

# Compilation of Questionnaire on Practical Aspects of Pesticide Risk Assessment and Phasing out of HHPs

**(FAO/APPPC Asia Regional Workshop on Practical Aspects of Pesticide Risk assessment and phasing out of HHPs, 19-22 May 2014, Nanjing, China)**

## I. PESTICIDE REGISTRATION AND RISK ASSESSMENT

### 1. Registered pesticides and their status

#### Background

The number of registrations, validity period and regulatory actions indicate the approach to registration in a country.

#### Survey responses

		Bangladesh	Cambodia	China	DPR Korea	India	Japan	Lao, PDR	Malaysia	Mongolia	Myanmar	Nepal	Pakistan	Sri Lanka	Thailand	Vietnam
How many <b>active ingredients</b> are currently registered in your country? (Please provide list as annex)	Min= 79 Max= >645	144	115	>645	219	246	561	91	284	79	244	108	322	122	207	378
How many <b>formulated products</b> are currently registered in your country?	Min= 119 Max= ∞	3307	750	>29700	346	∞	4328	151	2700	119	1996	324	6688		5033	3902
What is the normal <b>validity period</b> of a pesticide registration [years]?	Min=2 Max= ∞	3	3	5	3	∞	3	2	5	∞	10	5	3	3	6	5
How many registrations have been <b>restricted</b> due to health or environmental concerns and can only be used in specific and controlled cases? (Please provide list as annex)	Min= - Max= 109	1	48	11	30	13	8	2	2	-	7	109	1	2	29	13
How many active ingredients have been <b>banned</b> for registration in your country? (Please provide list as annex)	Min=4 Max=163	23	163	47	13	29	27	55	31	4	39	15	26	30	98	29
Ratio formulations : a.i.		23	6.5	46	1.6	∞	7.7	1.7	9.5	1.5	8.2	3.0	20	6.6	24	2.4

#### Observations

- There is an 8-fold range in the number of registered active ingredients, and a more than 250-fold range in registered formulated products;
- The countries with the highest number of registered products in relation to the number of registered active ingredients (>20 times more formulations than a.i.) are India, China, Bangladesh, Pakistan and Thailand;
- The countries with the lowest ratio (< 3 times more formulations than a.i.) are Vietnam, DPRK, Laos and Mongolia;
- The average period of registration validity is 3-5 years; one country has a 2 year period, while three countries have a 10 year or unlimited registration periods;
- The number of restricted use pesticides varies greatly from country to country from 1 to 109;
- The number of banned pesticides varies greatly from country to country from 4 to 163.

## Analysis of data set on registered active ingredients

This information is based on the lists of registered active ingredients provided by the countries; the numbers in the following table may differ from other answers provided in the questionnaire.

Data set on registered active ingredients	Total	Bangladesh	Cambodia	China	DPR Korea	India	Japan	Lao, PDR	Malaysia	Mongolia	Myanmar	Nepal	Pakistan	Sri Lanka	Thailand	Vietnam
Total number of registered active ingredients	<b>1172</b>	144	155	581	220	249	502	79	282	76	241	107	255	110	206	359
Unique country-specific registration (a.i. not registered in any other country)	<b>598</b>	6	13	150	58	20	195	3	34	9	16	2	10	9	15	58
<b>% of total</b>	<b>51%</b>	4 %	8 %	26 %	26 %	8 %	39 %	4 %	12 %	12 %	7 %	2 %	4 %	8 %	7 %	16 %
Number of a.i. names found in WHO list of classification	<b>456</b>	103	92	291	166	175	245	58	175	49	170	75	167	85	125	192
<b>% of total</b>	<b>39% (65% av.)</b>	72 %	59 %	50 %	75 %	70 %	49 %	73 %	62 %	64 %	71 %	70 %	65 %	77 %	61 %	53 %
Number of a.i. with EU evaluation (approved and not approved)	<b>576</b>	123	115	356	164	198	326	64	202	56	187	90	211	95	166	255
<b>% of total</b>	<b>49% (77% av.)</b>	85 %	74 %	61 %	75 %	80 %	65 %	81 %	72 %	74 %	78 %	84 %	83 %	86 %	81 %	71 %

## Observations

- There are about 1,170 active ingredients registered in the region;
- On average, 65% of the pesticides registered in a country are listed in the *WHO Recommended Classification of Pesticides by Hazard*, and 77% have been evaluated in the EU;
- About half the total registered a.i. are registered in only a single country; the largest number is found in Japan with unique 195 pesticides that are not registered in any other country in the region; 77% of these pesticides are not found on the WHO or EU lists;
- The majority of single country registrations are rare chemical pesticides such as Agrifos, Picoxistrobin, Prosuler, Simeconazole, theta-Cypermethrin, Urbacide, etc.;
- Single country registrations include about 100 bio-pesticide products, oils and plant extract, as well as more than 30 plant growth regulators, some plant stimulants and activators;
- Single country registrations also include 26 obsolete and 15 WHO Class I pesticides that have been out-phased elsewhere (e.g. Aldrin, Endrin, Mirex, Aldicarb, Parathion);
- Single country registrations may also include specific salts, esters or stereo-isomers that would not be considered a separate active ingredient in another country;
- Single country registrations include some specific local products and concoctions such as whole egg powder, starch, garlic powder, extract of mixed crude drugs or unspecified products such as amino acid, sex pheromone, auxins or the genus *Beauveria* and *Brevibacterium*;
- A few single country registrations are possible misspellings referring to real chemicals such as Asadirachtrin, Carbensulfan, Mandipromid, Phenohtoate or Trisulfuron; or multiple registrations of the same chemical under different names (e.g. Alphametrin and alpha-Cypermethrin); or drugs such as Aspirin, Tetramycin or Streptomycin.

## Conclusion

- Each country has registered some pesticides that are not found in any other country of the region. While some of these products are modern, state-of-the-art pesticides, others are outdated and rare products with limited risk information.

## Analysis of data set on banned or restricted use active ingredients

This information is based on the lists of banned or restricted active ingredients provided by the countries; the numbers in the following table may therefore differ from other answers provided in the questionnaire.

<b>Data set on banned or restricted active ingredients</b>	<b>Total</b>	<b>Bangladesh</b>	<b>Cambodia</b>	<b>China</b>	<b>DPR Korea</b>	<b>India</b>	<b>Japan</b>	<b>Lao, PDR</b>	<b>Malaysia</b>	<b>Mongolia</b>	<b>Myanmar</b>	<b>Nepal</b>	<b>Pakistan</b>	<b>Sri Lanka</b>	<b>Thailand</b>	<b>Vietnam</b>
Total number of restricted use registrations	<b>112</b>	1	48	24 <sup>^</sup>	30	13	2	2	2		7	0 <sup>#</sup>	1	1	5	13
Unique country-specific restricted use registrations (a.i. not restricted in any other country)	<b>87</b>	0	35	14	21	7	1	0	0		1	0	0	0	1	7
<b>% of total</b>	<b>78 %</b>	0%	73%	58%	70%	54%	50%	0%	0%		14%		0%	0%	20%	54%
<sup>^</sup> China: The number includes pesticides under the phase-out scheme																
<sup>#</sup> Nepal restricts certain formulations to specific uses (household, public health, etc.), but it does not restrict the use of certain active ingredients to particularly qualified or trained persons																
Total number of banned pesticides	<b>230</b>	23	161	33	13	29	29	52	29		39	15	27	30	95	32
Unique country-specific bans (a.i. not banned in any other country)	<b>117</b>	0	60	8	2	19	4	3	1		0	0	2	3	14	1
<b>% of total</b>	<b>51%</b>	0%	37%	24%	15%	66%	14%	6%	3%		0%	0%	7%	10%	15%	3%

### Preliminary observations

- There are a total of 112 active ingredients restricted and 230 banned in the responding countries;
- The majority of restricted use pesticides (78 %) are restricted only in one country; only 8 pesticides are restricted in 3 or more countries, e.g. Methyl bromide is restricted in 8 countries, and Carbofuran in 5 countries;
- Half the banned pesticides (51 %) are banned in only one country; 77 pesticides are banned in 3 or more countries.

### Conclusion

- Countries apply different reasons and criteria for banning or restricting a pesticide;
- There is only limited consensus with regard to which pesticides should be banned or restricted.

## Survey responses to registration status of pesticides listed under the Rotterdam and Stockholm Conventions and the Montreal Protocol

### Purpose:

Regional lists of banned/restricted pesticides have been produced for previous workshops (2005, 2012); as a new element, information has been added for this workshop about pesticides listed in the Conventions that have not been banned, but are not registered and thus are *de-facto* prohibited.

