International POPs Elimination Project

Fostering Active and Efficient Civil Society Participation in Preparation for Implementation of the Stockholm Convention

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Nepal Country Situation Report on Persistent Organic Pollutants (POPs)

Society for Human Rights, Environment, Law and Governance Activities (SHELGA)

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About the International POPs Elimination Project

On May 1, 2004, the International POPs Elimination Network (IPEN http://www.ipen.org) began a global NGO project called the International POPs Elimination Project (IPEP) in partnership with the United Nations Industrial Development Organization (UNIDO) and the United Nations Environment Program (UNEP). The Global Environment Facility (GEF) provided core funding for the project.

IPEP has three principal objectives:

- Encourage and enable NGOs in 40 developing and transitional countries to engage in activities that provide concrete and immediate contributions to country efforts in preparing for the implementation of the Stockholm Convention;

- Enhance the skills and knowledge of NGOs to help build their capacity as effective stakeholders in the Convention implementation process;

- Help establish regional and national NGO coordination and capacity in all regions of the world in support of longer-term efforts to achieve chemical safety.

IPEP will support preparation of reports on country situation, hotspots, policy briefs, and regional activities. Three principal types of activities will be supported by IPEP: participation in the National Implementation Plan, training and awareness workshops, and public information and awareness campaigns.

For more information, please see http://www.ipen.org

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Content

1. Introduction

Despite the long global history of the use of pesticides in agriculture, Nepal started to use them very late in around the 1950s. Nepalese farmers earlier were totally dependent upon the traditional organic techniques for the control of different pests.

Pesticides were first imported into Nepal to control Malaria in 1950s. In November 1952, DDT was the first chemical pesticide introduced in Nepal by the Ministry of Health. The pesticide was widely used in Nepalese plain areas to control malaria since the disease was forcing the population to migrate to the Terai region in large numbers. The agriculture sector encouraged the use of the pesticide in 1956 when Ministry of Agriculture imported DDT for pest control purposes. After the successful use of DDT to control pests, the farmers started to import such pesticides from neighbouring countries.

According to the latest estimates made by the Plant Protection Division of the Department of Agriculture, pesticides equivalent to 55.8 Mt (metric tons) of active ingredients are consumed annually in Nepal. This ratio of pesticides has been imported from other countries.

With the support from Greenpeace International, Nepal Agriculture Research Council (NARC) and Department of Agriculture, more than 5 Mt of outdated hazardous pesticides were repackaged in Khumaltar as per the international standard for the purpose of disposal. Under a package of Asian Development Bank, 22.4 Mt of hazardous pesticides lying in the Amlekhagunj and Banke stockpiles were repackaged and labelled.

Despite the efforts of Greenpeace International to dispose of hazardous pesticides that are now safely stored at NARC, the government has yet to give the green signal to dispatch all the hazardous wastes to their country of origin.

2. Sources of POPs

2.1. Import of POPs from other Countries

In Nepal, most of the chemical pesticides are being imported from India followed by USA, Japan, Indonesia, UK and China.

In the 1950's, POPs and non-POPs started to get imported in Nepal in the name of disease control and to increase agricultural production. These replaced the traditional agricultural practices that were widely adopted to control pests and the spread of diseases.

2.2. Situation of Pesticides in Nepal in Chronological Order

Year	Pesticide group	Common Name of Pesticide	Toxicity to Humans	Persistence in Food Chain
1950s	Organochlorines	DDT, Lindane (BHC), Aldrin, Chlordane, Dieldrin	High	High
1960s	Organophosphates	Methyl Parathion, Nuvan Toxaphene, Malathion,	High	Moderate
1970s	Carbonates	Sevin, Thimet, Furadan	High	Low
1980s	Synthetic Pyrethroids	Sumicidin, Decis, Icon, Ficon	Low	Low

Source: Baker and Gayawali, 1994

2.3. Production of POPs in Nepal

There is some evidence of the attempts made by the government for the production of few pesticides. NEPCIL (Nepal Pesticides and Chemical Industries Private Limited) was the only pesticide-formulating factory established in 1977 at Bahadurgunj, Kapilvastu. It operated for four to six months every year and produced Lindane (BHC), malathion, methyl parathion etc. In addition, Nepal Krishi Rasan Product and Pashupati Agrochemical Nepal Private Limited are also engaged in the production of pesticides.

