Status of plant protection activities in Nepal

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Capacity building in use of the International Phytosanitary Portal (IPP) and APPPC website for information exchange
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Kuala Lumpur, Malaysia
Country at a glance

- Nepal: Sovereign, landlocked, mountainous South Asian country
- Sandwiched between two giant countries in the world, the greater China-in the North and the India in 3 parts
- Rich in biodiversity and water resources
- Land area of 147,181 Km
- Population: Nearly 30 million; Population growth rate: 2.25%
- 80 percent of economically active labor force
- 65.6 percent of the total population depends on agriculture
- Contribution of agriculture to GDP: 42%
Mount Everest
Fish Tail Himal
## Agricultural situation in Nepal

<table>
<thead>
<tr>
<th>Physical region</th>
<th>Area in Km²</th>
<th>% of cultivated area of the country</th>
<th>% of cultivated area of the region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Cultivated</td>
<td></td>
</tr>
<tr>
<td>Himalayan</td>
<td>51313</td>
<td>1436</td>
<td>4.0</td>
</tr>
<tr>
<td>Hills</td>
<td>61816</td>
<td>9337</td>
<td>26.0</td>
</tr>
<tr>
<td>Terai</td>
<td>33851</td>
<td>25138</td>
<td>76.5</td>
</tr>
<tr>
<td>Total</td>
<td>147181</td>
<td>35912</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Agriculture: Major occupation, GDP contribution (more than 42%)

**IPM Programme active since**: 1997 now in second phase (Norwegian Govt. Support and technical backstopping from FAO-Nepal)

**Estimated number of farmers trained**: 75207 (60% Female)

**Estimated number of trainers currently active**: 2014 (IPM Programme 907 - I/NGO 107)

**Main Crop involved**: Rice, vegetables, potato, legumes, also tea, coffee and citrus
Pesticide use situation

- 3 pesticide formulators, 50 pesticide dealers, 4000 licensed pesticide retailer in the country
- Mainly organophosphate, carbamates, synthetic pyrethroides, fungicides, herbicides, rodenticides, botanical pesticides, bio-pesticides and pesticide used in public health.
- Pesticides not extensively used in Nepal, except in some crops and locations
- An average 142g/ha. of pesticides. However, in cotton (2560 g/ha), tea (2100g/ha) and vegetables (1400g/ha)
- On the basis of a.i.: 212 ton
- Worth of: 207.69 million NRs (2.95 million US $)
- Insecticides (botanicals and public health): 29.82 %
- Fungicides: 61.12 %
- Herbicide 7.43 %,
- Rodeticides: 1.17 %
- Bio-pesticides: 0.67 %
- 0.2 % others (Bactericides, Acaricides, Nematicides and rest).
Pesticide Registration Information

- Trade products: 470
- Technical names: 88
  - Insecticides: 44
  - Fungicides: 24
  - Herbicides: 12
  - Rodenticide -3
  - Bio- pesticides: 4
  - Bacteriacide - 1
# Trends and value of pesticide import

<table>
<thead>
<tr>
<th>Year</th>
<th>Quantity (kg. a. i.)</th>
<th>Rupees (NRs, 000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997</td>
<td>56,172.56</td>
<td>5,13,87.94</td>
</tr>
<tr>
<td>1998</td>
<td>77,856.87 (+)</td>
<td>6,60,59.84</td>
</tr>
<tr>
<td>1999</td>
<td>1,08,427.82 (+)</td>
<td>8,45,17.61</td>
</tr>
<tr>
<td>2000</td>
<td>1,96,064.58 (+)</td>
<td>14,74,38.80</td>
</tr>
<tr>
<td>2001</td>
<td>1,46,152.48 (-)</td>
<td>14,86,20.34</td>
</tr>
<tr>
<td>2002</td>
<td>1,77,591.10 (+)</td>
<td>18,35,35.85</td>
</tr>
<tr>
<td>2003</td>
<td>1,76,372.81 (-)</td>
<td>12,31,58.14</td>
</tr>
<tr>
<td>2004</td>
<td>1,54,082.05 (-)</td>
<td>13,10,22.8</td>
</tr>
<tr>
<td>2005</td>
<td>1,31,270.43 (-)</td>
<td>13,00,25.6</td>
</tr>
<tr>
<td>2006</td>
<td>1,31,284.55 (+)</td>
<td>13,31,28.45</td>
</tr>
<tr>
<td>2007</td>
<td>3,47,494.50 (+)</td>
<td>27,26,81.3</td>
</tr>
<tr>
<td>2008</td>
<td>3,12,740.50 (-)</td>
<td>23,33,10.75 (-)</td>
</tr>
<tr>
<td>2009</td>
<td>2, 11, 079.34 (-)</td>
<td>20,76,88.05 (-)</td>
</tr>
</tbody>
</table>
### Summary of date expired pesticides accumulated in Nepal

