

KINGDOM OF CAMBODIA
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**SURVEYS ON
PUBLIC OPINION AND PRESENCE
OF LIVING MODIFIED ORGANISMS
(LMOs) IN CAMBODIA**



PROJECT : CAMBODIA'S INBF GFL / 2328-2716-3934
FUNDED BY : UNEP/GEF
PREPARED BY : Project Team

Phnom Penh July, 2007

SURVEYS ON ***PUBLIC OPINION AND PRESENCE OF*** ***LIVING MODIFIED ORGANISMS IN*** ***CAMBODIA***

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Acknowledgement

On behalf of the Ministry of Environment and the Implementation of the National Biosafety Framework for Cambodia Project, I would like to thank for the support from UNEP/GEF to enable the field survey on the “Public Opinion and Presence of Living Modified Organisms in Cambodia”, which aims at exploring opinion of general public in Cambodia about their like or dislike the use of LMOs and their existence in the country to be used as a basis in planning and policy development on Biosafety and Biotechnology capacity development for relevant ministries, departments, NGOs and research institution. The capacity development will be focused on risk assessment and risk management of LMOs, monitoring of risk exposure from LMOs, public awareness on LMOs on biosafety and decision-making.

I would like also to convey my deep thank to Excellencies, ladies and gentlemen who devoted a lot of their time in answering the questions and meeting with our survey team in providing feedbacks and recommendations pertinent to LMOs management and transboundary movement.

Finally, this survey report without the leadership from **H.E. Dr. Lonh Heal**, it would be impossible for the team to organize appointments with all of the respondents in such a short period of time. Lastly, I would like to thank all of the contributors whose names are not mentioned but provided some information to support the survey.

Phnom Penh July 2007
Project Team

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ABBREVIATION

FAO	: Food and Agriculture Organization
GEF	: Global Environmental Facility
GMOs	: Genetically Modified Organisms
LMOs	: Living Modified Organism
NBF	: The National Biosafety Framework
NBSC	: National Biodiversity and Biosafety Steering Committee
PCR	: The Polymerase Chain Reaction
RA	: Risk Assessment
RM	: Risk Management
RT-PCR	: Reverse Transcriptase Polymerase Chain Reaction
UNEP	: United Nation Environment Program
WHO	: World Health Organization

Executive Summary

Implementation of the National Biosafety Framework for Cambodia is a second phase project funded by UNEP/GEF with the objectives to provide expertise to relevant agencies in risk assessment and risk management, monitoring the exposure of risk from LMOs, develop rule and regulation for LMOs management, and promote public awareness on biosafety and decision-making.

For the basis of the research, planning and policy development on biosafety and biotechnology, the project has initiated the survey on the existence of LMOs and public opinion toward the use of LMOs in Cambodia that has the objectives as follows: (1) assessing the understanding LMOs in Cambodia; (2) exploring the presence of LMOs in the country; (3) understanding the existing management mechanism of LMOs; (4) exploring the preference of public toward the use of LMOs; and (5) research as a basis in planning and policy development on biosafety and biotechnology.

150 respondents were involved in the survey. They were from government agencies, research institutions and universities, NGOs, and private sector. Public agencies include Ministry of Environment, Ministry of Agriculture, Forestry and Fisheries and its relevant departments, Ministry of Industry, Mine and Energy, Ministry of Health, Ministry of Commerce, etc. Research institutions participated in this survey are Cambodian Agricultural Research and Development Institute, Royal University of Agriculture Chamkar Daung, Prek Leap Agricultural College, Rubber Research Institute, Royal University of Phnom Penh, National Pasteur Institute etc. NGOs participated in the survey are NGOs that deal with agricultural works, conservation and protection of environment. Private sectors are agricultural processing factories, import-export agro-products companies and food, vegetable and fruit farms, husbandry farms, and sale-persons in markets in Phnom Penh.

In conducting the survey, 20 questions were prepared and discussed before sending out for filling. The survey took one month of March 2007. The information was collected in group and individual through telephone interview, email and secondary information. Major focus of the survey is assessing the understanding LMOs, presence of LMOs in the country, management of LMOs, and preference of public toward the use of LMOs in the country.

As a result, among 113 respondents 74 of them or 66% are from public agencies, 9 or 8% from private sector, 25 or 22% from research institutions and universities, and 5 or 4% from NGOs.

Regarding the question on preference of LMOs use, among 113 expressed that they like to use LMOs, but majority of them 79% said that they don't like to use LMOs

and their products because they concern about their health and risk from LMOs. Only 8% of all answers are unaccounted for because they don't know.

In term of the presence of LMOs in the country, 54% of the respondents expressed they don't have the information on whether LMOs are imported to plant inside the country. This is supported by the statement from Director of Department of Agronomy and Land Improvement that "insofar, there is no LMOs existed in the country yet". 35% of them said they don't know and 11% said that there is information available regarding the presence of LMOs in the country. The later could be true because Cambodia has weak mechanism of monitoring and enforcement of transboundary movement of LMOs and recently some companies imported cotton seeds from Vietnam to plant in the country without proper information of assessing risk and approval. Some LMOs might be existed in the form of food ingredients sold at local supermarkets.

The level of understanding LMOs, most respondents (75%) are familiar with LMOs and only 25% said that they don't what is LMOs. Public awareness should be promoted among public know.

In relation to measures to curb risk from LMOs, 25% said that there are no measures against risk from LMOs in case that it exposes while 29% said that there are measures to curb with risk from LMOs. However, 49% said that they don't. In fact, there are some measures and some laws but poor enforcement that might lead to difficulty in curbing risk from LMOs.

This survey result will be a ground to make planning and policy for future research, capacity development pertinent to biosafety and biotechnology, strengthening lab capacity, and action plan development so as to achieve the project objectives, which are (1) to assist RGC to establish and consolidate a fully functional and responsive regulatory regime in line with Cartagena Protocol and national needs and priorities;(2) to assist RGC to establish and consolidate a functional national system for handling requests, carry out risk assessment decision-making and administrative tasks; (3) to assist RGC to establish and consolidate a functional national system for "follow -up" activities such as monitoring of risk exposure and environmental effects, and strengthening of enforcement mechanisms, institutions and procedures; and (4) to assist RGC to establish and consolidate a functional national biosafety system for public awareness, education, participation, and access to information.

Survey Report on Public Opinion and Presence of Living Modified Organisms (LMOs) in Cambodia

1. General Overview on Biosafety and Biotechnology in Cambodia

Biosafety and Biotechnology are very new theme for Cambodia when talking about living modified organisms (LMOs) or genetically engineering technology. However, discussing about the traditional ways of producing wine, alcohol, Tao hou, etc. this technology is not new to Cambodia.