		Bangladesh	Cambodia	China	DPR Korea	India	Japan	Lao, PDR	Malaysia	Mongolia	Myanmar	Nepal	Pakistan	Sri Lanka	Thailand	Vietnam	
PIC	2,4,5-T and its salts and esters	2	1	2	1	2	1	1	1	1	1	2	2	1	1	1	
PIC	Alachlor	1	3	4	4	4	4	4	1	1	1	2	2	1	4	1	
PIC	Aldicarb	1	1	3	3	1	2	2	1	1	2	2	2	2	2	2	
POP, PIC	Aldrin	1	1	1	3	1	1	1	1	1	1	1	2	1	1	1	
PIC	Binapacryl	1	1	2	1	2	2	1	1	1	1	2	1	2	1	2	
PIC	Captafol	1	1	2	1	3	1	1	1	1	1	na	1	2	2	1	
POP, PIC	Chlordane	1	1	2	3	1	1	1	1	1	1	1	2	1	1	1	
POP	Chlordecone	2	1	2	3	2	1	2	2	1	2	2	2	2	1	2	
PIC	Chlordimeform	1	1	1	1	2	2	1	1	1	1	2	1	2	1	2	
PIC	Chlorobenzilate	1	1	2	1	1	2	1	1	1	1	2	1	2	na	2	
POP, PIC	DDT	1	1	1	3	3	1	1	1	1	1	1	1	1	1	1	
POP, PIC	Dieldrin	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
PIC	Dinoseb and its salts and esters	2	1	2	3	2	2	1	1	1	1	2	2	2	1	2	
PIC	Dinitro-ortho-cresol (DNOC) and its salts	2	1	2	1	2	2	2	1	1	2	2	2	2	na	2	
PIC	EDB	2	1	1	3	1	2	1	1	1	1	2	2	2	1	2	
POP, PIC	Endosulfan	1	1	3	3	1	1	1	1	1	1	1	1	1	1	1	
POP	Endrin	1	1	1	3	1	1	1	2	1	1	1	1	1	1	1	
PIC	Ethylene dichloride	1	1	2	3	3	2	2	1	1	2	2	1	2	1	2	
PIC	Ethylene oxide	2	1	2	3	2	2	1	1	1	1	2	2	1	1	2	
PIC	Fluoroacetamide	1	1	1	1	2	2	1	2	1	1	2	2	2	na	2	
POP, PIC	HCH/BHC (mixed isomers)	1	1	1	3	1	1	1	1	1	2	1	2	1	1	1	
POP	α-HCH	1	1	1	2	2	1	1	1	1	2	2	1		1	2	
POP	β-HCH	1	1	1	2	2	1	1	1	1	2	2	1		1	2	
POP, PIC	Heptachlor	1	1	2	3	1	1	1	1	1	1	1	1	1	1	1	
POP, PIC	Hexachlorobenzene HCB	1	1	2	3	2	1	2	2	1	2	2	1	2	1	1	
POP, PIC	Lindane (gamma-HCH)	1	1	1	3	1	1	1	1	1	1	1	2	1	1	1	
PIC	Mercury compound (Hg)	2	1	2	1	3	1	1	1	1	1	1	1	1	na	1	
PIC	Mercuric Fungicides	1	1	2	1	2	1	2	1	1	2	1	2	1	na	2	
Montreal	Methyl Bromide	3	3	3	1	3	3	1	3	1	1	1	3	3	4	2	
POP	Mirex	1	1	1	3	2	1	1	2	1	2	1	2	2	1	2	
PIC	Monocrotophos	1	1	1	3	3	1	1	3	1	1	1	1	3	1	1	
PIC	Parathion	1	1	1	3	2	1	2	2	1	2	1	1	1	1	1	
POP	Pentachlorobenzene (PeCB)	2	1	2	2	1	1	2	2	1	2	2	2	1	na	2	
PIC	Pentachlorophenol/PCP and its salts and esters	2	1	1	3	1	1	2	1	1	2	2	2	1	1	1	
POP, PIC	Toxophene	1	1	1	3	1	1	1	2	1	1	1	1	2	na	1	
Total =35	<b>Banned=</b>	1	25	33	16	11	14	23	24	25	35	22	14	17	17	24	18
	<b>Never registered=</b>	2	9		15	3	14	10	9	7		13	18	17	13	2	17
	<b>Registered, restricted use=</b>	3	1	2	3	20	5	1		2				1	2		
	<b>Registered, regular use=</b>	4	0	0	1	1	1	1								1	
	<b>?/na</b>											1		2	7		

## Summary of pesticides listed in the Stockholm and Rotterdam Conventions and the Montreal Protocol that have been banned in Asian countries

		Bangladesh	Cambodia	China	DPR Korea	India	Japan	Lao, PDR	Malaysia	Mongolia	Myanmar	Nepal	Pakistan	Sri Lanka	Thailand	Vietnam	Total
PIC	2,4,5-T and its salts and esters																10
PIC	Alachlor																6
PIC	Aldicarb																5
POP, PIC	Aldrin																13
PIC	Binapacryl																9
PIC	Captafol										na						10
POP, PIC	Chlordane																12
POP	Chlordecone																4
PIC	Chlordimeform																10
PIC	Chlorobenzilate													na			9
POP, PIC	DDT																13
POP, PIC	Dieldrin																15
PIC	Dinoseb and its salts and esters																6
PIC	Dinitro-ortho-cresol (DNOC) and its salts													na			4
PIC	EDB																8
POP, PIC	Endosulfan																13
POP	Endrin																13
PIC	Ethylene dichloride																6
PIC	Ethylene oxide																7
PIC	Fluoroacetamide													na			7
POP, PIC	HCH/BHC (mixed isomers)																11
POP	α-HCH																8
POP	β-HCH																8
POP, PIC	Heptachlor																13
POP, PIC	Hexachlorobenzene HCB																7
POP, PIC	Lindane (gamma-HCH)																13
PIC	Mercury compound (Hg)													na			11
PIC	Mercuric Fungicides													na			8
Montreal	Methyl Bromide																5
POP	Mirex																7
PIC	Monocrotophos																10
PIC	Parathion																10
POP	Pentachlorobenzene (PeCB)													na			5
PIC	Pentachlorophenol/PCP and its salts and esters																9
POP, PIC	Toxophene													na			11
	<b>Total</b>	<b>25</b>	<b>33</b>	<b>16</b>	<b>11</b>	<b>14</b>	<b>23</b>	<b>24</b>	<b>25</b>	<b>35</b>	<b>22</b>	<b>14</b>	<b>17</b>	<b>17</b>	<b>24</b>	<b>18</b>	

■ =banned    na =no answer

### Observations

- There is no detectable pattern for the banning of Convention pesticides

## Registration status in Asian countries of the pesticides listed in the Stockholm and Rotterdam Conventions and the Montreal Protocol

		Bangladesh	Cambodia	China	DPR Korea	India	Japan	Lao, PDR	Malaysia	Mongolia	Myanmar	Nepal	Pakistan	Sri Lanka	Thailand	Vietnam
PIC	2,4,5-T and its salts and esters															
PIC	Alachlor															
PIC	Aldicarb															
POP, PIC	Aldrin															
PIC	Binapacryl															
PIC	Captafol															
POP, PIC	Chlordane															
POP	Chlordecone															
PIC	Chlordimeform															
PIC	Chlorobenzilate															
POP, PIC	DDT															
POP, PIC	Dieldrin															
PIC	Dinoseb and its salts and esters															
PIC	Dinitro-ortho-cresol (DNOC) and its salts															
PIC	EDB															
POP, PIC	Endosulfan															
POP	Endrin															
PIC	Ethylene dichloride															
PIC	Ethylene oxide															
PIC	Fluoroacetamide															
POP, PIC	HCH/BHC (mixed isomers)															
POP	α-HCH															
POP	β-HCH															
POP, PIC	Heptachlor															
POP, PIC	Hexachlorobenzene HCB															
POP, PIC	Lindane (gamma-HCH)															
PIC	Mercury compound (Hg)															
PIC	Mercuric Fungicides															
Montreal	Methyl Bromide															
POP	Mirex															
PIC	Monocrotophos															
PIC	Parathion															
POP	Pentachlorobenzene (PeCB)															
PIC	Pentachlorophenol/PCP and its salts and esters															
POP, PIC	Toxophene															

=banned or not registered    
 =restricted registration    
 = registered

### Observations

- Most of the Convention pesticides are not registered (i.e. prohibited) in most Asian countries.
- Only six pesticides are registered in 2 or more countries: Alachlor and Methyl Bromide are each registered (regular or restricted use) in 8 or more countries; Monocrotophos is registered for restricted use in 4 countries; Aldicarb, DDT and Ethylene dichloride are registered for restricted use in 2 countries each.

