

**QUESTION AND ANSWER SESSION WITH THE MEDIA  
ON THE RELEASE OF TRANSGENIC MOSQUITOES  
29 OCTOBER 2010  
MUTIARA MEETING ROOM, LEVEL 13,  
WISMA SUMBER ASLI**

The National Biosafety Board (NBB) on the 5 October 2010 made a decision to grant an approval with terms and conditions to the application from the Institute of Medical Research (IMR) for a field trial to release genetically modified (GM) male mosquitoes. This approval permits the release of male genetically modified (GM) Yellow Fever mosquitoes, *Aedes aegypti* OX513A (My1) strain and male non-GM *Aedes aegypti* mosquitoes (wild type) to conduct a field trial entitled "Limited Mark-Release-Recapture (MRR)\* of *Aedes aegypti* wild type and OX513A (My1)". The proposed release sites are in Bentong, Pahang and Alor Gajah, Melaka.

With that, the Department of Biosafety organized a Question and Answer session with members of the media to address concerns and also clarify issues and uncertainties revolving around the decision by the NBB. About 21 members of the media registered at this event (Appendix 1). The session was chaired by Mr. Letchumanan Ramatha, who is the Director General of the Department of Biosafety (the Department). Other resource people present were Dr. Ahmad Parveez Hj. Ghulam Kadir (Chair of the Genetic Modification Advisory Committee), Prof. Helen Nair, Assoc. Prof. Dr. Mohd Faiz Foong Abdullah and Dr. Tan Swee Lian.

Members of the media were given information about the NBB decision on the approved field trial, the basis of the decision by the Board and also a summary of issues brought up by the public during the Public Consultation for the assessment.

The issues raised in the Q&A session are documented in the table below:

NO.	QUESTION	RESPONSE
1	Has the Cabinet approved the release of the GM mosquitoes?	Mr. Letchu replied that the Cabinet has been informed of the NBB's decision to approve the release. He clarified that under the Biosafety Act 2007, the NBB has been empowered to make decisions on all applications e.g. the current application for a MRR field trial using GM mosquitoes.
2	Is there a planned release date?	Mr. Letchu clarified that no exact date has been set as yet for the release. The release date initially proposed by IMR in their application is no longer applicable. IMR will provide NBB with details of the release plan, including new dates for the release.

3	Can you at least provide a release time- frame?	Mr. Letchu replied that it would probably be somewhere between November to December.
4	What kind of survey/activity will be done before the release?	Mr. Letchu explained that under Terms and Conditions of the Approval and prior to the release IMR is required to obtain informed consent from the local council and people living in the release site. The Institute will use an existing mechanism.
5	What do you mean by 'no selective survival advantage'?	Dr. Parveez explained that once a wild type female mosquito mates with a GM male mosquito, the female mosquito will produce larvae that will die (due to the new gene inherited from the GM mosquito) and this trait provides no advantage.
6	Is there a deadline for when consent must be obtained from the local council? (any fixed date?)	Mr. Letchu answered that there is no fixed date for the consent to be obtained. However, without the consent, the applicant may not proceed with the release. The applicant will inform NBB of their release schedule and once they have obtained NBB's consent, the field trial can begin.
7	It is mentioned that the Cayman Islands has conducted a similar release. When was this done and what were the results?	Dr. Parveez replied that the Cayman Islands conducted the release sometime towards the end of 2009 and it is still ongoing. They managed to obtain results proving that the GM male mosquitoes mate with the wild type female mosquitoes (results show that about 8% of the larvae carried the transgene).
8	8% does not seem like a very high percentage, therefore is it worthwhile for Malaysia to carry out this trial?	<p>Dr. Helen explained that what was conducted in the Cayman Islands were suppression studies and on a bigger release scale whereas the approval given by NBB is for IMR to conduct a limited release.</p> <p>Mr. Letchu went on to clarify the difference. People seem to think that the GM mosquitoes will be continuously released when in actual fact; the GM mosquitoes will only be released for a short period (1 or 2 days) as the purpose of release is to study the flight distance and lifespan of the GM mosquitoes in the natural environment. The release is not meant to study how frequent they can mate, etc. When the time comes for a full release of the GM mosquitoes, the applicant will have to apply for another approval.</p>
9	To seek clarification on the number of mosquitoes to be released - As 4,000-6,000 GM mosquitoes will be released with	Mr. Letchu confirmed the number of mosquitoes to be released.