On the other hand, dioxins and furans are produced as a by-product from burning of waste material, especially the municipal and medical waste incinerators, various industrial processes such as chlorine bleaching in the pulp and paper industry and the production and disposal of chlorinated plastics such as polyvinyl chloride.

2.4. Uses of POPs in Nepal

The use of pesticides was largely concentrated on the management of pests as well as for vector control. Prior to 1994, all kinds of organochlorines, carbonates, pyrethroids and fungicides were being imported, formulated and used within the country. POPs related chemicals were used in Nepal for the management of vector borne diseases, insect pests and diseases of agricultural crops, pests of forest crops, domestic pest and pest control during carpet storage.

2.4.1. Agriculture Sector

In Nepal, the use of pesticides is common for pest management in agriculture. Initially, pesticides belonging to the class of organochlorines played a major role in managing agricultural pests. In agriculture, pesticide use and its expansion were directly related to the farmer's acceptance and adaptation of improved exotic crop varieties. These pesticides helped in enhancing production and thereby led to a tremendous growth in pesticide use. Lindane (BHC), chlordane, aldrin, dieldrin, endrin, heptachlor and toxaphene were the most popular among the farmers and widely used by them in agriculture.

According to an estimate by the Department of Agriculture, pesticides equivalent to 55.8 Mt of active ingredient are consumed annually in Nepal. This comprises of insecticides -- 33.3 Mt, fungicide -- 15.5 Mt, herbicide -- 0.7 Mt, rodenticides -- 0.18 Mt, and others -- 0.12 Mt. These pesticides are also used for poaching and fishing purpose. *(Nepal Agriculture Research Council Report)*

2.4.2. Public Health Sector

The reports of Ministry of Health indicate that DDT was mainly used nationwide under the public health program of the government for management of vector borne diseases. DDT was continuously used until the mosquitoes developed resistance to it. Establishment of National Malaria Eradication Organisation further gave a boost to the use of DDT in the country**.**

The use of poorly functioning incinerators in the country also raises the vulnerability of the public due to the high levels of exposure to POPs. Dioxins and furans, the unintended by-product POPs are generated from incineration of industrial/ municipal/ hospital waste.

3. Levels of POPs in Nepal

3.1 Stockpiles of pesticides

A large scale of date-expired pesticides lie in Nepal that were imported as granted from donor countries and were purchased by Agriculture Impute corporation and others.

3.1.1. Detail stock of date expired pesticides:

3.1.1 .1. Agriculture Impute Corporation, *Amlekhjunj*

S.No.	Type	Old Stock (Mt)
1.	Chlordane	1.2
2.	DDT	3.2
3.	Endrin	1.2
4.	BHC	6.8
5.	Lindane	0.5
6.	Organo-mercury fungicides	7.4
7.	Unidentified Dust	22.5
8.	Agrimycin bactericide	0.5
9.	Organophosphate liquid	1.2
10.	Atrazine liquid	0.4
11.	Dithane W.P.	2
12.	2,4-D W.P.	1
13.	Zinc Phosphide	1
14.	Aluminium Phosphide	2
	Total	50.9 Mt

3.1.1 .2. Agriculture Impute Corporation, *Nepalgunj*

S.No.	Type	Old Stock (Mt)
1.	Other	5.5

3.1.1 .3. Entomological Division, NARC, *Khumaltar*

S.No.	Type	Old Stock (Mt)
1.	Organophosphorous compounds	3.879
2.	Organochlorine compounds	0.155
3.	Organo Mercuric compounds	0.727
	Total	4.761

3.1.1 .4. Cotton Development Board, Nepalgunj

S.No.	Type	Old Stock (Mt)
1.	Organophosphorous compounds	3.711

3.1.1 .5. Agriculture Development Offices, *Banke, Western Nepal*

S.No.	Type	Old Stock (Mt)
1	Organophosphorous compounds	0.31
2	Benzi	0.01
	Total	0.32