**2. If the list of registered products is available on-line, please provide the web address/URL for the website:**

**Background**

Sharing registration information among the Asian countries promotes transparency and harmonisation of pesticide regulatory management.

**Survey responses**

China P.R.:	<a href="http://www.chinapesticide.gov.cn">www.chinapesticide.gov.cn</a>
India:	<a href="http://www.cibrc.nic.in">www.cibrc.nic.in</a>
Japan:	<a href="http://www.acis.famic.go.jp/searchF/vtllm000.html">http://www.acis.famic.go.jp/searchF/vtllm000.html</a> (in Japanese)
Malaysia:	<a href="http://www.doa.gov.my/web/guest/senarai-racun-makhluk-perosak-berdaftar">http://www.doa.gov.my/web/guest/senarai-racun-makhluk-perosak-berdaftar</a>

**Observations**

- Only four countries make their lists of registered pesticides available on line;
- India has downloadable lists of registered and banned products;
- China has a search engine to obtain registration information on specific products;
- Some information is only available in the national language.

**Conclusions**

- On-line access to country pesticide registration information is very limited in the region.
- The workshop data sets on registered active ingredients, banned or restricted pesticides may be used for sharing pesticide registration information among the countries.

### 3. Multiple registered formulations

#### Background

The registration of identical or similar products under different brand names confuses pesticide users and discourages informed decision making.

#### Survey responses

As an example, roughly how many formulated products are registered in your country that contain:		Bangladesh	Cambodia	China	DPR Korea	India	Japan	Lao, PDR	Malaysia	Mongolia	Myanmar	Nepal	Pakistan	Sri Lanka	Thailand	Vietnam
1. Cypermethrin	Min= 1 Max=615	177	~30	615	17	6	8	18	106	6	50	63	133	1	70	36
2. Abamectin	Min= 0 Max=1,402	18		1402	8	0	2	4	41		30	1	43	12	204	99

#### Observations

- More than 100 different pesticide products containing Cypermethrin are registered in Bangladesh, China, Cambodia, Pakistan and Malaysia;
- More than 100 different pesticides products containing Abamectrin are registered in China and Thailand.

#### Conclusions

- The examples of Cypermethrin and Abamectrin demonstrate that there are high numbers of different formulated products that are likely to confuse customers and distort informed decision making in the selection of products; farmers get product information mostly from advertisement or salespersons.



#### **4. At what level do you assess risk of pesticides to human health and the environment?**

##### **Background**

Applicants for registration of pesticides should provide data on exposure resulting from the intended use under actual conditions of use. Applicants should also make an assessment of human health and environmental risks under the conditions the pesticide is proposed to be used and provide it to the responsible authority for evaluation.

##### **Survey responses**

		Bangladesh	Cambodia	China	DPR Korea	India	Japan	Lao, PDR	Malaysia	Mongolia	Myanmar	Nepal	Pakistan	Sri Lanka	Thailand	Vietnam
Is risk assessment part of the registration procedure?	Yes=13 No=2	Y	Y	Y	Y	Y	Y	N	Y	N	Y	Y	Y	Y	Y	Y
If yes, do you conduct a partial or full risk assessment (tick below)																
Do you conduct a <b>full risk assessment</b> during registration evaluation that includes the assessment of exposure data?	Yes=7 No=7	N	Y	Y	Y	N	Y		Y	N	N	N	N	Y	N	Y
Do you conduct a <b>partial risk assessment or hazard assessment</b> during registration evaluation based on toxicology data?	Yes=10 No=4	Y	Y	Y	Y	Y	N		Y	N	Y	Y	Y	N	N	Y
Do you accept (as a replacement of your own assessment), the hazard/risk assessments published by international organizations/conventions?	Yes=11 No=3	Y	Y	N	Y	N	N		Y	Y	Y	Y	Y	Y	Y	Y
Do you accept (as a replacement of your own assessments), the risk assessment conducted by other national registration authorities?	Yes=6 No=8	Y	Y	N	Y	N	N		Y	N	N	Y	N	N	N	Y
<b>Total</b>	<b>Yes=</b>	<b>4</b>	<b>5</b>	<b>3</b>	<b>5</b>	<b>2</b>	<b>2</b>		<b>5</b>	<b>1</b>	<b>3</b>	<b>4</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>5</b>
	<b>No=</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>3</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>4</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>3</b>	<b>0</b>
If yes, give name(s) of country/ies: Bangladesh: China, Japan, USA, India, Korea, Thailand, European Union DPRK: EU, China, Russia Malaysia: OECD, EU countries Mongolia: FAO, Codex Vietnam: EC (SANCO), US(EPA)																
Y=Yes; N=No																

##### **Observations**

- Risk assessment is part of the registration procedure in 87 % of the counties. It is not part of the registration procedure in Laos and Mongolia;
- Half the countries make full risk assessments that includes the assessment of exposure data;
- More countries conduct a partial risk assessment than a full risk assessment;
- Eleven countries accept the hazard/risk assessments published by international organizations/conventions, 6 countries accept hazard/risk assessments conducted by other registration authorities;
- Countries most often consulted are the EU (4), US/OECD (3) and China (2).

##### **Conclusions**

- Countries with enough national resources conduct their own risk assessment, while countries with limited resources rely more on published risk assessments.

**5. When deciding whether or not to register a pesticide, do you check any of the following international resources?**

**Background**

Various international information recourses on pesticide characteristics and risks are available to assist registration authorities in their registration decision

**Survey responses**

When deciding whether or not to register a pesticide, do you check any of the following international resources?		Bangladesh	Cambodia	China	DPR Korea	India	Japan	Lao, PDR	Malaysia	Mongolia	Myanmar	Nepal	Pakistan	Sri Lanka	Thailand	Vietnam
INCHEM FAO/WHO Pesticide Data Sheets	A=8 R=5 S=2 N=0	S	R	A	A	S	R	A	A	A	A	R	A	R	R	A
Rotterdam Convention	A=9 R=4 S=2 N=	R	R	A	A	R	A	S	A	A	S	R	A	A	A	A
Stockholm Convention	A=8 R=4 S=3 N=	R	R	A	A	R	A	S	A	A	S	R	A	S	A	A
European Union registration status	A=2 R=5 S=5 N/=3	S	S	R	S	S	R	N	A	A	N	-	S	R	R	R
USA registration status	A=3 R=4 S=5 N=3	S	S	R	N	S	R	N	A	A	N	S	S	A	R	R
<b>Total</b>	<b>Always</b>			3	3		2	1	5	5	1		3	2	2	3
	<b>Regularly</b>	2	3	2		2	3					3		2	3	2
	<b>Sometimes</b>	3	2		1	3		2			2	1	2	1		
	<b>Never</b>				1			2			2	1				
Registration status of other countries or sources that are being used: (give name)																
DPRK: China																
India: case to case basis																
Japan: Australia, Canada, etc.																
Laos: Thailand, Vietnam. Cambodia, China, Malaysia																
Malaysia: Australia, Japan, OECD countries																
Mongolia: For the registration, CAS number, chemical formula, scientific name and field and laboratory experiments are considered.																
Thailand: the pesticide decided to be registered must be registered in the countries which are the sources of a.i. or formulated products																
Nepal: India																
Are there any countries of which you would like to check the registration status of products, but you do not because the information is not easily available on line? If yes, which countries?:																
Bangladesh: China,India,Indonesia,Thailand,Malaysia,Japan,SriLanka,Korea,Pakistan																
Cambodia: China and other ASEAN nations																
India: Japan, South Korea																
Laos: China																
Thailand: For registration, the applicant must provide the certificate of registration in the countries which are the source of the products																
Malaysia: ASEAN countries																
Nepal: China																
Pakistan: India																
Vietnam: China, South East Asia countries, Japan																
A=Always; R=Regularly; S=Sometimes; N=Never																

**Observations**

- The WHO/FAO pesticide information and convention lists are the most often checked international resources;
- The registration status in other countries is checked by most countries; besides the EU and USA registration status, countries also check Australia, Canada, China, Japan and neighbouring countries.

**Conclusions**

- International resources are an important tool for registration authorities to find specific information when reviewing pesticides for registration.

## 6. Registration Renewal

### Background

Re-registration can have several forms from a complete new review process to a mere administrative renewal of the registration.