	an equal amount of wild type, does this mean that a total of 8,000-12,000 mosquitoes will be released?	
10	So, this not the first trial in the world?	Mr. Letchu stated that the release would definitely not be the first trial in the world. Many countries are currently considering or looking into this as they may engage in a similar trial in the future. Different countries are at different stages of progress in the development of this technology.
11	Are the release sites for Bentong and Alor Gajah confirmed?	Mr Letchu confirmed that the applicant will only stick to these 2 proposed sites but this is on condition that there are no activities in the vicinity of the sites that might discharge tetracycline.
12	Heard that the release will be conducted in Bentong first then only in Alor Gajah. How true is this?	Mr. Letchu replied that he had not heard of such statement but that even if it were true, it would not make any difference as approval has been given for both Bentong and Melaka.
13	Have the district councils confirmed the absence of tetracycline at the release sites? And if there is tetracycline present, does this mean that they will not be able to release the GM mosquitoes there?	Dr. Helen said that tetracycline found through activities agriculture/aquaculture industries is usually in waste waters. She reminded those present that the <i>Aedes</i> mosquito favours fresh/clean stagnant water and not polluted water.

14	Why were Bentong and Alor Gajah proposed as the release sites?	<p>Mr Letchu invited Dr. Lee (IMR) to answer the question. Dr. Lee responded by explaining that IMR have surveyed many places and not just Bentong and Alor Gajah. There are pre-established criteria for the selection of sites. Among these criteria are that the release site must have a high <i>Aedes aegypti</i> population, is in an isolated area and also not near any protected areas.</p> <p>Mr. Letchu informed those present that they can refer to the document that was handed out as the criteria have been listed there (Document <i>Rumusan Isu-Isu dari Konsultasi Awam, Jadual 1, Item 1, bullet 3</i>).</p> <p>Dr Parveez continued by explaining that based on the application, Bentong was chosen because the site is not close to any areas protected for environmental purposes, approximately 100 km away from several conservation sites within the State (e.g. the Kuala Kran Wildlife reserve, the Taman Negara rainforest park, as well as the lake Tasik Bera (RAMSAR wetlands site).</p> <p>Alor Gajah was chosen because the site is not close to any areas protected for environmental purposes, approximately 70 km away from several conservation sites within the State; Gunung Ledang Johor National Park.</p>
15	What would be the risks involved after releasing the GM mosquitoes?	<p>Dr. Parveez explained that GMAC has studied the various risks that may occur from the release of the GM mosquitoes and from a list of 33 identified risks it has been narrowed down to 2 potential risks with a ranking higher than 1 in the context of a limited field release:</p> <ol style="list-style-type: none"> <li>1) A 3% survival of the progeny. Although there is no advantage for these surviving mosquitoes because when they mate, their progenies will die. The 3% figure was obtained from the lab studies conducted. (In the field, the environment is harsher and this survival rate will probably decrease)</li> <li>2) Accidental release of female mosquitoes during sex sorting. However, a thorough SOP is in place for an effective sex sorting mechanism.</li> </ol> <p>With these considerations, GMAC has concluded that basically there is only very low risks involved.</p> <p>Mr. Letchu added that the possible risks identified are also manageable with the proposed risk mitigation plans.</p>
16	Are you saying that the public should not worry?	Mr Letchu replied that there is no need for the public to worry as there is no risk involved.

17	How long will the experiment go on for?	<p>Dr. Parveez explained that the duration of the whole experiment is about 1 month. However, after 1 month, monitoring of the site will continue.</p> <p>Dr. Helen further explained that the actual release of the mosquitoes will be done in either 1 day or in 2 consecutive days.</p> <p>Mr. Letchu clarified that the whole duration of the project is 1 month but it does not mean that mosquitoes will be continuously released for a month.</p>
18	How is the monitoring done? How are you going to monitor the whole progress of the released mosquitoes?	<p>Mr. Letchu explained that a trapping mechanism will be used to monitor the mosquitoes. The traps will be placed in strategic locations in order to enable trapping of the mosquitoes.</p> <p>Prof Helen added that besides the traps placed to catch adult mosquitoes (the BG Sentinel), special traps to collect the eggs of the mosquitoes (Ovitrap) will also be placed. Monitoring will be done by both the applicant (IMR) and NBB.</p>
19	What is the objective of the release? Is it to get rid of the <i>Aedes</i> mosquitoes?	<p>Mr. Letchu answered that the objective of the release is to generate data regarding the GM mosquito. The data obtained may be used next time if the applicant plans to do a suppression trial (e.g. to estimate how many mosquitoes will be needed if this project continues to the next level (release for a suppression field trial).</p>
20	What about the public view? What are their opinions?	<p>Mr. Letchu replied that Public Consultation was conducted for 1 month and announcements were made in the national newspapers. The Department has even written to NGOs to get their feedback.</p> <p>Some NGOs gave scientific inputs/views and these points were discussed at GMAC assessment meetings. Generally there were those who supported the release (as they felt that it could be beneficial) and there were those who did not support the release (as they probably feared the unknown). Under the Cartagena Protocol on Biosafety, precautionary measures have been set out for the release of a Living Modified Organism. The release should be done in a precautionary manner; it does not prohibit the release. GMAC has analysed the application for months. What started as a list of 33 identified risks was shortlisted to 2 potential risks and even then the risks are negligible.</p>
21	Who were the NGOs that were consulted?	<p>(i) Malaysian Environmental Non-Government Organizations Support Unit (MENGO Support Unit)</p>