3.1.1 .6. Directorate of Horticulture Development, *Kirtipur*

S.No.	Type	Old Stock
1.	Methyl bromide (MB)	21 cylinder

3.1.1 .7. Plant Pathology Division, NARC *Khumaltar*

S.No.	Type	Old Stock
1.	Methyl bromide (MB)	22 cylinder
Grand Total		**74.165Mt + 43 Cylinder of MB**

***Source NEFEJ, NARC, Nepal**

3.2 Industrial Waste

It is estimated that 126 grams of dioxins and furans are released annually in the country. To this total, the pulp and paper industries contribute 73 grams, the metal industry contributes 29 grams and 24 grams comes from uncontrolled burning.

PCBs are found in electric transformers manufactured before 1990. In addition, polychlorinated biphenyls (PCBs) and hexachlorobenzene are used in huge amounts in the industrial sector. A recent survey by the Nepal Bureau of Standard and Metrology has identified about 2000 litres of PCB waste in Nepal.

3.3 Causes for Increment in the Levels of POPs in Nepal

The following are some of the factors that make Nepal vulnerable to the threats posed by POPs:

- Illicit import of DDT and Lindane (BHC) across the Indian border is beyond control due to open border and ineffective monitoring.
- Sale and use of date-expired pesticides is still in practice widely across the country. The weak monitoring and enforcement mechanisms are incapable of checking it.
- There is lack of substantial information with regard to the usage, availability, sources, etc. of the existing POPs and non –POPs in the country.
- The pesticide residue levels in vegetables in the country are high as well as rampant in Nepal
- The warehouses are located at sites posing danger to human health and environment.
- There is lack of adequate knowledge about safe storage and packaging of obsolete pesticides.

4. Damages caused by POPs in Nepal

4.1. Effect on Health

Health effects from pesticide exposure can take on a great many forms and shapes. Nepalese are most susceptible to the exposures from POP pesticides through contaminated foods, vegetable, meat and fish. Poisoning cases have been observed in different hospitals and pesticides are among the major causal factors. While the acute cases of pesticide poisoning get frequently reported, the chronic cases do not come to light since the patients completely ignore the various symptoms.

Following the use of pesticides, retailers and farmers have complained of skin irritation, throat infection, headache, nausea, eye irritation and vomiting. Beyond this, the public health at large is at stake due to the consumption of pesticides-contaminated vegetables. It is also believed that the soil fertility has been declining due to the over use of POPs and non- POPs pesticides. POPs used for agriculture also destroys other insects that are important for the maintenance of the ecosystem.

In a school located near one of the warehouse of obsolete pesticides (in Amlekhgunj), children have complaining of health problems caused due to the strong by odour that emitted from the nearby stockpile of POPs and non-POPs obsolete pesticides.

POPs are found to have multiple impacts on the health of humans as well as wildlife. These include disorders of the reproductive system, birth defects, tumours and cancer, decrease in immunity, disorders of the nervous system and decreased IQ among children. These have been proven by various studies carried out in different parts of the world.

4.2 Contamination in water

Leaking of disposed date-expired pesticides, run off of sprayed chemicals, and improper disposal of empty containers are some of the main sources responsible for contamination of water thereby posing a threat to public health. It is believed that the water bodies have been contaminated due to the POPs used on the nearby agriculture farms. Phewa and Rupa lakes of Pokhara have also been contaminated due to the high levels of pesticide usage in nearby agriculture farms. (Study done by the Entomology Division in 1998).

5. Major Laws Directly Regulating POPs in Nepal

5.1 Pesticide Act 1991

The main objective of the Act is to make provisions relating to pesticides. It regulates the import, export, production, distribution and uses of pesticides. It defines a pesticide as a means to destroy the germs harmful to the seed plants, trees, animals, and birds. The major provisions of the Act are:

5.1.1 Constitution of Pesticide Board

The functions and duties of the Board are to provide the requisite advice as well as to formulate national policy on pesticides. It ensures coordination between the pubic and private sectors as well as encourages the private sector to establish industry. It also regulates and controls the quality of pesticide

5.1.2. Pesticide Registration Office

The Act empowers the government to establish Pesticide Registration Office as an institutional mechanism to control and regulate the export, import, production and distribution of pesticides.