Royal Government of Cambodia began adopting measures to place biosafety and biotechnology in the national biodiversity strategy and action in 2002. It has been recognized as “a priority”. The NBSAP identified the priority action as “Development and implementation of a Biosafety strategy and action plan in compliance with the international protocol on Biosafety” (MOE/NBSAP, 2002). To be able to develop an action plan and implement the Protocol better, it is necessary to conduct a survey the existing of LMOs in the country.

Until presence, it is not known for sure whether genetically modified organisms existed in the country since the birth of development of living modified crops in the early 1970s. In March 2006, Cambodia has been provided fund to implement the National Biosafety Framework. The project is scheduled to undertake activities from August 2006 on. The goal of the project is to assist the Royal Government of Cambodia to put in place a workable and transparent national biosafety framework, in line with national development priorities, Agenda 21, and the CBD. Under the project to implement the national biosafety framework with support from UNEP/GEF (GFL/2328-2716-4934), it is anticipating that a series of activities to be carried out during a period of 4 year from 2006-2010. These activities include as follows:

- The building of capacity for implementation of the Cambodia’s National Law on Biosafety and Sub-Decree on Management and Control of LMOs and relevant guidelines to ensure the safe use of modern biotechnology;
- Putting in place specific technical guidelines for facilitating transport, handling and use of LMOs.;
- The strengthening of appropriate institutional structures for risk assessment and decision making;
- The development and implementation of policies for biotechnology and biosafety;
- The training of decision makers, scientists, and administrative and technical staff on legal and technical matters;

- The reinforcement of the existing infrastructures (laboratories) to strengthen monitoring and identification of LMOs;
- Setting up and making operational a mechanism for monitoring and enforcement
- The strengthening of communication and information exchange relating to biosafety
- both at the national level as well as through the BCH
- Systems for strengthening public awareness, education and participation in decision making on GMOs.

To be able to achieve some of these activities, a survey on existing of LMOs in the country and public opinion toward LMOs has to be undertaken and a result from this survey will be used to support relevant activities as mentioned.

2. Objectives of the Survey

The objectives of the survey are to:

- Understand the status of biosafety and biotechnology in Cambodia;
- Explore the existence of LMOs in Cambodia;
- Explore the management strategy of LMOs in Cambodia;
- Explore the public opinion toward the use of LMOs in the country; and
- Provide baseline data in developing a national policy on biosafety and relevant policies on risk assessment and risk management resulting from LMOs.

3. Scope of the Survey

The survey focuses on respondents from government agencies, non-governmental organizations, university students and faculties, private companies and public at large. The survey started in March 12 and lasted till April 20, 2007¹. The scope of the survey concentrated on exploring public opinion toward LMOs uses, existence of LMOs in the country and capacity needs for biosafety and biotechnology management in the country.

4. Methodology

The team of survey, which comprised of 5 counterparts from different ministries and two project staff met and developed a survey questionnaire and identified scopes for the survey including target of respondents, themes for questions, import-export, management of LMOs, and public preference toward LMOs (Annex 1). In the set of questionnaires there are 10 questions.

¹ During this period, there was a commune council held on April 01, 2007 delayed the process of survey.

The team identified agencies to be interviewed and prepared appointment for interview (Annex 2). The interview was conducted with leaders, director, and head office of the relevant department including specialists, experts, professors, students from governmental agencies, NGOs, academic institutions, research institutions, and private companies.

Some materials have been reviewed, which will be incorporated with the survey results with regard to the existence of LMOs and public opinion toward LMOs in the country.

5. Respondents

The total targeted respondents are 150, which are from public agencies, private companies, NGOs, academic institutions, farmers, associations and students. Most government agencies are from Ministry of Environment, Ministry of Agriculture, Forestry and Fisheries, Ministry of Commerce, Ministry of Health, Ministry of Industry, Mine and Energy and Ministry of Education, Youth and Sport.

6. Survey Results

6.1 Diversity of Respondents

Among 150 questionnaires delivered, only 113 were returned for processing. Only 66% of (74) respondents are from public agencies, 8% (9 respondents) from private agencies, 22% (25 respondents) from academic institutions and research institutions and 4% (5 respondents), which is the lowest number from NGOs.(Figure 1).

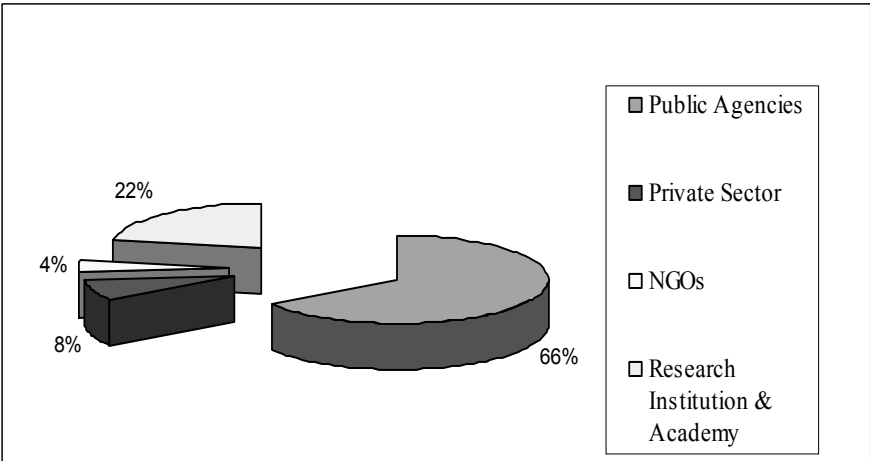


Figure 1: Proportion of Respondents Participated in the Survey

6.2 Understanding Living Modified Organisms in Cambodia

Majority of respondents (75%) expressed their view over the familiarity of LMOs in Cambodia. Only a quarter indicated that they don't know about the LMOs. (Figure 2)

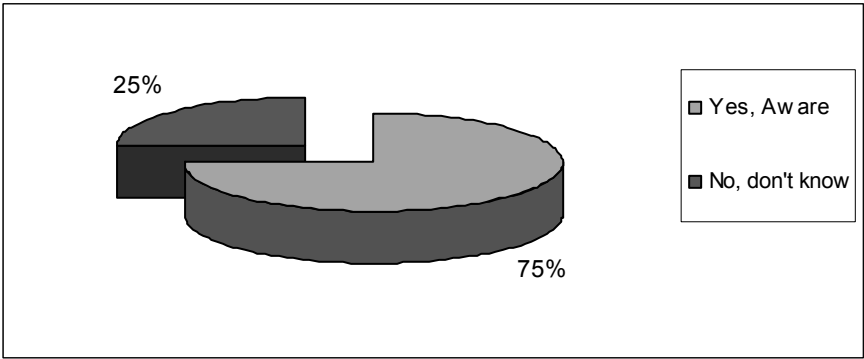


Figure 2: Understanding on LMOs

6.3 Respondents' Opinion toward LMOs products

8% of respondents expressed their opinion that they don't know what are LMOs products and what they look like, therefore they cannot express their opinion or maybe they don't bother this. However, 13% of them said that they liked the products and majority of them indicated that they don't like LMOs products. (Figure3).

