




Promotion and Conservation of Philippine Cultural Ricescapes at the Rice Science Museum

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In the Philippines, rice exceeds its primary purpose: its symbolical aura has made it a cultural centrefold (Aguilar 2005). A number of Filipino artists have used the rural rice fields as backdrops to their work. This quotidian ingredient strongly impacted the country’s diverse landscapes. However, many Filipinos are unfamiliar with the rice farming techniques and culture as well as the environmental stakes at hand.

In the present article, ‘cultural ricescape’ has been coined to refer to rice crops, fields and farming techniques. Hong (2014) defines culture as that which ‘describes how creatures use their environment, a peculiar manner of adaptation of each race in each region, how to use resources derived from an ecosystem, a lifestyle including how to dress, survive, dwell and communicate’ (Hong 2014, p. 2). This implies that ‘culture’ is a collaborative endeavour between man and the environment. This interaction produces shared behavioural patterns among different groups of people. Schatzki (2011) observes that landscape goes beyond its spatial definition, and also considers the temporal aspect related to it. A ‘cultural landscape’ is the product of the interaction between man and nature (Lowenthal 1985, in Othman *et al.* 2014; Richards and Robertson 2003). UNESCO defines it as ‘a property or defined geographical area that has been modified by human activities and is valued by communities’ (UNESCO 1996). Special land-use patterns associated with agricultural practices are essential to understand cultural landscapes (Rotondo 2016). Agriculture—rice farming included—is an activity that is intrinsically related to nature (Hong 2014). Hence, ‘ricescape’ not only refers to the rice fields *per se*, but also includes all objects and practices that are associated with rice farming. It includes the transformations undergone through farming activities, a holistic consideration of its temporal-spatial nature. In addition, the industrialisation of agriculture and environmental change has added complexity to the delicate interactions—through farming—between human communities and nature (Paladino and Simonelli 2013).

The Rice Science Museum of the Philippine Rice Research Institute in Maligaya, the Science City of Muñoz in Nueva Ecija, is the country’s only museum dedicated to Filipino rice and rice culture, its history and related scientific discoveries and technological innovations (Ripley 2015; Anderson *et al.* 2015). A number of anthropology, history and science museums exist in the Philippines but only provide selected information on rice. The Rice Science Museum is keen on fulfilling its educational vocation towards the public and as such aims to provide access to the latest developments in the field, which are usually presented in research and academic journals. At the same time, it seeks to promote the preservation and conservation of the rich Filipino rice heritage and rice-related culture, as well as to inform the public of these ongoing conservation efforts. One of the museum’s unique traits is that sixty per cent of its average 2,000 monthly visitors are rice farmers from different parts of the country. The remaining 40 per cent visitors are students, teachers, researchers, rice extension workers and workers in the agricultural sector, originating from both rural and urban areas although most city dwellers grew up in the countryside.

In the Philippines, the intense government effort to modernise the museum sector has brought about social, psychological, and cultural gaps between traditional and new rice farming systems, while there is a rising awareness that much needs to be done in terms of environmental preservation. The exhibitions of the Rice Science Museum aim to create a deeper understanding of rice farming in the Philippines and nurture a sense of belonging and connection to ricescapes. Has this aim, then, been achieved?

This paper analyses visitor learning behaviour by looking at, firstly, the responses and opinions visitors have voiced concerning the objects exhibited as well as the way they interact with their fellow visitors, and secondly, interviewing guides. Identifying different learning behaviours is an essential step in establishing a framework on the promotion and conservation of Philippine cultural ricescapes. It is also significant in cultural mapping studies on rice, in which cultural resources and heritage of communities are explored.

At this stage, it should be pointed out that a cultural mapping study of rice material culture in the country is presently being carried out at the Rice Science Museum. Cultural mapping aims to describe accurately how communities throughout the Philippines utilise available resources for rice farming. It also seeks to further document rice culture for each province, especially the differences of rice farming practices and tools, by taking into account various rice farming practices among several communities as well as the transformations of rice farming throughout the country.

This study takes into account the history and culture of the rice farming communities and the deriving environmental changes and economic considerations, all the more so these considerations may have led to fabrication of new objects, which are undoubtedly useful in rice production. Understanding material culture is both beneficial in promoting new rice farming technologies and will also be useful in pursuing the goals of the museum to present rice science and culture to various groups in the society. By examining these factors, we can analyse the significant objects used by the rice farmers for rice production.

