

RELIGIOUS SECTOR

Keeping Faith in the Technology

The efforts of science particularly when their use for humanity is discussed inevitably involve the realm of ethics. Value judgments determine whether something is perceived as good or bad, right or wrong, and provide a basic framework as to how people may react to certain issues and concerns. Questions about values are often outside the domain of scientific knowledge and rely on a cultural diversity of personal and introspective perceptions. As science enters value-laden areas, stakeholders need to be engaged in the ethical, legal and social implications of science and technology or biotechnology in particular. Considerations of the moral and ethical issues make a significant contribution to building trust in science policy. Devos et al. (2007) suggest a need to “move from a merely scientific evaluation and risk-based policy towards a socially more robust evaluation that takes the non-scientific concerns at stake in the genetically modified organisms debate seriously.”

Gaskell et al. (2005) report that in the United States, religious beliefs are strongly related to critical attitudes to science and technology. They note that there is a minority “in favor of ethically informed decision-making and public engagement in science, with less positive views about technology, in particular emerging and controversial technologies.”

Interestingly, religious leaders (whether Christian or Islam) were identified by Asian respondents as trusted sources of information on biotechnology although their knowledge level was low (Juanillo, 2003; Torres et al., 2006). The latter study adds that religious leaders from Indonesia, a Muslim country, had a very conservative view of agricultural biotechnology. In the Philippines, a predominantly Catholic country, the biggest challenge for biotechnology as perceived by stakeholders was moral/ethical issues rather than technical soundness and utility.

Two religious sector leaders, one an Islamic scholar and the other, a Roman Catholic priest, share their foray into the biotechnology arena and their optimism for crop biotechnology as a tool to help improve man’s quality of life.



SHAIKH MOHD SAIFUDDEEN BIN SHAIKH MOHD SALLEH

Islamic Scholar

By Mahaletchumy Arujanan and K. Cheng Liew

Muslim scholars have a rich history of innovation and invention. In the fast-paced, ever-expanding field of science and technology today, Muslims are ever vigilant in keeping themselves well-informed on the various facets in science and keeping abreast on its relation to Islamic teachings.

Shaikh Mohd Saifuddeen bin Shaikh Mohd Salleh, is the Executive Director of **Yayasan Ilmuwan**, a non-profit research organization in Malaysia. He was formerly a Senior Fellow of the Institute of Islamic Understanding Malaysia (IKIM), and is known in the country to be actively involved in the discussion and deliberation of Islamic and scientific issues, including biotechnology. He also sits in several committees, including the Scientific Advisory Committee of the Malaysian Biotechnology Information Center (MABIC); Research Ethics Committee of Universiti Teknologi MARA (UiTM); and Organ Donation Task Force of the Ministry of Health.

Shaikh has been involved with issues pertaining to Islam's response to science and technology since 1998. With science and technology being a fast developing field, with its impacts making waves and being felt by everybody almost immediately, he believes that "society has to be prepared to face these impacts, challenges and changes. For Muslims, it spells the imperative need for information and understanding in order to ensure that their response is in line with Islamic teaching." He is an intermediate who liaises with scientists

and technologists, as well as Muslim scholars, and endeavors to allow them to have in-depth discussions on the changes brought about by cutting-edge technologies and advanced science.

Crop Biotechnology and Islamic Perspectives

In this day and age when food security is a pertinent issue, crop biotechnology is getting to be increasingly important. For a country like Malaysia, where the population and demand for food supply are increasing, it is crucial to venture into potential technologies that could contribute to the solution. Shaikh regards crop biotechnology as being of great potential in helping answer these issues. However, developments within the field should be conducted with respect to Islamic teachings in mind. "As long as there is no contradiction and is proven to be beneficial, crop biotechnology products may be permissible for the Islamic world," adds Shaikh.

"Islam has several mechanisms to see whether something is permissible or not. One of which is the 'maqasid ash-shariah' or purposes of Islamic law. Classical scholars outlined five main purposes, namely protection and preservation of religion, life, mind (intellect), progeny and property. Recent scholars have added another one - protection and preservation of the environment. To me, these purposes of Islamic law can act as a checklist for anything. If we can satisfy ourselves that crop biotech does not pose any threat to any one of the six purposes, in fact if crop biotech improves the

To date, there is only one fatwa pertaining to GM food. Specifically speaking, the fatwa issued dealt with the issue of swine gene. After much deliberation, the fatwa issued by the National Fatwa Council on July 12, 1992 states the following:

- i) Any product, food or drink processed using biotechnological methods incorporating swine DNA is against the precepts of shariah and is therefore not permissible (haram).
- ii) We have yet to reach a stage whereby the rule of “necessities overrule prohibitions” could be applied. As such, biotechnological usage of swine DNA in the processing of products, foods and drinks could not be justified as there are still other viable alternatives that can be considered.
- iii) The dangers of the usage of prohibited materials are greater than the benefits that it would bring. With this fatwa as a guide, the issue of using swine DNA in GM food is clear. However, the usage of DNA from other animal sources needs to be studied by the ulama.