The main functions of the office are:

- Registration and certification of pesticides
- Ascertain criteria for capable, rational and appropriate utilization of pesticides

Other provisions of the Act include:

- The Act requires certification in order to export, import, produce, use or distribute pesticide after registration.
- A license for production, distribution of notified pesticides is required.

- It also is responsible for the appointment of the Pesticide Inspector.

5.1.3 Shortcomings in the Act

- Does not require mandatory labelling as prescribed by FAO guidelines.
- No adequate safety regulation
- Due attention is not paid to environment and human health
- More focused on trade and business
- Lack of quality assurance of storage and packaging
- Do not require Prior Informed Consent.
- Lack of advertising code
- Does not regulate the packaging, storing and transportation of pesticide

5.2 Environment Protection Act, 1997

The Act was formulated to reduce the adverse impacts on the environment and ensure proper use of natural resources and environmental conservation. It specifies development projects for which EIA (Environmental Impact Assessment) and IEE (Initial Environmental Examination) are necessary and it specifies the procedures to be followed for these activities. EIA is necessary for the activities such as: import of over 10 tons of registered pesticides, marketing, storage and disposal of over one ton of registered pesticides, use of over one ton of pesticide in one area, establishment of pesticide formulating plant etc.

5.3 Solid Waste (Management and Resource Mobilization) Act 1987

The Act has been formulated for the management of solid waste**.** It created the Solid Waste Management and Resource Mobilization Centre that was entrusted with the task of managing solid and hazardous waste.

Besides the abovementioned enactments there are some sectoral laws governing POPs, such as the Industrial Enterprises Act, Labour Act, etc.

But since the problems are quite widespread throughout the country, the following gaps need to be addressed to cope with the problem:

- Lack of specific laws to address POPs problems and implement the Stockholm Convention in the country.
- Lack of environmental quality for pesticides.
- Lack of an effective legal and institutional arrangement to address the problem of POPs.
- Poor implementation of existing laws and policy
- The Stockholm Convention is yet to be ratified.
- Consumers are unaware of their environmental and health rights.

6. NGOs Working on POPs in Nepal

Of the 35,000 NGOs working in the country, only 11 are engaged with POPs issues. Some of the major NGOs are:

- Society for Human Rights, Environment, Law and Governance Activities (SHELGA), Kathmandu, Nepal
- Nepal Forum of Environmental Journalists (NEFEJ), Kathmandu, Nepal; Nepal
- Centre for Public Health and Environment Development (CEPHED)
- Forum for Justice, Kathmandu
- Pro-Public, Kathmandu

6.1 Major Works of Nepalese NGOs on POPs

The NGO activities on POPs have so far included:

- Collection of information about POPs
- Conduction of Awareness Program on POPs
- Capacity Building
- Advocacy
- Publication of Resources Materials on POPs
- Conduction of Research Activities
- Contributing to the NIPs process in the country

Examples of some works include:

- *"Politics of poison"* published by Forum of Nepalese Environmental Journalist.
- NEFEJ is on the steering committee of POPs Enabling Activity project under the Ministry of Environment, Science and Technology.

6.2 Difficulties faced by NGOs

It is not easy for NGOs in Nepal to work on POPs issues. They face several difficulties some of which include:

- Little knowledge about POPs and the measures for their elimination.
- Lack of financial and technical support to NGOs to take up POPs work long-term.
- Lack of availability of information and resources in local language for grassroots organizations.
- Lack of coordination and collaboration among NGOs working on POPs issue.
- Little chance for NGOs to get involved with the NIP Process.

7. Nepal's Efforts to deal with POPs

Nepal signed the Stockholm Convention on Persistent Organic Pollutants on 5 April 2002. Following the signing of this convention, His Majesty's Government of Nepal banned the sale, production and use of eight (8) POPs with effect from 10 April 2003.

However there is a lack of specific governmental policies and programs to address the issue of POPs in the country.