<table>
<thead>
<tr>
<th>SN</th>
<th>Pesticide group</th>
<th>Amount (mt)</th>
<th>% of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mixed (PoP and OC)</td>
<td>23.61</td>
<td>31.80</td>
</tr>
<tr>
<td>2</td>
<td>Organochlorine</td>
<td>10.48</td>
<td>14.02</td>
</tr>
<tr>
<td>3</td>
<td>POPs</td>
<td>10.05</td>
<td>13.54</td>
</tr>
<tr>
<td>4</td>
<td>OM</td>
<td>8.38</td>
<td>11.29</td>
</tr>
<tr>
<td>5</td>
<td>OP</td>
<td>7.95</td>
<td>10.72</td>
</tr>
<tr>
<td>6</td>
<td>Fungicides</td>
<td>4.45</td>
<td>5.99</td>
</tr>
<tr>
<td>7</td>
<td>Rodenticides</td>
<td>2.60</td>
<td>3.51</td>
</tr>
<tr>
<td>8</td>
<td>Fumigants</td>
<td>2.52</td>
<td>3.40</td>
</tr>
<tr>
<td>9</td>
<td>SP</td>
<td>1.86</td>
<td>2.52</td>
</tr>
<tr>
<td>10</td>
<td>Herbicides</td>
<td>1.84</td>
<td>2.48</td>
</tr>
<tr>
<td>11</td>
<td>CM</td>
<td>0.54</td>
<td>0.73</td>
</tr>
<tr>
<td>12</td>
<td>Grand total</td>
<td>74.25</td>
<td>100</td>
</tr>
</tbody>
</table>
Pesticide policy for the enforcement of Pesticide Act

- Under consideration in Parliament
- Pesticides are registered and regulated under the pesticide act and rules
- Act regulates the imports, production, sale, distribution, marketing and use of pesticides for management and preventing pesticide risk
- Under the pesticide act 1991, a Pesticides Board is functional comprising various Ministries, pesticide association, scientists and consumers group
- Major tasks: implementation of national and international rules and regulations
### Banned Pesticide in Nepal

<table>
<thead>
<tr>
<th>Chlordane</th>
<th>Toxafen</th>
</tr>
</thead>
<tbody>
<tr>
<td>DDT</td>
<td>BHC</td>
</tr>
<tr>
<td>Dieldrin</td>
<td>Lindane</td>
</tr>
<tr>
<td>Endrin</td>
<td>Phosphamidon</td>
</tr>
<tr>
<td>Aldrin</td>
<td>Organo mercury fungicides</td>
</tr>
<tr>
<td>Heptachlor</td>
<td>Methyl parathion</td>
</tr>
<tr>
<td>Mirex</td>
<td>Monocrotophos</td>
</tr>
</tbody>
</table>

Phorate and Methomyl are in the process of banning
Methyl bromide: 2015 for strictly for quarantine purpose

### Stock of obsolete pesticide

Obsolete pesticide is 74.265 mt + 43 cylinder of methyl bromide (50 kg) stored in warehouse at 24 locations of the country
Pesticides Board/Committee

Mandated to:

• Advise Nepal government in the formulation of national policy regarding pesticide,
• Maintain coordination between private and government sectors in the production and distribution of pesticides,
• Rational encouragement of the private sectors to invest in the industry,
• Regulate or control the quality of produce by the industry operated by private/government sectors, and
• Establish standard for pesticide

Under the board, 2 sub-committee:
  • Technical sub-committee (with 7 member)
  • Legal sub-committee (with 3 member)
The Pesticide Registration and Management Division

- Established in 1994 under the Act
- To operate the pesticide registration and management activities.

Duties of PRMD:

- Register pesticides and issue certificate upon receiving application
- Ascertain the criteria for rational and appropriate use of pesticides
Pesticide Registration

- Registration is required for each formulation and even brand of a single technical compound.
- The pesticides are registered in the name of Trade Product for 5 years with or without provision/condition.