(Source: “Biotechnology and religion: Are they compatible?” 2004. BIC News. Published on 15th March 2004)

quality of the six things that Islam protects, then there should not be any problem regarding the acceptance of crop biotech. But the important thing is that, we should deliberate on these matters with facts and not emotions, and we must get scientists to sit down with Islamic scholars on a regular basis so that continued dialogues can be held.”

Involvement in Biotechnology

Shaikh’s involvement with biotechnology began at IKIM. A number of seminars on biotechnology were organized to discuss its relevance from the perspective of Islam. His interest and involvement in the subject continued and grew as he began attending workshops organized by the International Service for the Acquisition of Agri-biotech Applications (ISAAA) and MABIC. These include a workshop on media awareness on biotechnology held at Monash University, another workshop at EiMAS (Department of Environment) on biotechnology, biosafety and biodiversity, and a conference on *The Development of Agricultural Biotechnology in Islamic Countries: Sharing the*

Experience on Issues and Challenges in Cairo, Egypt. The Cairo workshop discussed issues related to the compatibility of Islam and biotechnology. Islamic scholars from various countries reiterated that Islam is not in contradiction to the development of biotechnology if the technology is employed to improve human health and lifestyle without any negative implications to the environment. However, it was also noted that much effort is required to bridge the communication gap between Islamic scholars and scientists. “I found the workshop useful particularly the new information about biotech from other countries. While the workshop was basically an enabling event I was successful in networking with people from other parts of the world.”

The executive director has given talks and written several articles on the perspective of Islam on biotechnology and its relevant issues. He uses these opportunities to explain what is being done in the Muslim world, in particular Malaysia, when it comes to biotech. More importantly, Shaikh uses facts and figures from ISAAA/BIC publications to

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help him present the Islamic views in contrast to the global perspective on crop biotech. An example is *Biodiversity, Biotechnology and Biosafety: An Islamic Perspective*, a collaborative publication among the Ministry of Natural Resources and Environment NRE, MABIC and **Yayasan Ilmuwan**, which is now a standard text on biotechnology and Islam. He also finds the biotech topical series of Pocket Ks very useful and are at arms reach at the office when he needs them. He uses these publications to get figures as well as technical facts for talks and papers. “All Pocket Ks are handy for me, as issues that arise out of biotech are wide-ranging. With the technical facts, I can source for Islamic inputs on the matter,” he says.

Shaikh believes in dialogue. By creating more avenues to involve various stakeholders in biotechnology, it is possible to have a more comprehensive and encompassing view of the science. This is essential as science and technology continues to advance with overlapping trends. He believes that specialization in very specific fields will no longer be feasible in the future as one will have to depend on other areas in order for advancements to be made. For example, four areas



Shaikh (fifth from left, second row from the top) is joined by other delegates at the Cairo conference on biotechnology and Islam.

have been marked as the technologies for the 21st century, namely genomics, robotics, informatics and nanotechnology. While these four areas seem to be separate, in truth they overlap each other. “Therefore, I foresee that advancement in S&T in the coming future will require greater cooperation from experts,” he comments.

Speaking on a more personal level, Shaikh professes that he is hoping to see more programs involving scientists and Islamic scholars to discuss biotechnology. “I personally am of the opinion that Islamic scholars can play a role in disseminating a better understanding of biotechnology (in particular on its permissibility) to the society as they are highly regarded in the Muslim community. This would be an effective form of dissemination, especially to the Muslim community in general who holds their scholars in high regard.” □

FR. EMMANUEL ALPARCE

The Morality of Genetic Engineering

By Jenny Panopio



The religious sector is one key stakeholder that can significantly influence attitudes and perceptions of the public about agricultural biotechnology. In the Philippines, religious leaders were considered both by policy makers and their fellow religious leaders as trusted sources of information on agricultural biotechnology (Torres et al., 2006). This is not surprising because the church has a lot of influence on the normal day to day lives of Filipinos.

One prominent supporter of agricultural biotechnology that emerged from the Roman Catholic Church is Rev. Father Emmanuel 'Noli' Alparce. Before his current stint as Vice Rector of the Dulce Nombre de Maria Cathedral Basilica in Guam, he was the Executive Director of the Social Action Center (SAC) of Sorsogon, one of the agricultural provinces in the Philippines with coconut, corn and abaca as major products. Father Noli was tasked to look for interventions that could help SAC in their programs dealing with ordinary social problems related to agricultural productivity and the challenges being faced by resource poor farmers. The SAC is the arm of the Roman Catholic Church that deals with human problems related to poverty, malnutrition, corruption, justice and peace.