### Survey responses

At the end of the registration period, what actions are taken?		Bangladesh	Cambodia	China	DPR Korea	India*	Japan	Lao, PDR	Malaysia	Mongolia	Myanmar	Nepal	Pakistan	Sri Lanka	Thailand	Vietnam
Simple administrative renewal after payment of a fee <b>without review</b> of new data	Yes=5 No=9	Y	N		N	N	N	N	N	N	Y	N	Y	Y^	N	Y
Assessment of whether new risk information should be considered, followed by <b>partial review</b> if needed	Yes=10 No=5	N	Y	Y	Y	N	Y	N	Y	Y	N	Y	Y	Y^	Y	N
<b>Full technical review</b> of the updated application dossier for the renewal of the registration (re-registration)	Yes=5 No=10	N	Y	Y	Y	N	N	N	N	Y	N	N	N	N	Y	N
<b>Total</b>	<b>Yes=</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>1</b>
	<b>No=</b>	<b>2</b>	<b>1</b>		<b>1</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>2</b>
*India: Validity period of a pesticide of registration is not defined.																
^Sri Lanka: no review after 3 years; partial review after 6 years																
Y=Yes; N=No																

### Observations

- Two-third of the responding countries consider new risk data at the end of the registration period;
- Five countries (33%) conduct a full technical review when renewing a registration (re-registration);
- Five countries renew the registration without a technical review of new data;
- Some countries reported multiple renewal procedures.

### Conclusions

- Some countries may not have the personnel capacity to review and re-assess pesticide registration dossiers and therefore renew a pesticide registration mostly as an administrative procedure.

## 7. Review

### Background

A review of the pesticide registration dossiers can be conducted at different levels of intensity and scrutiny from simple checks to complex assessments.

### Survey responses

Does partial or full review include:		Bangladesh	Cambodia	China	DPR Korea	India*	Japan	Lao, PDR	Malaysia	Mongolia	Myanmar	Nepal	Pakistan	Sri Lanka	Thailand	Vietnam
Checking whether the pesticide has been added to international treaties	Yes=13 No=2	Y	Y	Y	Y	N	Y	Y	Y	Y	N	Y	Y	Y	Y	Y
Checking for changes in the registration status in other countries	Yes=10 No=5	N	N	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	N	Y
Review against national data on efficacy and incident reports	Yes=9 No=6	N	N	Y	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y	N
New full risk assessment based on updated toxicology dossier data	Yes=5 No=9	N	N	Y	Y	N	N	N	Y	N		Y	N	N	Y	N
<b>Total</b>	<b>Yes=</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>4</b>		<b>1</b>	<b>2</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>4</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>2</b>
	<b>No=</b>	<b>3</b>	<b>3</b>			<b>4</b>	<b>3</b>	<b>2</b>		<b>1</b>	<b>1</b>		<b>1</b>	<b>1</b>	<b>1</b>	<b>2</b>
* India: Validity period of a pesticide of registration is not defined.																
Other:																
Cambodia: Analytical check on quality																
Japan: Completeness of the data package should be checked, referring to the up-to-date data requirement. Any additional data will be reviewed to decide if re-evaluation is needed.																
Sri Lanka: Partial review is conducted after 6 years of registration																
Y=Yes; N=No																

### Observations

- In most cases, a review of the registration dossier includes checking with international treaties and the registration status in other countries;
- A majority of countries reported that they review against national data on efficacy and incidence reports even though such reports may be difficult to generate.

### Conclusions

- Some countries may not have the personnel capacity to conduct the reviews, particularly some countries with high numbers of formulation registrations.

## 8. Monitoring and Review

### Background

Post-registration monitoring and evaluation provide a means of measuring the validity of predictions, based on registration data, regarding the efficacy, safety and environmental effects of a particular pesticide product. The responsible authority may make use of the findings of post-registration monitoring and evaluation to take the necessary corrective actions such as the amendment of recommendations on use and dosage, restriction on use or, if necessary, withdrawal of the registration of the product.

### Survey responses

		Bangladesh	Cambodia	China	DPR Korea	India	Japan	Lao, PDR	Malaysia	Mongolia	Myanmar	Nepal	Pakistan	Sri Lanka	Thailand	Vietnam
Do you have specific <b>regulations or guidelines</b> for monitoring the health and environmental impact of field use of high risk pesticides?	Yes=8 No=7	N	N	Y	Y	Y	Y	N	Y	Y	N	Y	N	N	Y	N
Do you have a specific <b>active surveillance programme</b> to monitor the health and environmental impact of field use of high risk pesticides?	Yes=4 No=10	N	N	Y	N	Y	Y	N	Y	N	N	N	N	N		N
Do your regulations or guidelines have a provision to cancel an existing registration on the basis of new information regarding its hazards?	Yes=14 No=1	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y
<b>Total</b>	<b>Yes=</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>3</b>		<b>3</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>1</b>
	<b>No=</b>	<b>2</b>	<b>2</b>		<b>1</b>			<b>3</b>		<b>1</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>2</b>		<b>2</b>
Japan: Note: There is no specific definition of high risk pesticides in Japan. The Ministry of the Environment monitors the concentrations of substances including pesticides in public water and ground water for which Environmental Quality Standard for human health are established (or are likely to be established) under the Basic Environment Law. Furthermore, MOE yearly monitors the concentrations of those pesticides in river of which the predicted environmental concentrations in water are close to the maximum acceptable level to protect aquatic animals and plants (i.e. Pretilachlor).																
Y=Yes; N=No																

### Observations

- About half the responding countries have guidelines for monitoring the health and environmental impacts of high risk pesticides, but only four countries have active surveillance programmes;
- All but one country have a provision to cancel an existing registration on the basis of new information regarding its hazards.

### Conclusions

- Most countries do not monitor the health and environmental impacts of high risk pesticides.

## 9. Actions taken over the past five years on previously registered pesticides

### Background

The changes in the past five years should show the progress and focus of the management and phasing out of highly hazardous pesticides.

### Survey responses

		Bangladesh	Cambodia	China	DPR Korea	India	Japan	Lao, PDR	Malaysia	Mongolia	Myanmar	Nepal	Pakistan	Sri Lanka	Thailand	Vietnam
How many previous registrations have been cancelled/withdrawn over the past 5 years because of environmental or health concerns?	Max: 28 Min: 0		2	16 + 12 #	6	2	0	0	2	*	22	2	3	8	2	5
How many previously full registrations have been restricted over the past 5 years because of environmental or health concerns?	Max: 29 Min: 0			9	6	-	0	0	5	~ 10	-	1	-	1	29	-
<b>Separate lists with changes</b>				x	x	x			x						x	x
China: In addition to the 16 cancellations, the registration and manufacture of 12 other pesticides was suspended India: Endosulfan and Lindane Japan: Note: There is no record of cancellation of pesticide registration by the Japanese Government due to environmental or health concerns over the past 5 years. However, there are some cases where registrants voluntarily withdrew registrations of uses for certain pesticides/crops in case the estimated dietary intakes would likely to exceed ADIs or registrants decided not to submit necessary data to address health or environmental concerns. *Mongolia: There is no clear years to cancel and withdraw Thailand: EPN, Dicrotophos																

### Observations

- Twelve countries reported changes in the registration status of certain products over the past five years for reasons related to health or environmental consideration;
- Most changes were reported from China, Myanmar and Thailand;
- In total, there were 82 actions that lead to a cancellation/withdrawal/suspension, and 61 actions that lead to a restriction in the use of a pesticide;

### Conclusions

- As the focus of regulatory management is shifting from controlling the quality of products to assessing their human and environmental risks, existing registrations are cancelled, withdrawn, suspended or phased out, or the use is restricted to certain crops or qualified personnel.

