RCNN), which aims to establish an information network among national and international organizations working in the WATSAN sector.

ENPHO has also established Regional Resource Center in Rupandehi in coordination with FSCN; and Surkhet in coordination with DWSS, WASH-RCNN, SNV-Nepal, UNICEF, and WHO to promote safe water and sustainable sanitation.
Library
The RC collects and manages a library with books, reports and journals which are catalogued using an international system. It serves the needs of staff, students, scholars and the general public.

It has also been compiling national and international news related to environment. All the database and information of the library has been maintained by the main server networking system.

Publications and IEC Materials
Publications and IEC materials are produced, collected and distributed to suit the needs of various target audiences under WASH and ENPHO’s programmes.

WASH-RCNN
WASH-RCNN has been enhancing networking and sector learning through interaction programmes and maintaining communication and sharing among stakeholders through e-learning. The network has regularly published its monthly e-bulletin on ‘PANERA SARAFAI: WASH sector E-Bulletin of Nepal’.
ENPHO’s total income for the year 2010/11 was NRs. 73,958,963.26. This is a 15.51% increase compared to the total income of 2009/10. The total expenditure, on the other hand, was NRs. 73,155,819.89. This is an increase of 17% compared to the previous year’s expenditure. The trend in income and expenditure over the past 10 years is shown in the graph.

ENPHO follows its financial regulations to manage finances and revenues. Financial records are kept up to date by using FAMAS software with regular external annual auditing.
WAY FORWARD

ENPHO will continue to build on its strengths to establish itself as a center of excellence in the areas of water quality, sustainable sanitation and hygiene, while expanding its involvement in other environment related issues such as climate change, energy, air quality and disaster preparedness and risk reduction.

ENPHO will strengthen its organizational capacity, particularly in the areas of planning, monitoring and evaluation, communication and project management by providing training opportunities for its staff and establishing systems for their effective functioning. ENPHO will focus to promote integrated programmes on air quality, water, sanitation, hygiene, energy and climate change; and build ENPHI as a professional center for research and capacity building, particularly focusing on WASH sector.

ENPHO’s Strategic Operation Plan 2012-2015 tend to guide the organization towards reaching its goals at program, laboratory-research, organizational and institutional level. This will also help to strengthen its partnerships with development and funding partners, stakeholders, government organizations, local authorities and community based organizations at local, regional, central, national and international levels.
PARTNERS

NATIONAL

- Alternative Energy Promotion Center
- Amaghar Foundation
- Central Horticulture Center (CHC)
- Clean Energy Nepal (CEN)
- Department of Urban Development and Building Construction (DUDBC)
- Department of Water Supply and Sewerage (DWSS)
- Kathmandu Upatyaka Khanepani Limited
- Lumanti
- Ministry of Environment
- Ministry of Physical Planning and Works
- Municipal Association of Nepal (MuAN)
- Municipalities
- National Trust for Nature Conservation
- Nepal Bureau of Standards and Meteorology
- Nepal Red Cross Society
- Nepal WASH Alliance
- Nepal Water Supply Corporation
- NGO forum for Urban Water & Sanitation (NGOFUWS)
- Oxfam GB Nepal
- Park Village Hotel, Pokhara
- Poverty Alleviation Fund (PAF)
- Practical Action Nepal
- Rotary Club of Mid Town
- Rural Water Supply and Sanitation Fund Development Board (RWSSFDB)
- RWSSSP-WN, Pokhara
- Social Welfare Council
- Solid Waste Management and Resource Mobilization Center
- The Coca-Cola Company/ Bottlers Nepal
- Urban Environment Management Society (UEMS)
- Village Development Committees (VDCs)
Water, Sanitation and Hygiene – Resource Center Network (WASH-RCNN)-Nepal
Women Environment Preservation community (WEPCO)

INTERNATIONAL
- American Embassy
- Asia Arsenic Network (AAN)
- Asian Development Bank (ADB)
- ASIA-ONLUS, the Association for International Solidarity in Asia
- Australia Youth Ambassadors for Development (AYAD)
- Bremen Overseas Research and Development Association (BORDA)
- Center for International Studies and Cooperation
- Center for Science and Environment, India
- Center for Affordable Water and Sanitation Technology (CAWST)
- Consortium of DEWATS Dissemination (CDD), India
- Department for International Development (DFID), Nepal
- DISVI international, Italy
- Dutch WASH Alliance
- Engineers without Borders
- European Commission
- Give2Asia
- Helping Hands for Hope, Canada
- IRC International Water and Sanitation Centre, the Netherlands
- Japan International Cooperation Agency (JICA)
- Japan Water Forum
- Non Residential Nepali – Canada
- PLAN International
- Rainwater Harvesting Implementation Network Foundation (RAIN), the Netherlands
- Rural Village Water Resource Management Program - FINNIDA
- Sandia Laboratory, USA
- SEECONGmbh, Switzerland
- SIMAVI, the Netherlands
- SNV Nepal
- Solutions Benefitting Life
- Solvatten AB, Sweden
- Sustainable Sanitation Alliance (SuSanA)
Swiss Federal Institute for Environment Science and Technology (EAWAG/SANDEC), Switzerland
The Asia Foundation
United Nations Children’s Fund (UNICEF)
United Nations Development Program (UNDP)
United Nations Human Settlements Program (UN-HABITAT)
United States Agency for International Development (USAID)
Urban Development through Local Efforts/GIZ
WASTE, the Netherlands
Water Aid Nepal (WAN)
World Bank (WB)
World Health Organization (WHO)
World Vision International-Nepal
World Wildlife Fund Nepal

ACADEMIC
BOKU University, Vienna, Austria
Kathmandu University (KU)
Massachusetts Institute of Technology (MIT), USA
Nepal Engineering College
Pokhara University
School of Environmental Management and Sciences (SchEMS)
Stockholm Environment Institute, Sweden
Tribhuvan University
University of Kyushu, Japan
University of Yamanashi, Japan
Advisory board member of ACCESSanitation, ICLEI European Secretariat.
Coordinating organization of NGO Forum for Kathmandu Valley Water Supply and Sanitation.
Member for Development of Drinking Water Quality Standard, DWSS.
Member of Climate Change Network Nepal (CCNN).
Member of Consortium for DEWATS dissemination (CDD) network (informal network to promote and disseminate Decentralized Basic Needs Services (DBNS) at South Asia.
Member of expert group for preparation of Arsenic testing protocol formulation - NAST/National Arsenic Steering Committee.
Member of National Steering committee on Drinking water Quality and Sanitation.
Member of Nepal WASH Alliance (NWA).
Member on Coordination Committee Small Town Water Supply & Sanitation Project, DWSS.
Network member in Water, Sanitation and Hygiene – Resource Center Network Nepal (WASH-RCNN).
Network member of Sustainable Sanitation Alliance (SuSanA).
NGO group on Climate Change.
Sub-committee member of National Steering Committee for preparation of Interim National Policy on Arsenic in Drinking Water.
Technical committee member on Drinking Water Quality for NBSM.
Technical Committee Member for different environmental quality and lab issues for NBSM.