		<ul style="list-style-type: none"> <li>(ii) Malaysian Nature Society (MNS)</li> <li>(iii) World Wide Fund for Nature Malaysia (WWF-Malaysia)</li> <li>(iv) Third World Network (TWN)</li> <li>(v) Environmental Management Research Association of Malaysia (ENSEARCH)</li> <li>(vi) Gabungan Persatuan Pengguna-Pengguna Malaysia (FOMCA)</li> <li>(vii) Sahabat Alam Malaysia (SAM)</li> <li>(viii) Centre for Environmental Technology and Development Malaysia (CETDEM) dan</li> <li>(ix) Persatuan Pengguna Pulau Pinang (CAP).</li> </ul>
22	Besides the NGOs, were there a lot of local people who gave their input?	<p>Mr Letchu stated that the NBB received views from many different groups of people and all these views were considered. Any scientific and reasonable views were forwarded to GMAC for their consideration. Some of the views were not relevant for the field trial (limited release) but would be is more relevant for a larger scale release.</p> <p>Dr. Parveez added that GMAC also invited representatives from NGOs to the GMAC meeting to give the NGOs a chance to explain their view on the release.</p> <p>Mr. Letchu commented that some people assume that NGOs have no scientific view and make statements based on emotions. However, there are cases where NGOs do give scientific views which were taken into consideration. From all the NGOs that were consulted, only TWN came back with valid scientific views.</p>
23	Since this is the first time the process is done, what was your experience (i.e. how did you feel about the process )?	<p>Mr. Letchu replied that the NBB received a lot of external support and professional/technical advice from scientific organizations (e.g. research institutions, universities, etc.). NBB is heavily dependent on experts in the field. In addition, the Department also has access to a list of Biosafety Experts from the Roster of Experts in the Biosafety Clearing House. As this is a new area, everyone is still learning.</p>
24	What about countries have already started this experiment?	<p>Mr. Letchu replied that Cayman Islands were the first to start such experiments and Malaysia is probably the second country to do so. Other countries are at various</p>

		stages/phases of the experiment.
25	What is the difference between this project in Cayman Islands and the one that is going to be done in Malaysia?	<p>Mr. Letchu explained that Cayman Islands already conducted the actual release (full scale release) whereas Malaysia is in a phase prior to such release (i.e. limited release).</p> <p>Dr. Parveez further explained that Malaysia is in Phase 1 whereby Cayman Islands is already in Phase 2. Should Phase 1 succeed and IMR would like to proceed to Phase 2, a new application will need to be submitted to NBB for assessment. IMR can gain some experience from conducting Phase 1 before proceeding to the next phase/step.</p>
26	Why is there a release of both GM and wild type male mosquitoes.	Dr. Parveez explained that the reason both types of mosquitoes will be released is to compare the GM mosquito to the wild type in terms of flight distance, survivability, etc.
27	Is there a possibility that another location will be chosen for the release?	Mr. Letchu replied that unless the chosen place for release is found to be not suitable and does not fulfil the set criteria, only then will another place be chosen.

The session ended with some closing remarks from other GMAC members. Dr. Faiz emphasized that the role of GMAC was to protect the people and ensure that activities are done in a safe manner. Dr Tan Swee Lian said that this field trial (Mark-Release-Recapture) should not be confused with a full scale release for population suppression. In addition, only male mosquitoes are being released, which do no bite or spread any disease. Therefore, the risk is very minimal.

Department of Biosafety  
Ministry of Natural Resources & Environment  
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\*Note: Mark-release-recapture (MRR) is a technique whereby a number of organisms/animals are marked in a way that makes them easily recognized when they are encountered again within a habitat. It is assumed that the marked organisms/animals that are released will mix back into the rest of the local population

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