**Products that have been cancelled/withdrawn/suspended are specified below:**

		China	DPRK	India	Malaysia	Thailand	Vietnam
Alachlor	PIC						
Aldicarb	PIC						
Aluminum phosphide	FM						
Asomate							
Cadusafos	1B						
Calcium phosphide							
Carbofuran	1B						
Chlorpyrifos methyl							
Chlorsulfuron							
Coumaphos	1B						
Dichrotophos	1B						
Edifenphos	1B						
Endosulfan	PIC/POP						
EPN	1A						
Ethametsulfuron							
Ethoprophos	1A						
Fenamiphos	1B						
Fenobucarb							
Fenthion							
Fonofos	O						
Isocarbophos							
Isophenphos-methyl							
Lindane	PIC/POP						
Magnesium phosphide	FM						
Methidathion	1B						
Methomyl	1B						
Methyl bromide	Montreal						
Metsulfuron-methyl							
Omethoate	1B						
Paraquat AS							
Phorate	1A						
Phosfolan-methyl							
Phosphamidon	1A						
Pyridaphenthion							
Sulfotep	1A						
Terbufos	1A						
Triazophos	1B						
Tributyl tin compounds							
Urbacide							
Zink phosphide	1B						

WHO Classes: 1A, 1B, O = obsolete; FM=fumigant

POP = Stockholm Convention

PIC = Rotterdam Convention

**Observations**

- Only four pesticides ( Carbofuran, Endosulfan, Ethoprophos and Methomyl) had been withdrawn in more than one country; all other regulatory actions were only in a country;
- Eighteen (45%) pesticides belonged to WHO Classes I or obsolete;
- Five (13%) pesticides were listed by international Conventions.



## II PHASING OUT OF HHPs

### 1. Phasing out of Highly Hazardous Pesticides (HHP)

#### Background

To reduce pesticide related risks, the phasing out of HHP is one of the strategies. However, there is no universally acceptable definition of HHP.

#### Survey responses

		Bangladesh	Cambodia	China	DPR Korea	India	Japan	Lao, PDR	Malaysia	Mongolia	Myanmar	Nepal	Pakistan	Sri Lanka	Thailand	Vietnam
Do you have a specific list of pesticides that have been identified as HHP in your country?	Yes=8 No=7	N	Y	Y	Y	N	N	N	Y	N	Y	Y	Y	N	Y	N
<b>Which of the following types of pesticides do you consider as HHPs in your country?</b>																
Pesticide active ingredients with a high acute toxicity (WHO Class Ia and I b)	Yes=10=14 No=0	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	10	Y	Y	Y
Pesticide <u>formulations</u> with a high acute toxicity (WHO Class 1a and 1b)	Yes=12 No=2	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	N	Y	N	Y
Pesticide active ingredients that are highly carcinogenic (GHS Category 1A and 1B)	Yes=11 No=3	Y	N	Y	N	Y		Y	Y	Y	Y	Y	N	Y	Y	Y
Pesticide active ingredients that are highly mutagenic (GHS Category 1A and 1B)	Yes=11 No=3	Y	N	Y	N	Y		Y	Y	Y	Y	Y	N	Y	Y	Y
Pesticide active ingredients with a high reproductive toxicity (GHS Category 1A and 1B)	Yes=11 No=3	Y	N	Y	N	Y		Y	Y	Y	Y	Y	N	Y	Y	Y
Pesticide active ingredients that are highly hazardous to the environment (GHS category 1A and 1B)	Yes=11 No=3	Y	N	Y	N	Y		Y	Y	Y	Y	Y	N	Y	Y	Y
Pesticide active ingredients listed under the Stockholm Convention	Yes=13 No=	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	
Pesticide active ingredients listed under the Rotterdam Convention	Yes=13 No=1	Y	Y	Y	Y	Y		Y	Y	Y	N	Y	Y	Y	Y	Y
Pesticide active ingredients listed under the Montreal Protocol	Yes=13 No=1	Y	Y	Y	Y	Y		Y	Y	Y	N	Y	Y	Y	Y	Y
Pesticides that disrupt the endocrine system	Yes=9 No=3	Y		Y	Y	Y		N	Y	Y	N		N	Y	Y	Y
Pesticides that are highly toxic when inhaled	Yes=10 No=3	Y		Y	Y	Y		N	Y	Y	N	Y	N	Y	Y	Y
Pesticides that under prevailing conditions of use in your country have shown a high incidence of severe or irreversible adverse effects on human health or the environment	Yes=10 No=2	Y	Y	Y	Y	Y		N	Y	Y			N	Y	Y	Y
<b>Total</b>	<b>Yes=</b> <b>No=</b>	<b>12</b> <b>4</b>	<b>6</b> <b>4</b>	<b>12</b> <b>4</b>	<b>8</b> <b>4</b>	<b>12</b> <b>4</b>	<b>9</b> <b>3</b>	<b>12</b> <b>3</b>	<b>12</b> <b>4</b>	<b>7</b> <b>4</b>	<b>10</b> <b>4</b>	<b>10</b> <b>8</b>	<b>4</b> <b>8</b>	<b>12</b> <b>1</b>	<b>11</b> <b>11</b>	

Japan: (Note: Japan has no specific definition for HHPs. Among 4,328 formulations registered in Japan, 426 products are classified as poisonous substances or deleterious substances under Poisonous and Deleterious Substances Control Act (As of 31 March 2014), to which special requirements apply concerning storage, transport and sale. Japan prohibits the sale and use of active ingredients listed under the Stockholm Convention.)

Y=Yes; N=No

### **Observations**

- About half the countries have specific lists that identify highly hazardous pesticides;
- There is a high degree of agreement about the definition of highly hazardous pesticides;
- There is an overall agreement to include WHO Class I pesticides and those listed in the Conventions;
- Not all countries include carcinogenic, mutagenic, reproductive, environmentally hazardous endocrine disrupters, high inhalation toxicity or those that show a high incidence of adverse effects.

### **Conclusions**

- There are different groups of highly hazardous pesticides which may be given different priorities for phasing out.

## 2. Information Sources

### Background

Widely accepted information sources would help registration authorities to identify HHP in their own country

### Survey responses

Which information sources do you use to identify highly hazardous pesticides?		Bangladesh	Cambodia	China	DPR Korea	India	Japan	Lao, PDR	Malaysia	Mongolia	Myanmar	Nepal	Pakistan	Sri Lanka	Thailand	Vietnam
Rotterdam Convention	R=12 S=2 N=	R	R	R	R	R		S	R	R	S	R	R	R	R	R
Stockholm Convention	R=11 S=3 N=	R	R	R	R	R		S	R	R	S	R	R	S	R	R
Montreal Protocol	R=9 S=4 N=1	R	R	S	R	S		S	R	R	N	R	R	S	R	R
European Union pesticides database	R=5 S=6 N=2	S	S	R	R	S		N	R	R	N		S	S	S	R
US/EPA pesticides database	R=4 S=5 N=3	S	R		N	S		N	R	R	N		S	S	S	R
Pesticide database of another country*	R=2 S=6 N=3	N				S		S	R	S	N	S	N	N	S	R
PAN list of highly hazardous pesticides	R=3 S=3 N=2	S				S		S	R				N	N	R	R
FAO/WHO pesticide reference materials	R=9 S=5 N=	S	R	R	S	S		R	R	S	R	R	R	S	R	R
IARC list of carcinogenic compounds	R=5 S=3 N=2	S			S	S		N	R		R		N	R	R	R
National monitoring data	R=7 S=2 N=3	S			R	S		R	R	R	N	R	N	N	R	R
<b>Total</b>	<b>Regularly=</b>	<b>3</b>	<b>5</b>	<b>4</b>	<b>5</b>	<b>2</b>		<b>2</b>	<b>10</b>	<b>6</b>	<b>2</b>	<b>5</b>	<b>4</b>	<b>2</b>	<b>7</b>	<b>10</b>
	<b>Sometimes=</b>	<b>6</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>8</b>		<b>5</b>		<b>2</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>5</b>	<b>3</b>	
	<b>Never=</b>	<b>1</b>						<b>3</b>			<b>5</b>		<b>4</b>	<b>3</b>		
*Other countries DPRK: China Laos: Thailand, Vietnam: Mongolia: Russia Nepal: India Vietnam: China, South East Asia countries R=Regularly; S=Sometimes; N=Never																

## Observations

- The pesticide conventions and the FAO/WHO pesticide information are the most widely used sources of information;
- Registration information from other countries is less used to identify HHP;
- In half the countries, national monitoring data are regularly consulted to identify HHP.

## 3. Status of HHP registration in your country

### Background

A first step toward phasing out HHP is to identify these products among the registered pesticides and to restrict their use.

### Survey responses

Total number of registered pesticides considered as HHP in your country (as per the first box of this section)		Bangladesh	Cambodia	China	DPR Korea	India	Japan	Lao, PDR	Malaysia	Mongolia	Myanmar	Nepal	Pakistan	Sri Lanka	Thailand	Vietnam
Regular Registration	Max: 989 Min: 1			535	35	-		1	95		35	989	10		-	
Restricted Registration	Max: 535 Min: 1			535	30	-		2				109		1	29	
Number of HHP in country lists	Max: 65 Min: 2				65				5		35		10		2	

## Observations

- Only about half the countries have identified pesticides that are considered as HHP;
- There is little regional harmonization in the management of HHP and actions are sketchy;
- Only few countries have restricted the use of HHP;
- Five countries have provided their lists of HHP which contain a total of 104 pesticides
  - Carbofuran is mentioned on 4 of the 5 lists
  - Acephate and Monocrotophos are listed three times
  - 13 pesticides are listed twice

## Conclusions

- More action is required to identify HHP among the registered pesticides;
- Restricting the use of HHP may be applied as the first step toward phasing out these products.