Pesticide registration procedures

- Application form for registration of pesticides with NRs.5 ticket.
- Pesticide registration fee RS. 1000/-
- A statement of the need to use in Nepal
- Summary of intended use pattern
- Ecotoxicological data
- Efficacy data
- Residue analysis data
- Copies of at least one foreign registration certificate (evidence that the product is registered overseas)
- Three copies of the original label
- Approved labels
- Leaflets in Nepali language - for importers
- Labels and leaflets in Nepali Language - for domestic formulators.
- For research no attachments are necessary
National IPM Program and outcomes
First phase of IPM

- Began: 2003: In support of Gov of Norway
- Outcomes: Trained human resources (technicians and farmers)
- Support to program initiatives
- Created awareness among farmers, principles and method of IPM
- IPM based on field studies, crop productivity (rice and vegetables)
- Institutionalization and mainstreaming of IPM to regular program of Government, NGOs
- The first phase has forged the roadmap to second phase of IPM
Second phase of IPM

- Began: January 2008 – Dec 2012 in support of Gov of Norway
- Objectives: consolidation, intensification and institutionalization of the outcomes of first phase of IPM,
- Up scale IPM to all 75 districts
- Theme is not just about pest control
- Holistic and sustainable management production management
- Food security, reduce poverty and safe gourd environment
- Major focus: Developing and spreading successful IPM technologies
- Increase agriculture production, promote marketing to IPM crop products
- Far beyond the class room of the institutions and researches
Achievements of IPM Programme

- Farmers trained: 72957 (60% Female)
- Trainers currently active: 1149 IPM Programme (1042 - I/NGO 107)
- Farmer Field School (FFS) implemented: 1010
- FFS in Rice in Rice: 661
- FFS in Vegetable: 649
- Good understanding among farmers on ecology based crop production.

Some Impacts of IPM Programme

- Reduction in pesticide use by 40% in FFS areas.
- Increase in crop yield from 15 – 25% in rice and 32-48% in vegetable as compared to farmers’ adopted practice.
- Gradual increase in bio and botanical pesticides.
Gender Mainstreaming

Male and Female participation in rice FFS
Male and Female participation in vegetable FFS
Social Inclusion

Rice
- Others: 72%
- Janajati: 24%
- Dalit: 4%

Vegetable
- Others: 65%
- Janajati: 30%
- Dalit: 5%
Other Visible Impacts

- Ecosystem Understanding
- Reduction in use of Hazardous pesticide:

  Health and Environment: Over 80% of the IPM farmers agreed to a better health condition and think that their doctor visit and medicine cost reduced.

- Food Security: Average income of the farmers improved in program areas due to increase in yield following IPM practice. In the FFS areas 15-25% yield increase was recorded in rice and 32.7-48.3% in vegetables.

- Awareness and Peace building

- Linkage, Coordination and Collaboration: Farmers and local government have shown higher enthusiasm in IPM program. Involvement of NGO/INGO
Government commitment

- Nepal signatory country of International Conventions related to pesticide
- Stockholm Convention,
- Basel Convention,
- Rotterdam Convention
- Montreal Protocol (MOEST 2008)
- As a commitment and an obligation to these global treaties Government of Nepal has banned an import and use of POPs
- WTO member
National Quarantine Program

- NPQP: Governing body
- 15 plant quarantine checkpoints and sub-checkpost
- Including them one in Tribhuvan International Airport
- 5 Regional Plant Quarantine Offices in the Indian boarders
- 3 Checkposts and sub-check posts located in Shino-Nepal boarders
- Mandatory for SPS measures
Future strategies of Directorate

Pesticide monitoring system while import, formulation, storage, sale and disposal

- Deregistering of highly toxic pesticides (extremely hazardous) IA and IB of WHO classification
- Promotion of Bio-pesticides/Bio-control agents
- Promotion of IPM and other alternative pest management strategies
- Establishment of central, regional as well as community level laboratories for quality, residue and toxicology analysis
- Capacity building of pesticide importers, resellers and farmers
- Promotion of environment friendly formulation
- Strategies for first in first out policy (minimize pesticide being as obsolete)
- Disposal of the obsolete pesticides (75 mt in the country)
Namaste