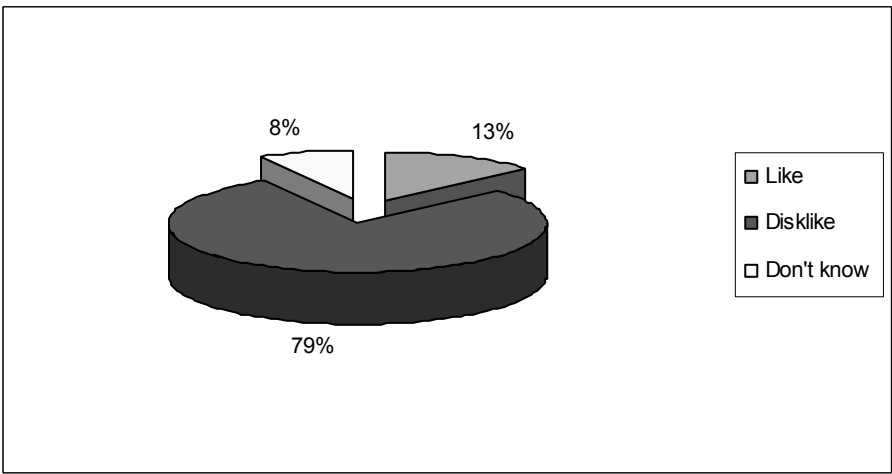


Figure 3: Respondents' Opinion toward LMOs products

6.4 Export-Import of Living Modified Organisms

Through the figure generated, the project team has identified that 35% of respondents said don't know with regard to import and export of LMOs into the country for food, feed or processing, field trials or for contained use. 54% of them said there is no information about that. Interestingly 11% of them said "yes" there is import of LMOs for field trails, food, feed or for processing in the country. This may be true in some parts for food in term of food ingredients imported to sell in the country but may not be true that LMOs import for feed or processing let alone field trial because the Department of Agronomy and Land Improvement has expressed that they has not approved any LMOs products into the environment². (Figure 4)

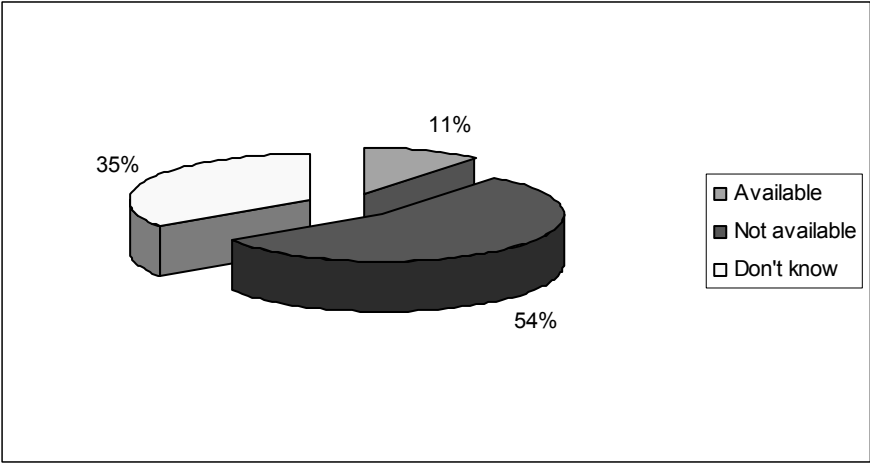


Figure 4: Export-Import of LMOs in Cambodia

6.5 Protection Measures against LMOs risk

Regarding to measures for protection risks occurring from LMOs within the individual institution, 25% of the respondents said there are no measure available for coping with risk from LMOs. 29% of them said there are measures to reduce risk from LMOs while 46% of them expressed views that they don't know. (Figure 6)

² Reportedly from Plant Protection Office that there was an import of cotton seeds from China approved by MAFF without proper document in June 2007. It is not sure whether that cotton seed is LMOs or not. No official proof for this case.

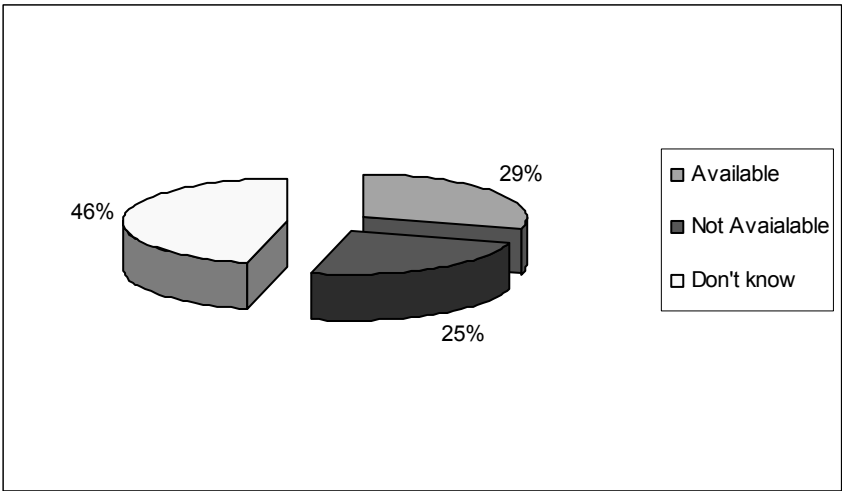


Figure 6: Protection Measure against LMOs risks

6.6 Management of LMOs

Among interviewed respondents, 47% of them expressed there is no management measure in place to deal with LMOs in the case they are released into the environment. 21% of them expressed, there are some management measures available. This maybe exists according to relevant agencies in dealing with infectious diseases like bird flu, pest and foot and mouth etc. However, 32% said that they don't if their agencies have the management for LMOs or not. (Figure 6).