## Analysis of the data set on registered active ingredients against pesticides that may be considered as HHP

The lists of registered pesticides given by the countries were checked against the pesticides listed by international conventions, the WHO *Recommended Classification of Pesticides by Hazard* and the PAN *List of HHPs*. The following results are only a rough indication since the WHO and PAN lists do not cover all pesticides registered in Asia and only consider the hazard of the active ingredient and not that of the actual formulation.

Number of products in the regional database	Total	Bangladesh	Cambodia	China	DP RK	India	Japan	Laos	Malaysia	Mongolia	Myanmar	Nepal	Pakistan	Sri Lanka	Thailand	Vietnam
Total registered a.i.	1172	144	155	581	220	249	502	79	282	76	241	107	255	110	206	359
<b>CONVENTIONS</b>																
POP	4	0	0	1	4	1	0	0	0	0	1	1	0	0	0	0
PIC	17	1	1	6	16	9	2	1	6	2	9	4	2	3	3	3
Montreal	1	1	0	1	0	1	1	1	1	0	1	0	1	0	1	0
All Conventions	22	2	1	8	20	11	3	2	7	2	11	5	3	3	4	3
% of total	2%	1%	1%	1%	9%	4%	1%	3%	2%	3%	5%	5%	1%	3%	2%	1%
<b>WHO CLASSIFICATION</b>																
Obsolete <sup>1</sup>	30	0	0	3	19	2	7	0	1	0	1	0	0	1	0	0
WHO Class Ia <sup>1</sup>	15	1	0	7	4	4	4	1	5	1	6	1	2	0	0	5
WHO Class Ib <sup>1</sup>	32	7	1	18	11	14	12	2	14	1	15	5	11	7	7	8
Total	77	8	1	28	34	20	23	3	20	2	22	6	13	8	7	13
% of total	7%	6%	1%	5%	15%	8%	5%	4%	7%	3%	9%	6%	5%	7%	3%	4%
<b>PAN LIST OF HHPs</b>																
Chronic toxic a.i. <sup>2</sup>	188	51	43	136	72	86	108	26	82	28	84	41	96	40	74	92
% of total	16%	35%	28%	23%	33%	35%	22%	33%	29%	37%	35%	38%	38%	36%	36%	26%
Environmentally toxic a.i. <sup>2</sup>	159	54	39	119	51	74	88	26	82	20	76	38	87	39	59	88
% of total	14%	38%	25%	20%	23%	30%	18%	33%	29%	26%	32%	36%	34%	35%	29%	25%
<b>EU LIST OF HHPs</b>																
not approved	281	50	38	148	99	76	141	24	77	9	86	34	74	33	58	100
% of total	24%	35%	25%	25%	45%	31%	28%	30%	27%	12%	36%	32%	29%	30%	28%	28%
<b>WHO + Conventions + EU not approved</b>																
	302	54	39	159	105	85	150	27	86	12	93	38	79	37	62	106
% of total	26%	38%	25%	27%	48%	34%	30%	34%	30%	16%	39%	36%	31%	34%	30%	30%

<sup>1</sup> based on the WHO *Recommended Classification of Pesticides by Hazard, 2009*

<sup>2</sup> based on the PAN List of HHP, Nov. 2013

### Observations

- The majority of registered pesticides do not fall into the HHP category; however, all countries have some registered pesticides that might be considered highly hazardous;
- Some countries have succeeded in eliminating all highly hazardous pesticides that fall under the WHO Class Ia or are considered obsolete products;
- Pesticides that might have a high chronic toxicity or are environmentally highly toxic make up a significant number of registered pesticides

### Conclusions

- Depending on the definition used to identify HHP (as given in the questionnaire responses above), all countries have registered pesticides that could be considered highly hazardous and should be phased out in the future.

## 4. Regulatory Actions

### Background

The regulatory management of HHPs may involve national guidelines and regulations

### Survey responses

After a pesticide registered in your country has been added to an international treaty or has been identified as highly hazardous, which of the following actions have been taken?		Bangladesh	Cambodia	China	DPR Korea	India	Japan	Lao, PDR	Malaysia	Mongolia	Myanmar	Nepal	Pakistan	Sri Lanka	Thailand	Vietnam
Review registration to decide whether to restrict, phase-out or cancel the registration	Yes=15	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Encourage registrant to voluntarily withdraw the product from the market	Yes=10 No=4	Y	Y	Y		Y	Y	Y	N	N	N	Y	Y	N	Y	Y
Stop issuance of importation or production licenses	Yes=12 No=3	Y	Y	Y	Y	Y	N	Y	N	Y	Y	N	Y	Y	Y	Y
Cancel the pesticide registration after a phasing-out period	Yes=11 No=2	Y		Y		Y	N	Y	Y	N	Y	Y	Y	Y	Y	Y
Immediately cancel the pesticide registration	Yes=6 No=7	N	Y			N	N	Y	N	Y	Y	Y	Y	N	N	N
Let the registration expire at the end of the registration period	Yes=2 No=10	Y				N	Y	N	N	N	N	N	N	N	N	N
No special action is taken	Yes=1 No=9					N	N	Y	N	N		N	N	N	N	N
<b>Total</b>	<b>Yes=</b>	<b>5</b>	<b>4</b>	<b>4</b>	<b>2</b>	<b>4</b>	<b>3</b>	<b>6</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>4</b>	<b>5</b>	<b>3</b>	<b>4</b>	<b>4</b>
	<b>No=</b>	<b>1</b>				<b>3</b>	<b>4</b>	<b>1</b>	<b>5</b>	<b>4</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>4</b>	<b>3</b>	<b>3</b>
Other:																
India: Immediately registration is cancelled if desired by law/administration																
Malaysia: Mitigation measures to reduce impact																
Mongolia: Before the registration all pesticides to be involved in the list accurately evaluated and If it found HHP-s it will be directly removed from list.																
Y=Yes; N=No																

### Observations

- All countries reported to review the registration of a product added to an international treaty or identified as highly hazardous;
- Other actions taken are (in order of priority):
  - stop issuance of importation or production licenses (12 countries);
  - cancel registration after phasing-out period (11 countries);
  - encourage registrant to voluntarily withdraw product (10 countries).
- Fewer countries consider immediate cancellation or no action as appropriate responses.

## 5. Taking a HHP off the market

### Background

The phasing out of HHP should follow procedures given in national guidelines and regulations.

### Survey responses

When taking a HHP off the market, do you...		Bangladesh	Cambodia	China	DPR Korea	India	Japan	Lao, PDR	Malaysia	Mongolia	Myanmar	Nepal	Pakistan	Sri Lanka	Thailand	Vietnam
Do you explore alternatives prior to prohibition?	Yes=10 No=4	N	N	Y	Y	Y	Y	Y	Y		N	Y	N	Y	Y	Y
Do you inform distributors and users prior to announcing the prohibition?	Yes=13 No=1	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y
Do you generally allow a phasing out period?	Yes=11 No=4	N	Y	Y	Y	Y	N	N	Y	N	Y	Y	Y	Y	Y	Y
If you allow phasing out periods, do you have a standard period?	Yes=8 No=4	N	Y		N	Y		Y	Y		Y	Y	N	Y	Y	N
If yes, how long is that period (number of months)	Max=24 Min=3-6 n=8		3-6			Y		12	6		12	24		24	24	
<b>Total</b>	<b>Yes=</b>	<b>1</b>	<b>2</b>	<b>4</b>	<b>4</b>	<b>5</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>1</b>	<b>3</b>	<b>4</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>3</b>
	<b>No=</b>	<b>3</b>	<b>1</b>		<b>1</b>		<b>1</b>	<b>1</b>		<b>1</b>			<b>2</b>	<b>1</b>		<b>1</b>
India: Depending upon the shelf life																
Y=Yes; N=No																

### Observations

- Most countries inform the distributor and users prior to publicly announcing the prohibition;
- Two-third of the countries explore alternatives prior to prohibition;
- Two-third of the countries generally allow a phasing out period, but not all those countries have a standard period;
- The phasing out period varies widely from 3-6 months to 2 years.