Since 2004, His Majesty's Government of Nepal has been working to develop an inventory of POPs and non- POPs under the POPs Enabling Activities Project. The Nepalese Government with support from the Global Environment Facility (GEF) is working to prepare a National Implementation Plan (NIP).

Nepal's civil society organizations including SHELGA have been lobbying for the safe storage, packaging and disposal of obsolete POPs and non-POPs pesticides stockpiled at different parts of the country such as Agriculture Impute Corporation, Amlekhjunj, Agriculture Impute Corporation, Nepalgunj, Entomological Division, NARC, Khumaltar, Cotton Development Board, Nepalgunj, Agriculture Development Offices, Banke, Western Nepal, Directorate of Horticulture Development, Kirtipur and Plant Pathology Division, NARC Khumaltar etc.

7.1 State of Stockholm Convention Ratification and National Implementation Plan in Nepal

Local administrators, some members of the business community, importers, retailers and others who are making money from illicit business of POPs and non-POPs are opposing the National Implementation Plan (NIP) in the country. On the other hand, NGOs, CBOs, journalists, social activists and public interest groups are in the favour of an effective and comprehensive NIP in line with the provisions laid down in the Stockholm Convention on Persistent Organic Pollutants.

A year after the signing of the Convention, on 10 April 2003, the government brought about a ban on production, sale and use of eight POPs namely aldrin, chlordane, dieldrin, DDT, endrin, heptachlor, mirex, and toxaphene (8 out of 12 POPs). The country has yet not ratified the Convention.

NGOs including SHELGA are pressuring the Nepalese government to ratify the Convention. There are several government agencies involved and the lack of coordination and cooperation among them has been a major cause for delay in taking up any concrete action to eliminate POPs in Nepal.

With support from the GEF, the Ministry of Population and Environment (MoPE), which has recently merged with the Ministry of Environment, Science and Technology, launched the POPs Enabling Activities Project (POEAP) in 2004. The major objective of the project is to support government to fulfil national obligation under POPs Convention.

The public consultation component is almost missing from the process. The stakeholders have no/ very poor access to the whole National Implementation Plan process.

7.2 Public Awareness Activities in Nepal

Awareness levels regarding the ill effects of POPs and the Stockholm Convention on Persistent Organic Pollutants is very poor among the stakeholders. This can be largely attributed to the lack of a comprehensive awareness campaign on the issue. Very few NGOs have knowledge of POPs and that too is quite limited.

The State does have an obligation in this regard to avoid unnecessary hazards to ensure optimum use of the resources in the best possible ways the benefits of which would go to a large number of people.

There is lack of awareness materials such as booklets, handbooks, reports, data and other literature. What ever little materials exist are available in English. Lack of availability of awareness materials in the local language has been a big hurdle. There has been no concerted effort to take up research and generate local date.

There is a need to take up extensive research at the local levels to understand the adverse impacts of POPs and non-POPs in Nepal. Once you have strong evidence, it would be easy to convince the people and they would be ready to work towards the elimination of POPs. Even the educated masses in the urban areas have little knowledge of POPs. In fact, most commonly this lack of knowledge adds to the confusion since they consider all pesticides as POPs. Also the general perception is that pesticides are necessary and the use of DDT is beneficial since it controls vector borne diseases.

It is important to take up initiatives to make the public aware. Local level campaigns can be planned for NGOs, CBOs, farmers, journalists, public interest groups and the masses at large.

7.3 Problems Relating to Eliminating POPs in Nepal

It is equally important to understand certain limitations and challenges, which pose a serious problem for the country in effectively dealing with the issue of POPs. These have been identified as follows:

- There is a lack of awareness among the consumers/ general public about harmful effects of pesticides and POPs. It is important that they understand and be aware of the threats of POPs and non- POPs.
- There is lack of adequate scientific knowledge that restricts them from exploring alternatives that would reduce/ eliminate POPs.
- There is a misconception among the general public that POPs are good. Lack of any local data on the ill effects makes the situation worse. People therefore continue to use POPs.