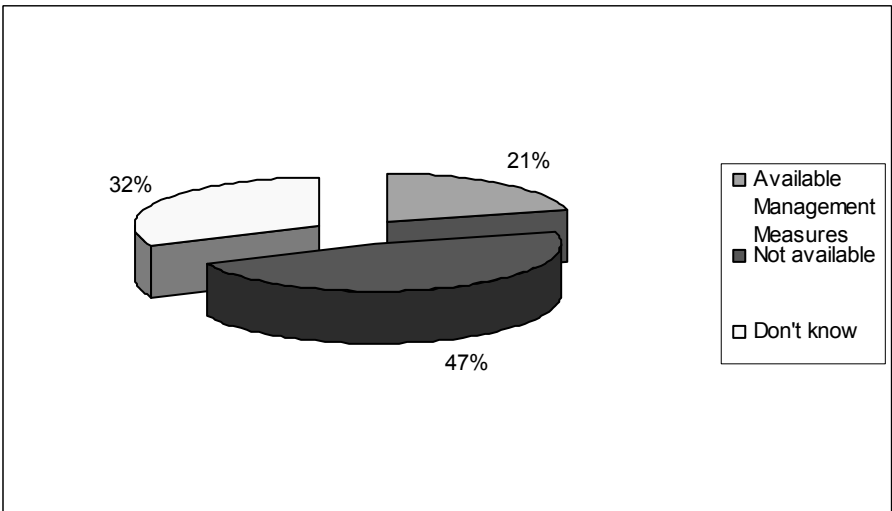


Figure 6: Management of LMOs

6.7 Priority Areas for Biosafety Management in Cambodia

Among priority areas listed for them to tick, most participants expressed that government policy, management mechanism, human resource, lab capacity, environmental monitoring and public education and awareness are placed as high priority with above (10%). Improving database on biosafety, good financial mechanism, civil society participation are relatively medium priority for capacity development in the field of biosafety and biotechnology.

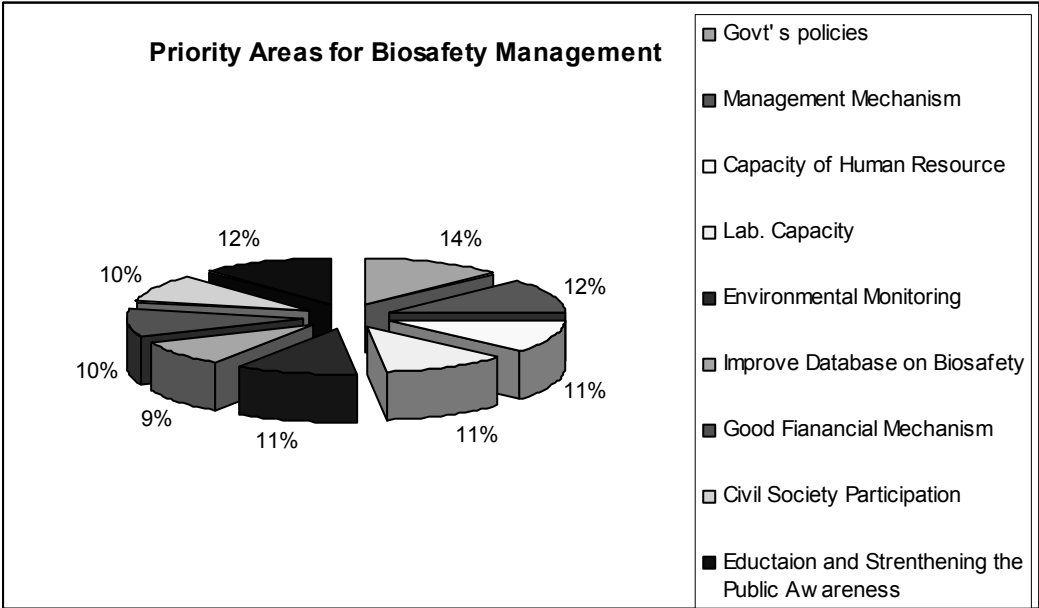


Figure 7: Priority areas for biosafety management

6.8 Training Needs in Biosafety

Majority of the respondents felt that there is a lack of capacity pertinent to biosafety and biotechnology in Cambodia. Therefore, 95% of them expressed their view that they wanted more training on various fields related to biosafety, risk assessment, risk management, food safety and traceability etc. (ref. answers sheets). Only 5% of respondents showed that they don't want to attend the course. This might reflect that for those who refused to attend the training course, might possess some general knowledge the genetic engineering, biotechnology or related disciplines. (Figure 8).

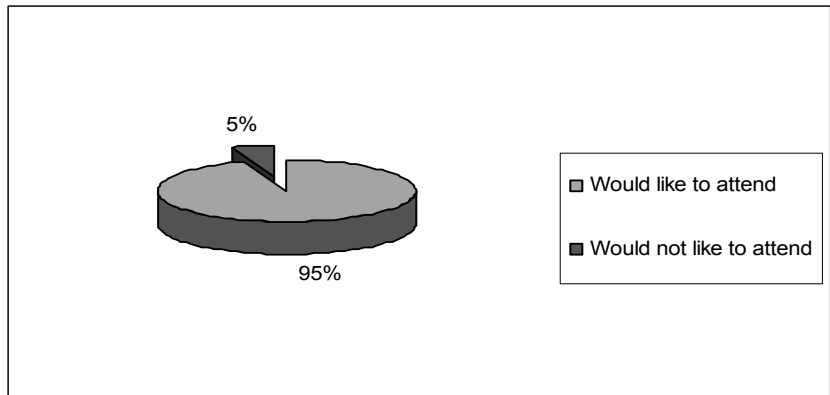


Figure 8: Training Needs in Biosafety

7. Conclusion

The knowledge of LMOs in Cambodia has been spread among Cambodia and general public such as government officials, businessmen, students, farmers, employees etc. through public debate on biosafety and environment, learning at schools and seeing variety of fruits selling at markets, which have all-year-round. In fact, most fruit selling at the market are a result from injecting hormone into the skin of the crops to bigger fruits or products as they wished including ripening delay etc so as to attract consumers. However, most people still don't understand what is LMOs including government officials, students, farmers and public at large. Thus, they need to be provided public awareness on biosafety and biotechnology.

Based on the survey result above, the presence of LMOs in Cambodia is officially inconclusive, however, there are some illegal import of some crop species such as cotton seeds, corn, eucalyptus etc. into the country that still doubt for us to make a conclusion whether they are genetically modified organisms. This is consistent with opinion from **H.E Dr. Lonh Heal**, Director-General of Ministry for Environment, **Mr. Pen Vuth**, Director of Department of Agronomy and Land Improvement, **Mr. Suon Sothoeun**, Deputy-Director of Department of Animal Health and Production and **Mr. Phat Leng**, Director of Department of Agro-Industry that until now there is no companies or farms undertaken LMOs farms in the country. Based on the survey report on capacity building, R&D and Biotechnology in Cambodia conducted in 2003 by UNEP/MOE through NBF Project showed that no LMOs presence in the country.

Therefore, there is a need for collaboration with relevant agencies on the procedures in releasing into the environment of any LMOs. Law enforcement of the case is very important to be strengthened.

By and large, majority of respondents expressed views that education and training are important to promote their understanding on LMOs, LMOs identification, health related to LMOs application and etc. Training should be provided to government agencies such as MOE, MAFF, MOH, MOC and MOEYS and MIME. Academic institutions are key agencies to play critical role in improving biosafety and biotechnology knowledge in the country. Public awareness should be enabled to farmers and their associations in the country.

Implementation of import-export of LMOs in Cambodia does not address in any law while the national law on biosafety is still at the parliament for debate. The biosafety law addresses the procedure on application process, risk assessment till approval stage. Current import of living crops, flowers and seeds have been under difficult situation to control.