### Conclusions

- All countries have procedures for taking a product off the market.

## **6. Steps taken for taking a HHP off the market**

### **Survey responses**

Bangladesh: --- 1. Inform concern industry; 2. Stop production(Packing & Repacking)& ban on import of that product; 3. Withdraw from distributors; 4. Stop registration renewal.

Cambodia: Zinc phosphate 1. Stop issuance of importation or production; 2. Force the owners to recall those products from markets; 3. Inform all concerned institutions, dealers and users; 4. Doing transactional fine/ cracking down.

China PR: --- 1. Explore alternatives prior to prohibition; 2. Inform distributors, users and the public prior to announcing the prohibition---Announcement from regulatory authorities; 3. Allow a phasing out period depending on the pesticides to be prohibited.

DPRK: Endosulfan 480 EC; 1. Assessment for the toxicity of product, social and economic impact, and alternatives, and review registration to decide which action to be taken; 2. Announcing the decision for restriction; 3. Stop issuance of importation licenses; 4. Investigation for the total stock and establishment of disposal measure

India: Endosulfan 1. Various committees were constituted to review the product; 2. The product was banned in the state of Kerala; 3. The use of product was prohibited near water bodies; 4. Hon'ble Supreme Court of India (Apex court) has banned the product for use, manufacture and import in may 2011 till further order.

Japan: Endosulfan 1. The manufacturer of formulations containing Endosulfan had stopped the production and distribution of these products by 2009 in the light of discussion at the Stockholm Convention. Since the manufacturer did not seek the renewal of the registrations, registrations had expired for all of the formulations by 2010; 2. The Ministry of Agriculture, Forestry and Fisheries (MAFF) and local governments jointly made efforts to keep stakeholders (especially farmers) informed of possible phasing-out of Endosulfan in a few years; 3. Since November 2010, the manufacturer has voluntarily recalled the formulations containing Endosulfan through its own sales channel; 4. In December 2011, Japan established a nationwide system for manufacturers and the Japan Agricultural Cooperatives to jointly collect unused pesticides containing Endosulfan; 5. In April 2012, MAFF announced by its Ministerial Ordinance that it prohibits the sale and use of all the formulations containing Endosulfan in response to the decision by the Stockholm Convention to list this substance in Annex A of the Convention.

Laos: 1. disseminate regulation; 2. educate

Malaysia: Endosulfan; 1. Review (twice) by national authority; Issuance of circular to stakeholder; 3. Six month phase-out period; 4. Degazetted registration of product; 5. Enforcement by national authority

Myanmar: -; 1. Notification issue; 2. information; 3. listing inventories; 4. recording the application area

Thailand: Methamidophos; 1. Announcement of product prohibition; 2. Inform the registrant and users; 3. Allow phasing out period (15 days); 4. Collecting of products for destruction; 5. Monitor whether they are still in the market

Nepal: Phorate; 1. Inform importers and distributors; 2. Publish the name of banned pesticide on government Gazette papers; 3. Stop registration and review; Let them provide phasing-out period for 2 years; 5. Monitor the banned pesticide whether it is in market or not

Pakistan: Endosulfan 1. Agricultural Pesticides Technical Advisory Committee recommended to the Federal Govt. on 25.05.2012 to prohibit import of Endosulfan in technical grade & formulation under any brand name or generic name from 1st May 2012; 2. Allow the importers to use carryover stock before 30th October 2013; 3. SRO issued by the Federal Govt. on 1st November 2013 and ban its use in Pakistan.

SriLanka: Carbofuran; 1. Announce the ban; 2. No import permit issued; 3. Allow to phase out in the market within 24 months; 4. after 24 months cancel registration



Vietnam: Carbofuran 1. Identify of relevant information in the world and ourselves country; 2. Science Council of Ministry of Agriculture and Rural Development analys, assess information and propose; 3. Ministry of Agriculture and Rural Development declare off and give a point of time to apply; 4. Waiting for applying period; 5. Phase out form List of restricted pesticides

### **Observations**

- 14 countries provided examples;
- Examples were given for
  - Endosulfan (5 cases)
  - Carbofuran (2 cases)
  - Methamidophos, Phorate and Zink phosphate (each 1 case);
- The steps taken followed the following pattern
  1. Review product/explore alternatives (5)
  2. Announce decision and inform industry/public (10)
  3. Stop importation or production (7)
  4. Either recall the product for disposal (4) or allow stock to be used over a phasing-out period (6)
  5. Cancel registration/prohibit sales (5)
  6. Monitoring and enforcement (3)

## **7. Constraints related to phasing out HHPs**

Please describe any specific issues you faced when phasing out HHPs?

### **Survey responses**

Cambodia: It may be getting some complains from industries/ dealers.

DPRK: 1. Farmer's complaint; For example, farmers are feeling considerable difficulty because of import prohibition of Monocrotophos, and requesting the import of the pesticide; 2. Difficulty in establishment of active measures for pest outbreaks; the application of new alternatives isn't easily realized because of various problems in technology, experience and finance.

India: Arranging the alternatives against the specific pest

Malaysia: Farmers complain on effectiveness and availability of alternative; prevalence of counterfeit products

Myanmar: Pest outbreaks; Complaints of importer, distributor impact on Socio-economic

Thailand: Some farmers complained for they thought that HHPs was useful for them and some farmers didn't know which pesticides could be replaced. The industry got pressure for they have to destroy the product which they invested. Normally there was no pest outbreak

Nepal: There is no evidence of pest outbreak due to banned pesticide

Sri Lanka: Farmer complains are a common place during phasing out

Vietnam: Lack of science evidence/research ; Industry pressure; Associations

### **Observations**

- Complaints came mostly from industry/dealers and farmers who had to adjust their practices to the new situation;
- There was no mentioning of outbreaks or inadequate pest control as a result of phasing out HHPs.

### **Conclusions**

- Complaints are normal but did not show reasons for not phasing out HHP.

### III. FAKE AND SUBSTANDARD PESTICIDES

#### 1. Quality Control

##### Background

In some countries, fake and substandard pesticides are found. Besides causing economic losses, some of these may also be hazardous to human health and the environment.

##### Survey responses

Quality control infrastructure and capacities		Bangladesh	Cambodia	China	DPR Korea	India	Japan	Lao, PDR	Malaysia	Mongolia	Myanmar	Nepal	Pakistan	Sri Lanka	Thailand	Vietnam
Do you check the quality of pesticides at the time of registration application?	Yes=12 S=1 No=2	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	S	Y	Y	Y	N
Do you monitor the quality of pesticides imported or manufactured in your country?	Yes=12 S=1 No=2	Y	S	Y	Y	Y	Y	N	Y	N	Y	Y	Y	Y	Y	Y
Do you monitor the quality of pesticides sold in pesticide shops?	Yes=10 S=2 No=3	Y	S	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	Y	S
Do you monitor the quality of pesticides applied in the field?	Yes=3 S=3 No=8	Y	N	Y	S	Y	N	N	S	N	N	S	N	N	N	N
<b>Total</b>	<b>Yes=</b>	<b>4</b>	<b>1</b>	<b>4</b>	<b>3</b>	<b>4</b>	<b>2</b>	<b>1</b>	<b>3</b>	<b>1</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>1</b>
	<b>S=</b>		<b>2</b>		<b>1</b>				<b>1</b>			<b>2</b>				<b>1</b>
	<b>No=</b>		<b>1</b>				<b>2</b>	<b>3</b>		<b>3</b>	<b>1</b>		<b>1</b>	<b>2</b>	<b>1</b>	<b>2</b>

Y=Yes; S=Sometimes; N=No

##### Observations

- The majority of countries monitor the quality of pesticides at registration, importation or manufacture;
- Two-third of the countries monitor the quality of pesticides in pesticide shops;
- Few countries monitor the quality of pesticides applied in the field.

##### Conclusions

- Almost all countries have quality control infrastructure and capacities.