Methodology

The present article focuses on the visitors' response to the displays of the museum's exhibitions, *Lovelife with Rice* and *Bountiful Harvest*.¹ The visitors fall into two categories: students (elementary and high school levels, who come to the museum on scheduled or pre-arranged tours) and sector professionals (farmers and agricultural workers, who come from different parts of the country to visit the museum as part of their tour). Interviews and participant observations were used to gather important and relevant data.

Two sets of interviews were devised—one was designed for the visitors and the other for guides. The interviews were conducted through structured and open-ended questions to elicit what they remembered and the ways in which they related to the content of specific display sets. For instance, they were asked to rank the different sections of the exhibition by order of preference and explain their choice. In some cases, the interview was conducted in the form of informal conversations. For instance, in the *Lovelife with Rice* exhibition, farmers were invited to discuss their reaction before certain tools on display, some of which they may still be using.

Museum visitor guides were interviewed to corroborate the information provided by visitors: what display particularly interested visitors? Which display serves as the 'conversation piece' during their visit? Guides were also asked for their critical opinion on display arrangements, for instance, if the storyline had been properly curated and if it could be easily grasped by the visitors. Our discussions with museum guides concur with the observations made by museum researchers, who have evidenced that more interactive activities in the museum are needed because visitors find them compelling and are more willing to engage intimately with the exhibited objects. In addition, providing experiences and allowing the visitors to engage in different museum activities is pedagogically decisive.

This implies that always keeping museum visitors active is crucial and that a continual balance between learning and entertainment should be sought (Baniyamin and Rashid 2015). This supports the findings of Vartiainen and Eckenberg (2013) that present the tools and how they were used during their visit to create a strong impact. Hence, this study also concludes that skill-based learning should be more thoroughly considered so as to further touch the cognitive skills of the museum visitors through their handling of exhibits. The museum displays not only serve as exhibits for various collections, but also as learning instruments where visitors satisfy their curiosity for rice farming in the country. Visitors thus came to better appreciate the work of scientists and other rice farming conservation experts, in particular for their successful management of these landscapes.

The point of observing these two visitor groups—students and rice farming professionals—separately and later on jointly is to explore the behaviour and attitude of each group towards the visual displays. By exploring this group or class specific behaviour and attitude, the discussion on the interaction between the members of each class or group can be explained further. This evidences the impact of prior discussions on specific groups in their perception of the displays. These important aspects of the research will be developed later on in this article.

Researchers also observed visitor movements in the museum, noting where they stayed the longest, and their discussions with other visitors and museum guides. Most of these observations were conducted when around 20 to 35 people visited the museum at the same time. Observations were based on Pekarik, Doering and Karns' categorisation (1999; 2014) of visitor experiences that include object experience (seeing the objects and thinking about what it would be like to own the object); cognitive experiences (an enriching introspective reflection on the meaning and mentally reconstructed past times), and social experiences (spending time with other people). These categories have been observed in the interactions among the visitors and guides in relation to the displays. For instance, visitors discussed the importance of farming tools and equipment. In some instances, visitors discuss how their farming had been less laborious because of the introduction of new mechanised modes of tilling the land. These and many other exchanges have been noted in the study, which was compiled by the guides with the participation of other museum staff.

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Promoting ricescapes through exhibitions

The Rice Science Museum reopened to the public in September 2014 with an exhibition entitled *Lovelife with Rice*, which retraced the history of Filipino rice cultivation (Fig. 1). To achieve this, the exhibition was divided into different sections, as follows:

1. 'Rice is Culture', which featured rice material culture or traditional farming tools;
2. 'Rice is Technology', which highlighted technologies developed to improve rice production in the Philippines;
3. 'Rice Biodiversity', which presented rice fields as a home to a variety of species;
4. 'Rice Physiology', which allowed the visitors to gain insight on rice grains and learn to distinguish several traditional and modern rice varieties;
5. 'Rice Ecosystem', which presented different rice production systems in the Philippines (irrigated, lowland, rain fed, upland, and saline-prone);
6. 'Rice is Food', which presented rice dishes and compared, among other features, various pigmented rice varieties; and
7. 'Rice is Art', which illustrated the evolution of the role of rice in the lives of Filipinos from its culinary purpose to becoming a cultural centerfold.