To be able to manage risks from LMOs in a safe manner most respondents agreed that the country should have an effective policy on biosafety and biotechnology, a clear management mechanism, capacity building program, lab facilities supporting, public awareness, and strengthening border control to detect illegal transboundary movement of LMOs.

8. Recommendations

Based on the conclusion and feedbacks from respondents and workshops, policy on biosafety and biotechnology should incorporate following recommendations:

- 1) Pay attention to research and development on biosafety and biotechnology, risk assessment and risk management of LMOs, capacity to detect LMOs in national lab, and capacity monitor field trials in the future.
- 2) Improve law enforcement (National law on biosafety, and Cartagena Protocol on Biosafety).
- 3) Strengthen administrative works (developing application forms for LMOs destined for FFP, contained use, and field trails).
- 4) Increase public awareness, participation on decision making to release LMOs into the environment by allowing public to access to information related to risk from LMOs and assess them before approving.
- 5) Encourage participation from academic institution through capacity building of biosafety and biotechnology to produce human resource for the country.

References

- 1) Cartagena Protocol on Biosafety, 2000.
- 2) MAFF, 2006. Agricultural Statistics 2005-06.
- 3) MAFF, 2003. Phyto-Sanitary Sub-decree.
- 4) MAFF, 2003. Sub-decree on Inspection of Animals and Animal Based Products.
- 5) MAFF, 2003. Sub-decree on Management of Agricultural Materials.
- 6) MOC, 2003. Sub-decree Food Safety for Human Health.
- 7) MOC, 2000. Quality Management and Safety on Products and Services.
- 8) Oum Pisey et al., 2003. Survey Report on national capacity resources, uses of biotechnologies, and existing national bilateral and multilateral cooperative programs on capacity building and R&D in biotechnology. Ministry of Environment, Cambodia
- 9) MOE/UNDP, 2002. National Biodiversity Strategy and Action Plan.
- 10) MOE/UNDP, 2007. National Capacity Self-Assessment Action Plan.

Annexes

Annex 1: List name of Counterparts made interviewed

No	Name	Position and Institution
1	Miss. Rang Sokha	Counterpart from Ministry of Environment
2	Mr. Yin Samray	Counterpart from Ministry of Environment
3	Mr. Sok Vuthea	Counterpart from Ministry of Environment
4	Mr. Chan Sitha	Counterpart from Ministry of Agriculture
5	Mr. Yi Bunhak	Counterpart from Ministry of Agriculture

Annex 2: Interview Schedules

March	Interviewed Institution	Surveyors
week 1 and week 2	Ministry of Environment	Sokha, Samray, Vuthea
	Ministry of Agriculture	Sitha, Bunhak
week 3	Academic Institutions and Research Institutions	Sokha, Sitha, Bunhak
week 4	Private Sectors (Enterprise, Company, Factory)	Sokha, Sitha, Bunhak
	Non Government Organizations	Sokha, Sitha

Annex 3: List of Respondents

No	Name	Sex	Position	Institutions
1	Loeung Chanthy	M	Lecturer	RUPP
2	Thou Phon	M	Lecturer	RUPP
3	Kem Sothun	M	Lecturer	RUPP
4	Hoy Sereyvathreasy	M	Lecturer	RUPP
5	Sporn Vin	M	Lecturer	RUPP
6	N/A	M	Lecturer	RUPP
7	Va Vuthy	M	Student	RUPP
8	Ly Ratanak	M	Planning Officer	MoEYS
9	N/A	M	Officer	MoEYS
10	Ros Sun	M	Vice chief of Admin. office	DoC/PP
11	Chhor Elet	M	Technical Officer	MoE
12	Heng Hong	M	Technical Officer	MoE
13	Sokha Sophorn	M	Officer	MoE
14	Tan Khunratana	M	Technical Officer	MoE
15	Kim Saren	M	Technical Officer	MoE
16	Meas Sothunvathanak	M	Technical Officer	MoE
17	San Socheatlekkena	F	Technical Officer	MoE
18	Eng Peng Long	M	Technical Officer	MoE
19	N/A	M	Technical Officer	MoE
20	N/A	M	Technical Officer	MoE

21	N/A	M	Officer Dept. B	MoE
22	Hean Sothea	M	Human Resource Officer	MH Bio Energy Group Co, Ltd
23	Yen Seyha	M	Staff	Pasteur Institute of Cambodia
24	Kem Viset	M	Staff	Monrethy Company Group
25	Eng Dy	M	Officer Dept. EIA	MoE
26	Keang Kesorbovorkarona	M	Officer Dept. EIA	MoE
27	Sin Sideth	M	Technical Officer	MoC
28	Chhay Phalrath	M	Technical Officer	MoC
29	Peng Ban	M	Technical Officer	MoC
30	Pich Chan	M	Technical Officer	MoC
31	Sin Sophon	M	Technical Officer	MoC
32	N/A	M	Technical Officer	MoC
33	Saroeun Kesra	M	Technical Officer	MoC
34	Thou Vichsa	F	Flower Seller	ATA Flower Express
35	N/A	M	Flower Seller	Flower Express
36	N/A	M	Director	Asia Flour Company
37	Thaong Sambath	M	Officer	PNSA
38	Chey Muntha	M	Lecturer	PNSA
39	Choun Moneyrath	F	Vice Chief Office	MAFF
40	Hong Sovann	M	Officer	MAFF
41	Sou Sola	F	Officer	PNSA
42	Hong Kimeang	F	Officer	PNSA
43	N/A	M	Staff	Feed Processing Company
44	Lim Khantiva	M	Technical Officer	IRRC
45	N/A	M	Expert Officer	IRRC
46	Hav Sengkea	M	Expert Officer	IRRC
47	Mak Bunna	M	Expert Officer	IRRC
48	Kong Mengchheang	M	Expert Officer	IRRC
49	Soeun Narin	M	Executive Director	Haga Soyamilk Company
50	Nal Sinat	M	Staff	Haga Soyamilk Company
51	N/A	M	Director	Nestle Dairy (Cambodia) Ltd
52	Sim Viriyak	M	Vice Chief Officer	Fishery Administration
53	Seng Rotha	M	Vice Chief Officer	Fishery Administration
54	Ko Kimtek	M	Officer	Fishery Administration
55	Nov Buntha	M	Officer	Fishery Administration
56	Va Vuthy	M	Officer Dept. D	MoE