## 2. Analytical Capacities

### Background

To monitor for fake or substandard pesticides, countries need sufficient analytical capacities and programmes that monitor the quality of pesticides in shops or the field

### Survey responses

Number of samples actually analysed for quality in 2013		Bangladesh	Cambodia	China	DPR Korea	India	Japan	Lao, PDR	Malaysia	Mongolia	Myanmar	Nepal	Pakistan	Sri Lanka	Thailand	Vietnam
Samples submitted as part of the registration application	Max= 5500 Min= 0	148	750	5500	5	333	240	NA	200	12	600	0	540	-	2107	-
Samples of pesticides imported or manufactured in your country	Max= 7107 Min=19	24			176		24	NA		-	200	19	-	200	822	7107
Samples of pesticides collected in pesticide shops	Max= 8217 Min=19	226		4909	67	1709	-	NA	61	-	200	19	8217*	-	820	495
Samples of pesticides collected in the field or brought to offices.	Max= 240 Min= 0 n=4	23	50		240		-	NA	60	-	x	0	-	-	-	-
<b>Total</b>	<b>n=14</b>	<b>x</b>	<b>x</b>	<b>x</b>	<b>x</b>	<b>x</b>	<b>x</b>	<b>NA</b>	<b>x</b>	<b>x</b>	<b>x</b>	<b>x</b>	<b>x</b>	<b>x</b>	<b>x</b>	<b>x</b>
Japan: 16 technical grades (for contents of active ingredients and impurities) and 224 formulations (for physical and chemical properties)																
Pakistan: Punjab Province																

### Observations

- Most countries analyse pesticide samples for quality;
- Most samples are submitted as part of the registration application;
- Six countries analyze >100 samples collected in pesticide shops or collected in the field;
- Four countries have a sizable shop/field monitoring programme with >1,000 samples.

### Conclusions

- In the majority of the countries, current surveillance programs may be inadequate to detect fake or substandard pesticides.

### 3. Alerts

#### Background

Exchange of information and alerting responsible authorities may be an important factor in the fight against fake and substandard pesticides.

#### Survey responses

		Bangladesh	Cambodia	China	DPR Korea	India	Japan	Lao, PDR	Malaysia	Mongolia	Myanmar	Nepal	Pakistan	Sri Lanka	Thailand	Vietnam
Did you receive alerts about fake or substandard pesticides from information sources within your country?	Yes=11 No=3	Y	Y		Y	N	Y	N	Y	Y	(Y)	Y	Y	N	Y	Y
<i>If yes, what were the sources:</i>																
Bangladesh: Media, Police source, Individual information																
Cambodia: Through monitoring, some importers/ dealers, some users																
DPRK: Final users, agricultural management organizations																
Malaysia: stakeholder																
Mongolia: some farmers tell that some pesticides used not shown efficient result even they are spraying in normal dose and condition.																
Myanmar: plant protection Division of Department of Agriculture																
Nepal: market information																
Pakistan: Provincial agricultural departments																
Thailand: Office of Agricultural Regulatory, DAO																
Vietnam: Inspector, PPSD, media																
Did you receive alerts about fake or substandard pesticides from other countries or other external information sources?	Yes=2 No=11	N	N		N	N	Y	N		Y	N	N	N	N	N	N
<i>If yes, what were the sources:</i>																
Japan: A Rapid Alert System established by OECD Network of Experts on Illegal Trade of Pesticides																
Malaysia: stakeholder																
Mongolia: some pesticide importing companies																
If you do not receive alerts, do you think it would be useful to be alerted if neighbouring countries identify fake or substandard pesticides in their country?	Yes=9 No=4	Y	Y		Y	N		Y	Y	Y	N	Y	N	Y	N	Y
Have alerts helped in identifying substandard pesticides in your country?	Yes=9 No=4	Y	Y		Y	N		N	Y	Y	N	Y	Y	Y	N	Y
<b>Total</b>		<b>Yes=</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>3</b>	<b>4</b>	<b>1</b>	<b>3</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>3</b>
		<b>No=</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>1</b>

Y=Yes; N=No

***How do you follow-up to such alerts?***

Cambodia: Monitor at an entry check point; Inform to concerned competent authorities at border check point; Stop issuance of importation.

DPRK: Collection of samples, analysis of the sample, survey and certification of the original source

Malaysia: Enforcement action

Mongolia: However, I never get this kind of alerts from neighbouring countries if I received alerts I will take urgent measures in order to be check and cancel of their use.

Myanmar: Inspection

Nepal: We collect the sample and analysis for quality maintain

Vietnam: sampling and test-

**Observations**

- Most countries have received alerts about fake or substandard pesticides from sources within their country; the information sources included all persons concerned about pesticides;
- Only two countries received alerts from sources outside the country;
- In the majority of cases, alerts had been helpful in identifying substandard pesticides within a country and initiating enforcement actions.

**Conclusions**

- More information exchange and regional cooperation may be helpful in fighting fake and substandard pesticides.

#### 4. Problems over the past two years

##### Background

Even though it is difficult to assess illegal activities, the number of reported incidences may give an indication of the severity of the problem

##### Survey responses

Over the past two years, which of the following problems have been found in your country? How do you rate them?		Bangladesh	Cambodia	China	DPR Korea	India	Japan	Lao, PDR	Malaysia	Mongolia	Myanmar	Nepal	Pakistan	Sri Lanka	Thailand	Vietnam
Counterfeit products (products that are packaged to look like another legally registered pesticide)	Major=1 Minor=10 ND=3	2	2	2	2	2	ND	ND	2	1	2	2	ND	2	2	-
Substandard pesticides (products that contain less active ingredient than listed on the label)	Major=2 Minor=10 ND=1	2	1	2	1	2	2	ND	2	*	2	2	2	2	2	1.2%
Fake pesticides that contain no active ingredients	Major=1 Minor=8 ND=5	2	2	2	2	2	ND	ND	2	ND	2	ND	ND	2	1	-
Fake pesticides that contain a different type of active ingredient than what is stated on the label	Major=1 Minor=6 ND=7	ND	2	2	1	2	ND	ND	2	ND	2	2	ND	ND	ND	-
Illegal pesticides without registration	Major=4 Minor=8 ND=2	2	2	2	ND	2	2	1	1	1	1	2	ND	2	2	2%
<b>Total</b>	<b>Major=</b>		<b>1</b>		<b>2</b>			<b>1</b>	<b>1</b>	<b>2</b>	<b>1</b>				<b>1</b>	
	<b>Minor=</b>	<b>4</b>	<b>4</b>	<b>5</b>	<b>2</b>	<b>5</b>	<b>2</b>		<b>4</b>		<b>4</b>	<b>4</b>	<b>1</b>	<b>4</b>	<b>3</b>	
	<b>ND=</b>	<b>1</b>			<b>1</b>		<b>3</b>	<b>4</b>		<b>2</b>		<b>1</b>	<b>4</b>	<b>1</b>	<b>1</b>	
Mongolia: We do not have possibility and sufficient facility to analyze active ingredient concentration regularly																
1=Major; 2=Minor; ND=No data																

##### Observations

- Most countries consider fake and substandard pesticides as a minor problem;
- The illegal sale of products without registration is considered a more severe problem.

##### Conclusions

- There may be too little information to assess the problem of fake or substandard pesticides.

## 5. Most common pesticides found during 2013

### Background

A list of the most commonly found fake and substandard pesticides in the various countries may give an indication of common problems in the region.

### Survey responses

Product name	Country of origin on the label	Comments/Observations
<u>Bangladesh</u> Virtako 40WDG Furadan 5G Rovral 50WP Nativo 75 WP Belt 24 WG Dursban 20 EC	Bangladesh	fake
<u>DPRK</u> Prometryn 50% WP Deltamethrin 25EC Pyrazosulfuron ethyl 10%WP Butachlor 600EC	China	Other A.I.; Simetryn Other A.I.; Cypermethrin Low contents of A.I.; 6.7% Other A.I.; Acetochlor
<u>Japan</u> Unregistered formulations containing Pyrethrins	Japan	A manufacturer intentionally sold organic fertilizer mixed with unregistered pyrethrins extracted from pyrethrum. Ministry of Agriculture, Forestry and Fisheries ordered it to stop manufacturing and selling these products and urged it to recall them which had been already on the market. No incident is reported from the use of these products.
<u>Malaysia</u> Paraquat Glyphosate Metomyl Endosulfan Fentin acetate Buprofezin	unknown unknown China Thailand China China	using Malaysia label using Malaysia label Chinese language Thai language Chinese language Chinese language
<u>Mongolia:</u> It is not possible to analyze every imported pesticide regularly. There are most common evidence that pesticides are not coming from the countries and manufacture's which are included in the list. Some pesticides are coming from countries which are not analyzed and evaluated in our country for registration using a brand names of the companies that are registered in list.		
<u>Nepal:</u> there was no evidence of fake pesticide among tested samples		
<u>SriLanka</u> Glyphosate Homai	India	Not known how they produce Illegally imported
<u>Thailand</u> Abamectrin Omethoate Dimethoate	- - -	a.i. below specification on the label

### Conclusions

- These limited findings at country level do not reveal any broader inter-country patterns.