With poverty and malnutrition as pressing concerns in the country, Bishop Jesus Varela tasked Father Noli to look at a new technology being introduced in the Philippines. "My Bishop was the one who was very eager to learn more about

biotechnology. At that time in 2000, Bt corn was being introduced in the country. He asked me to take a look at this technology and see if it could help solve problems regarding lack of food and malnutrition. If it could, then, why shouldn't we consider this technology? And if it is really safe, then we can share products of this technology with the poor people," says Fr. Noli.

On May 8, 2001, Jaime Cardinal Sin, the archbishop of Manila at that time, made a similar point in a pastoral statement on genetic engineering in agricultural products. He stated that "genetic engineering is acceptable only if all risks are minimized. Otherwise, one may easily succumb to temptations of productivity and profit at the expense of the people and environment. And as long as foreseeable dangers are not fully identified, studied and avoided, safe alternative procedures should be used, and if none, testing and development of the technology should be avoided altogether."

Fr. Noli, having some background in agriculture and genetics from his undergraduate studies at the University of the Philippines Los Baños, took it upon himself to learn about agricultural biotechnology. He was at first hesitant on the application of biotechnology in agriculture because of several environmental, human safety and ethical concerns he read and heard about. He was mostly concerned about the manipulation of life and the power of the technology to the extent of playing God.



Fr. Noli gives an overview of the Department of Agriculture biotech information initiatives during the seminar on agri-biotech reporting.

"I got enlightened about the process and benefits of genetic engineering for agriculture when I attended a week-long workshop in 2001 on *Agricultural Biotechnology: Facts, Fears and Future Directions*. I actively participated in the discussion and the organizers noticed me, they were happy and impressed especially since I was the only one coming from the church sector." Afterwards, Fr. Noli's understanding on the science and safety issues surrounding biotechnology deepened as he attended one seminar after another. He was able to fully appreciate the technology when he was chosen to be part of the International Visitors Program of the U.S. Embassy Cultural Affairs to learn about the process of genetic engineering. From that study tour, he became aware of the science-based risk assessment procedure where the environmental and food safety of GM crops are well-studied prior to commercial release.

"When I came back to the country, I was a defender of biotechnology even in many countless conferences that I would be attending. I would vocally defend on the side of morals." Father Noli believes that biotechnology is moral because it

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Fr. Noli's involvement in the biotechnology information campaign intensified as he served as the Chair of the technical committee on public information, education and communication (IEC) of the Department of Agriculture's Biotechnology Program for more than five years. He was able to collaborate with other partners who were also actively involved in biotechnology IEC drive, particularly those sponsored by the International Service for the Acquisition of Agri-biotech Applications (ISAAA) and Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA) Biotechnology Information Center.

"Our technical committee evaluated proposals, provided funding, monitored and evaluated impact and effectiveness of IEC programs on agricultural biotechnology. SEARCA-BIC was one of the proponents of our IEC program and I personally joined several IEC activities organized by them in several parts of the country," remembers Fr. Noli.

The Priest Talks on Ethical Concerns

Being an advocate of biotechnology coming from the religious sector, Fr. Noli was often tapped as the resource person on several IEC initiatives on agri-biotechnology particularly on the ethical concerns of biotechnology. From his advocacy work, he was able to utilize several ISAAA- developed materials on biotechnology. He shares that "ISAAA has been our partner in

the information campaign on biotechnology and we used and distributed several IEC materials which they developed. One particular material that helped me convince non-believers of biotechnology and correct misconceptions is ISAAA's video documentary on farmers' experiences in planting Bt corn in the Philippines. This material has been very effective and very helpful, as it documents the first success story on the adoption of a biotech crop in the country."

Fr. Noli believes that continuous budget support for the IEC campaign should be in-place in the country. He suggests actively educating the policy makers and their staff about the potential of the technology and benefits that can be obtained from adopting it as they approve and provide directions for the agricultural sector of the country. He hopes that initiatives of ISAAA and SEARCA BIC particularly on information dissemination, development of publications, and media education should be continued so as to reach more people particularly those in the community levels.

Fr. Noli hopes for the continued development of agricultural biotechnology in the country particularly on poor man's crops. He assures that the Church is supportive although cautious on agricultural biotechnology.

"When you talk about morals, it is simply what is right and what is wrong. If we abuse the process of biotechnology, then we are wrong. But when we use it responsibly, it can help advance the food security and also help farmers living in poverty. However, any technology, even how successful

it is, will be useless if the people will not adopt the products or consume it because they are not convinced or are afraid of it. The key to realize the promises of biotechnology is information, publication and the media. And on these aspects, ISAAA and the SEARCA BIC can be of enormous assistance so that people can fully understand the technology and eventually use it". □

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