57	N/A	M	Officer	MIME
58	Hout Rethy	M	Officer	MIME
59	N/A	M	Officer	MIME
60	N/A	M	Officer Dept. D	MoE
61	Hour Piseth	M	Officer Dept. A	MoE
62	Pov Raksmeay	M	Officer Dept. A	MoE
63	Hen Chandara	M	Officer Dept. A	MoE
64	An Chanthoeun	M	Vice Chief Officer	MoE
65	Pen Sitha	F	Officer Dept. A	MoE
66	Ros Chor	M	Vice Chief Officer	MoE
67	N/A	M	Technical Officer	DoC/PP
68	Dok Kimda	M	Technical Officer	DoC/PP
69	Um Sitha	M	Technical Officer	DoC/PP
70	N/A	M	Officer Dept. EIA	MoE
71	N/A	M	Officer Dept. EIA	MoE
72	Tuy MengSornng	M	Officer	MoE
73	Ty Savun	M	Officer	MoE
74	N/A	M	Officer	MoE
75	N/A	M	Officer	MoE
76	N/A	M	Officer	MoE
77	Nhem Sakun	M	Officer	MoE
78	Prom Vuthy	M	Officer	MoE
79	Nov Rathmony	M	Officer	MoE
80	Yin Sochenda	F	Officer	MoE
81	Chim Sochenda	M	Student	RUPP
82	N/A	M	Student	RUPP
83	N/A	F	Student	RUPP
84	N/A	F	Student	RUPP
85	Chea Phalleka	F	Research Assistant	Conservation International
86	N/A	M	Lecturer	RUPP
87	Ou Chouly	F	Lecturer	RUPP
88	Sin Sophorn	F	Lecturer	RUPP
89	Un Sothy	M	Officer	MAFF
90	Nou Yuthteka	M	Officer	MAFF
91	In Sophary	M	Officer	MAFF
92	Men Vannary	F	Program Officer	NGO Forum on Cambodia
93	Cheang Sovanrath	M	NGO Staff	Environmental Beauty
94	Chea Ryvath	F	NGO Staff	FAO
95	Neang Sarin	F	NGO Staff	FAO

96	Has Piseth	M	Officer	MAFF
97	Meas Sambath	F	Officer	MAFF
98	Sreng Chek	M	Officer	MAFF
99	Preaph Visato	M	Chief Office(Plant Protection)	CARDI
100	Lao Bunna	M	Vice Chief Officer	CARDI
101	Pet Khunhel	M	Officer	CARDI
102	Seng Youse	M	Officer (Processing Office)	Dept. Agro-Industrial
103	Chhum Voeun	M	Vice Chief Adm. Office	Dept. Agro-Industrial
104	Chea Pisey	M	Planning Officer	Dept. Agro-Industrial
105	Sreng Chek	M	Officer	DAHP
106	Meas Sambath	M	Officer	DAHP
107	En Sotheary	M	Officer	DAHP
108	N/A	M	Director	Sun Wash Company
109	N/A	M	Officer (Wildlife Office)	Forestry Administration
110	N/A	M	Officer (Wildlife Office)	Forestry Administration
111	N/A	M	Officer (Wildlife Office)	Forestry Administration
112	N/A	M	Officer (Wildlife Office)	Forestry Administration
113	N/A	M	Officer (Wildlife Office)	Forestry Administration

Annex 4: List questionnaires

**Rapid Assessment on
the Status of Living Modified Organisms
in Cambodia**

Prepared by the Implementation of the National Biosafety Framework
Ministry of Environment, 2007
In collaboration with relevant stakeholders

Introduction for Interviewers

Read prior to interviewing

This is a questionnaire based survey used to collect information from respondent's representing many sectors involving import-export, producing, processing, and use of living modified organisms (LMOs). Therefore, please do not explain the points or the issues that may influence the respondent's answers. That is, **DO NOT HELP OR INFLUENCE THE RESPONENT IN ANSWERING QUESTIONS**. Do not coach or give any form of assistance in answering questions.

If the respondent does not know something you have asked and asks you to explain, in order to not to bias the data, please state: "I will explain this to you when we have finished with the interview" and then explain.

Before administering the questionnaire, become familiar with it. There are grey instruction boxes and read these carefully. Be sure to practice many times before you administer this questionnaire.

The purpose of this questionnaire is for the project to assess how well government officers, private staffs, and the public comprehend the issue of LMOs including import-export, production, processing, using, and the presence of such LMOs in Cambodia. The data from this questionnaire will inform the project, the relevant ministries, and the government on the needs and mechanisms required for sound management of LMOs, institutional capacity building requirement, and human resources particularly the organization of trainings and awareness activities. Therefore, if you assist the respondent with answering the questions, the data will be biased and not reflect the true situation of LMOs in Cambodia. Remember, you are the pen of the respondent only writing down what s/he thinks!

At the end of this questionnaire there is a debriefing section where you can explain the meaning of LMOs and respond to any other questions the respondent may have asked. Please remind the respondent that you will answer all their questions and explain things at the end of the interview. Note and explain that information from this interview will remain anonymous to ensure the rights of the respondent.

Module 1: General Interview

Survey Number:

Sector Represented by respondent:

- Registration/controlling sector: ☐ Import-export sector: ☐
The public sector: ☐
- Research institutes and civil societies: ☐

Date (dd/mm/yy):

Place of Interview: (City/Town):
.....

13.1 Consent procedure

CONSENT: Consent for participating is sought individually with each participant before asking questions

- Good morning/afternoon.
- My name is _____ (interviewer's name). I work for the _____ (fill in organization's name).
- Thank you for agreeing to speak to me. I would like you to help us with a safety project.
- I will be asking you some questions, as well as showing you some papers.
- Even though we will be asking you a lot of questions, **this is not a test of your ability or knowledge. You will not be judged by how well or poorly you answer any question.** All we ask is that you try to answer the questions truthfully and as best as you can.
- Be reminded that all information we get will remain anonymous and confidential. No one beside us (you and our team) will know about what you have answered.

Read to respondents only:

- Your participation will not affect your job and your supervisor/manager has agreed to your participation in this survey. He/she knows that your answers will remain anonymous.
- It will take about 1 and a half hour to conduct this interview.
- Do you have any questions? We would be happy to answer them (please pause for them to respond before proceeding).

- Do you feel you understand why you are participating in this project? Are you happy to participate in this project?
- Thank you, we will now go ahead. Remember, even though you have said you are happy to participate, you do have the right to stop at any time if you so wish.

Put X in box if respondent verbally consented to participating in this study ☐

13.2 Respondents' biographical information

- 13.2.1 Name of respondent (optional):
- 13.2.2 Gender: Male: ☐ Female: ☐
- 13.2.3 Age of respondents: Under 20 years: ☐ 20s years: ☐
30s years: ☐ 40s years: ☐ 50s years: ☐ 60s years: ☐

Over 60s years: ☐
- 13.2.4 What is your present occupation?
.....
- 13.2.5 Respondent's organization: (if public or private sector):
.....