- Country lacks adequate infrastructure needed to take up research. There are no laboratory facilities to take up analysis of POPs.
- There is a lack of data regarding the exact status of obsolete POPs and non-POPs pesticides.
- There is lack of safe storage and packaging of obsolete POPs and non-POPs pesticides.
- The monitoring mechanisms in the country are weak. Banned POPs pesticides continue to be used. Also quite often, there is misuse and overuse of POPs and non-POPs pesticides, which is largely on account of ignorance among the users.
- The 1500-kilometer long open boarder with India and the lack of strict monitoring of illegal import results in the common sale and use of POPs and non-POPs pesticides.
- There is clearly a lack of coordinated effort on the part of the government to eliminate POPs. More steps need to be urgently taken to reduce and eliminate POPs from the country.
- There is lack of a disposal plan to dispose of obsolete pesticides stockpiled in different parts of the country.
- POPs-emitting technology, such as incineration, is not prohibited or regulated in the country.

8. Conclusion

The management of POPs is a crucial issue to protect human health and environment from their adverse affects.

From the legal perspective, the Constitution of the Kingdom of Nepal, 1990, along with several international instruments, guarantees to every individual the Right to Life, which can be interpreted as a right to a healthy life, free from any form of diseases. It therefore becomes the duty of the State to provide an environment, which is POPs free so that its citizens can lead a health life. It is equally important to educate the citizens on the adverse impacts from the use of pesticides and other chemicals.

In conclusion it can be said that the continued use of POPs and their impacts on humans and environment, their effective management, and need for a constructive role played by the government are all issues that demand urgent attention. Already we have waited too long but any further delay will increase the threats to our health and environment manifold and these will in no way be limited to Nepal alone.

9. Recommendations on Eliminating POPs

9.1 Role of the State and Civil Societies and NGO

- The first step required in this direction by the State is to ratify the Stockholm Convention and to fulfil the various obligations with sincerity.

- POPs illegal import, sale and use are rampant in Nepal. There is no specific mechanism to prevent and control such problems. So, effective monitoring is required to stop illegal import, sale and use of POPs.

- Sate should constitute a Monitoring Committee to strengthen the monitoring mechanism and should involve the members of civil society organisations.

- Peoples' groups to act as watch dog to monitor government's action and inaction.

- Role of the State and NGOs can be more vital in phasing out of POPs through awareness and education campaigns. This may require foremost building and strengthening their capacity on the issue.

- Production of information and awareness material in local language to supplement the awareness raising activities.

- It is very essential to have adequate guidelines and policies in place to address the issue of packaging/ repackaging and proper storage and handling of obsolete POPs.

- There should be guidelines and policies to regulate the existing practices such as incinerators that are major sources of POPs.

- Assistance from International community should be sought to build country's capacity regard to safe packaging, storage and disposal of POPs.

9.2 Recommendations on Inventories

- As a first step, an accurate inventory of POPs needs to be developed at the earliest. It is not possible to draw up an effective action plan till the magnitude of the issue to be addressed is known.

- There is a need to clearly identify the stockpiles of POPs pesticides, including obsolete stocks that are scattered in different part of the country.

- An inventory needs to be prepared following the internationally recognized labelling system containing information on the name, the manufacturer and other technical information.

- The available data regarding POPs and their stockpiles needs to be verified and regularly updated by the State with active participation of the civil society.

9.3 Recommendations on Alternatives to POPs

- State as well as the NGO's need to take the information about the adverse impacts of POPs among the local masses/ other stakeholders. This should also include information on the viable alternatives to POPs.

- Alternatives that have a proven track record for efficacy need to be documented and introduced in the country. One such example of an effective alternative to POPs is the Integrated Pest Management (IPM).

- Encourage taking up new research in the area of developing alternatives.

- Incentives could be introduced to encourage the shift to alternatives.

9.4 Recommendations on New POPs

- Need a proactive approach in dealing with the issue since it is not restricted to the 12 chemicals only. There are several more chemicals in use possessing similar characteristics as POPs, These needs to be identified in the context of Nepal.

- Adopt a precautionary approach to minimise the impacts from these chemicals.

- Need to work within the framework of larger chemical safety to avoid any future threats.

- Local research on the impacts from these new chemicals identified as possessing POPs characteristics.