13.3 Educational status

- 13.3.1 How much schooling have you completed? (Put appropriate number in box)
- Never attended school: ☐ Primary school: ☐ Lower secondary school: ☐
‣ Upper secondary school: ☐ Tertiary school: ☐ Post graduate school: ☐

End of Module 1

Module 2: Status of Living Modified Organism in Cambodia

13.4 Understanding on Living Modified Organism

13.4.1 What is living modified organism

- Is an organism that processes a combination of genetic materials obtained through the use of modern biotechnology/genetic engineering ☐
- Is an organism that is used in horticulture ☐
- Is a hybrid of two species of animal or plants ☐

13.4.2 Have you ever heard, seen or known LMOs? Yes: ☐ No: ☐

13.4.3 Please describe any species of LMOs that you have heard of, seen, or know of

- Plant: ☐ Seedling: ☐ Fruits: ☐ Vegetable: ☐
- Domestic animal: ☐ Wild animal: ☐ Fish: ☐ Meat: ☐
- Processing foods: ☐ Others: ☐

13.5 Presence of Living Modified Organism

13.5.1 Where are the LMOs you have heard of, seen, or known to be located?

- Lab: ☐ Plant farming: ☐ Animal farming: ☐ Aquatic farming: ☐
- Public area: ☐ Markets: ☐ Others: ☐

13.6 Concerns on Living Modified Organism

13.6.1 Would you like to eat or use LMOs or their products? Note that products may be biscuits made from flour or oil of LMO crops.

- Yes: ☐, why?
.....
- No: ☐, why not?
.....
.....

End of Module 2

Module 3: The Living Modified Organism Management Status

Remark: for those working in public and civil society sectors only

13.7 About the organization

- 13.7.1 Name of organization:
.....
- 13.7.2 Contact address:
 > No.:, Street:, Village/Group:
 Commune/District:, Quarter:
 Province/Municipality:
 > Telephone No.:, Fax:
 > Email:
- 13.7.3 Main work of the respondent's organization:
.....
.....
.....

13.8 About Import-Export and Traffic of Living Modified Organism

- 13.8.1 Is your organization involved in import-export, production, processing, or transport of LMOs?
- > Don't know: ☐ No: ☐ Yes: ☐
- > If yes, what kind of activities are involved:?
- Import: ☐ Export: ☐ Production: ☐ Processing: ☐
 Distribution: ☐
- Food: ☐ Feeding: ☐ Use in lab: ☐ Trial planting: ☐
 Commercial planting: ☐ Others: ☐
- > Please fill in the information related to such LMOs

Product name	Scientific name	Commercial name	Country of Origin	Quantity	Check point	Date

Product name	Scientific name	Commercial name	Country of Origin	Quantity	Check point	Date

13.8.2 Have you known other organizations/ sector involves in transport of LMOs?

‣ Don't know: ☐ No: ☐ Yes: ☐

‣ If yes, please fill in the information about such organization/ sector

Name of Organization	Type of products	Transport	Purpose of trafficking
	Plants <input type="checkbox"/> / Seedling <input type="checkbox"/> / Fruits <input type="checkbox"/> / Vegetable <input type="checkbox"/> / Domestic animal <input type="checkbox"/> / Wild animal <input type="checkbox"/> / Fish <input type="checkbox"/> / Meat <input type="checkbox"/> / Processed food <input type="checkbox"/> /	Import <input type="checkbox"/> Export <input type="checkbox"/>	Processing <input type="checkbox"/> / Food <input type="checkbox"/> / Feeding <input type="checkbox"/> / Trial planting <input type="checkbox"/> / Commercial Planting <input type="checkbox"/> / Use in lab <input type="checkbox"/> /
	Plants <input type="checkbox"/> / Seedling <input type="checkbox"/> / Fruits <input type="checkbox"/> / Vegetable <input type="checkbox"/> / Domestic animal <input type="checkbox"/> / Wild animal <input type="checkbox"/> / Fish <input type="checkbox"/> / Meat <input type="checkbox"/> / Processed food <input type="checkbox"/> /	Import <input type="checkbox"/> Export <input type="checkbox"/>	Processing <input type="checkbox"/> / Food <input type="checkbox"/> / Feeding <input type="checkbox"/> / Trial planting <input type="checkbox"/> / Commercial Planting <input type="checkbox"/> / Use in lab <input type="checkbox"/> /
	Plants <input type="checkbox"/> / Seedling <input type="checkbox"/> / Fruits <input type="checkbox"/> / Vegetable <input type="checkbox"/> / Domestic animal <input type="checkbox"/> / Wild animal <input type="checkbox"/> / Fish <input type="checkbox"/> / Meat <input type="checkbox"/> / Processed food <input type="checkbox"/> /	Import <input type="checkbox"/> Export <input type="checkbox"/>	Processing <input type="checkbox"/> / Food <input type="checkbox"/> / Feeding <input type="checkbox"/> / Trial planting <input type="checkbox"/> / Commercial Planting <input type="checkbox"/> / Use in lab <input type="checkbox"/> /
	Plants <input type="checkbox"/> / Seedling <input type="checkbox"/> / Fruits <input type="checkbox"/> / Vegetable <input type="checkbox"/> / Domestic animal <input type="checkbox"/> / Wild animal <input type="checkbox"/> / Fish <input type="checkbox"/> / Meat <input type="checkbox"/> / Processed food <input type="checkbox"/> /	Import <input type="checkbox"/> Export <input type="checkbox"/>	Processing <input type="checkbox"/> / Food <input type="checkbox"/> / Feeding <input type="checkbox"/> / Trial planting <input type="checkbox"/> / Commercial Planting <input type="checkbox"/> / Use in lab <input type="checkbox"/> /
	Plants <input type="checkbox"/> / Seedling <input type="checkbox"/> / Fruits <input type="checkbox"/> / Vegetable <input type="checkbox"/> / Domestic animal <input type="checkbox"/> / Wild animal <input type="checkbox"/> / Fish <input type="checkbox"/> / Meat <input type="checkbox"/> / Processed food <input type="checkbox"/> /	Import <input type="checkbox"/> Export <input type="checkbox"/>	Processing <input type="checkbox"/> / Food <input type="checkbox"/> / Feeding <input type="checkbox"/> / Trial planting <input type="checkbox"/> / Commercial Planting <input type="checkbox"/> / Use in lab <input type="checkbox"/> /

Name of Organization	Type of products	Transport	Purpose of trafficking
	Plants <input type="checkbox"/> / Seedling <input type="checkbox"/> / Fruits <input type="checkbox"/> / Vegetable <input type="checkbox"/> / Domestic animal <input type="checkbox"/> / Wild animal <input type="checkbox"/> / Fish <input type="checkbox"/> / Meat <input type="checkbox"/> / Processed food <input type="checkbox"/> /	Import <input type="checkbox"/> Export <input type="checkbox"/>	Processing <input type="checkbox"/> / Food <input type="checkbox"/> / Feeding <input type="checkbox"/> / Trial planting <input type="checkbox"/> / Commercial Planting <input type="checkbox"/> / Use in lab <input type="checkbox"/> /
	Plants <input type="checkbox"/> / Seedling <input type="checkbox"/> / Fruits <input type="checkbox"/> / Vegetable <input type="checkbox"/> / Domestic animal <input type="checkbox"/> / Wild animal <input type="checkbox"/> / Fish <input type="checkbox"/> / Meat <input type="checkbox"/> / Processed food <input type="checkbox"/> /	Import <input type="checkbox"/> Export <input type="checkbox"/>	Processing <input type="checkbox"/> / Food <input type="checkbox"/> / Feeding <input type="checkbox"/> / Trial planting <input type="checkbox"/> / Commercial Planting <input type="checkbox"/> / Use in lab <input type="checkbox"/> /
	Plants <input type="checkbox"/> / Seedling <input type="checkbox"/> / Fruits <input type="checkbox"/> / Vegetable <input type="checkbox"/> / Domestic animal <input type="checkbox"/> / Wild animal <input type="checkbox"/> / Fish <input type="checkbox"/> / Meat <input type="checkbox"/> / Processed food <input type="checkbox"/> /	Import <input type="checkbox"/> Export <input type="checkbox"/>	Processing <input type="checkbox"/> / Food <input type="checkbox"/> / Feeding <input type="checkbox"/> / Trial planting <input type="checkbox"/> / Commercial Planting <input type="checkbox"/> / Use in lab <input type="checkbox"/> /
	Plants <input type="checkbox"/> / Seedling <input type="checkbox"/> / Fruits <input type="checkbox"/> / Vegetable <input type="checkbox"/> / Domestic animal <input type="checkbox"/> / Wild animal <input type="checkbox"/> / Fish <input type="checkbox"/> / Meat <input type="checkbox"/> / Processed food <input type="checkbox"/> /	Import <input type="checkbox"/> Export <input type="checkbox"/>	Processing <input type="checkbox"/> / Food <input type="checkbox"/> / Feeding <input type="checkbox"/> / Trial planting <input type="checkbox"/> / Commercial Planting <input type="checkbox"/> / Use in lab <input type="checkbox"/> /
	Plants <input type="checkbox"/> / Seedling <input type="checkbox"/> / Fruits <input type="checkbox"/> / Vegetable <input type="checkbox"/> / Domestic animal <input type="checkbox"/> / Wild animal <input type="checkbox"/> / Fish <input type="checkbox"/> / Meat <input type="checkbox"/> / Processed food <input type="checkbox"/> /	Import <input type="checkbox"/> Export <input type="checkbox"/>	Processing <input type="checkbox"/> / Food <input type="checkbox"/> / Feeding <input type="checkbox"/> / Trial planting <input type="checkbox"/> / Commercial Planting <input type="checkbox"/> / Use in lab <input type="checkbox"/> /

13.9 Measure to Prevent Risks Caused by Living Modified Organism

13.9.1 Has your organization known about the risks caused by LMOs?

- Don't know: ☐ No: ☐ Yes: ☐
- If yes, what kind of risks?
- Risk on plant: ☐ Risk on farming animal: ☐ Risk on farming aquatic: ☐
 - Risk on human health: ☐ Risk on the environment (biodiversities): ☐

13.9.2 Has your organization taken any measure to prevent risks caused by LMOs?

- Don't know: ☐ No: ☐ Yes: ☐
- If yes, please describe such measure(s)?

.....

.....

13.9.3 What benefits that your organization expected to gain by using measure to prevent risks caused by LMOs?

- Ecological balance: ☐ Pest management: ☐ Improve agricultural production: ☐
- Improve labor market: ☐ Fostering investment: ☐ Market competition: ☐
- Health prevention: ☐ Others: ☐:

13.10 Management of Living Modified Organism

13.10.1 Has your organization take any measure to manage LMOs?

- Don't know: ☐ No: ☐ Yes: ☐

13.10.2 What kind of measure your organization has taken to manage LMOs? (Can tick more than one box)

- Register: ☐ Controls at check points: ☐ Enforcement: ☐
☐ Go to registered: ☐
- Database: ☐ Quarantine: ☐ Risks/Outbreak reporting: ☐
- Education/dissemination: ☐ Others: ☐

13.10.3 Does your organization have any equipment/tools to analyze LMOs?

- Don't know: ☐ No: ☐ Yes: ☐
- If yes, please describe such equipment/tools: PCR: ☐ Freezer: ☐
 DNA Sequencer: ☐
 Others: ☐

13.10.4 What factors and priority level are fostering the environmentally sound management of LMOs?

Description (Please tick in the bellowed box)	Priority				
	None	Less	Medium	More	High
Government policy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Legal instrument	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clear management mechanism	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Human resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lab capacity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Enforcement of controlling at check points	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Database establishment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Good financing mechanism	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Description (Please tick in the bellowed box)	Priority				
	None	Less	Medium	More	High
Participation from civil societies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Education and awareness raising	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Public participation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other factors (please name)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other factors (please name)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

End of Module 3

Module 4: Final Interview

13.11 The use of Living Modified Organism

13.11.1 In your current job, how often do you use LMOs?

- Never: ☐ Sometime (once a month): ☐
‣ Often (once a week): ☐ Usually (more than two times in a week): ☐

13.12 Trainings

13.12.1 In your current job, have you received training in the following areas?

- Training in biotechnology? Yes: ☐
No: ☐
‣ Training in safety of LMOs? Yes: ☐
No: ☐
‣ Training in health problem caused by LMOs? Yes: ☐
No: ☐
‣ Training in identifying LMO characteristics? Yes: ☐
No: ☐
‣ Training in LMOs' problem solving? Yes: ☐
No: ☐
‣ Self-trained? Yes: ☐
No: ☐

13.12.2 If training on LMOs is available would you like to participate?

- Yes: ☐ No: ☐

13.13 Survey evaluation

13.13.1 Do you think this was a valuable interview? Yes: ☐ No: ☐
Don't know: ☐

13.13.2 If no, why or why not was this valuable interview? Please explain

.....
.....
.....
.....

13.13.3 Do you have any questions or suggestions?

.....
.....
.....
.....

End of Module 4

DEBRIEFING

Instruction:

Now is the time to answer questions and explain anything the respondent did not understand or would like to know more about.

Read to Respondent:

- *This is the end of the survey.*
- *Thank you very much for your participation.*
- *This survey is part of a project to see whether any LMOs are known to be present in Cambodia, to gain information on whether any authorized organizations have prepared mechanism for the safe management of LMOs, to see how well the public understands issues related to LOMs, etc. Your answers will help us to see what kind of requirement shall be prepared in order to prevent risk to the environment and public health caused by LMOs in the future.*

We very much appreciate your participation and help.

Thank you.

*The Implantation of the National Biosafety Framework Project
Ministry of Environment, 2007
In collaboration with relevant stakeholders*

The End