In the 'Rice is Culture' section, the Ifugao Rice Terraces were presented alongside rice material culture in the Ifugao region. The Ifugao rice terraces have been restored and in 2012 UNESCO declared the site was no longer in peril. The section highlighted the importance of the Ifugao Rice Terraces in the Philippine culture, especially when it comes to rice farming heritage (Ngidlo 2015). Raising the visitors' cultural awareness on the Ifugao rice terraces may help prevent their destruction, and preserve them as a cultural landscape, together with the traditions and practices that revolve around it.



Fig. 1. The *Lovelife with Rice* exhibition featured the Ifugao rice implements with a painting of the rice terraces as a backdrop. © Philippine Rice Research Institute. Courtesy of the Rice Science Museum

The second section, entitled 'Rice is Technology', was dedicated to the developments in rice-farming with a special focus on the Green revolution period, which paved the way for massive technological developments in Filipino rice production (Castillo 2006; Aguilar 2005). The exhibition presented technological innovations in rice farming such as wind turbines and micro mills. In addition, scientific studies conducted by the Philippine Rice Research Institute were presented. Particular emphasis was made on major scientific breakthroughs in the field, especially on the development of several rice varieties that correspond to different ecosystems in the country. Videos of preserved rice pest and beneficial insect specimens were put on display.

The second exhibition, called *Bountiful Harvest*, opened in time for the rice harvesting season, and the storyline focused on rice harvest and post-harvest processing. It featured a map of the Philippines with information about harvested areas and yield quantity per region. The narrative presented ricescapes through a particular angle, that of rice production. The material culture presented the harvest and post-harvest tools used in the Central Luzon region—also known as the 'rice granary of the Philippines'. Modern technologies for rice harvest and post-harvest processing immediately followed the traditional rice farming tools for comparison. All relate to an understanding of the amount of yield harvested by each region in the country.

The museum's main target audience was rice sector professionals—farmers and other rice stakeholders, including those in the extension work sector.² Extensionists teach or train farmers new rice production technologies, and are hired or paid by the government for this specific purpose. The interactive exhibition was designed bearing in mind the museum's target audience (Villeneuve and Viera 2014). For instance, in the 'Rice is Culture' section, museum visitors have the possibility to use the replicas of traditional rice production tools. They were also allowed to study the machines that were on display closely. Although the exhibitions were designed in such a way that visitors could go around the displays on their own, most of the time the visitors were guided by a guide who could answer their questions. The qualitative data gathered from these exhibitions were used to evaluate whether visitors better understood ricescapes after their visit to the museum.



Fig. 2. The *Bountiful Harvest* exhibition integrated traditional and modern methods of harvest and post-harvest processing of rice, alongside a section on rice economy. © Philippine Rice Research Institute. Courtesy of the Rice Science Museum

Visitor learning behavior and interactions

The following section presents socio-cultural, cognitive, environmental, and economic perspectives that permitted to evaluate visitor appreciation and understanding of the displays in both the *Loveline with Rice* and *Bountiful Harvest* exhibitions (Fig. 2).

All in all, these appreciations bear much in common. It was observed that the learning behaviour of the visitors through live interaction with the objects on displays falls into three categories: visitor-visitor interaction, visitor-display interaction and visitor-guide interaction. The displays in the museum served as a stimulus for these interactions during the visit. Visitor and guide observations were taken into consideration to analyse visitor learning experience through their interaction with the objects and their displays. The researchers also took note of the museum's environment and methods of production.

Visitor observation is based on three categories of interaction: visitor-visitor interaction, visitor-display interaction and visitor-guide interaction.

Visitor-Visitor Interaction

In this type of interaction, conversation enables museum visitors to conjure up similar experiences that build up collective memory. Falk's (2009) four factors 'critical to influencing what people remember about their museum visit', served as the point of departure for the analysis of visitor-visitor interaction. These include the novelty and importance of the objects, the 'emotional contents' and 'related experiences' of the objects for the individual. Similarly, Allen (2004) noted that exhibitions that 'provide more ways to make every day and personal connections' enhances the meaning-making process among visitors.

For both exhibitions, 50 per cent of museum visitors who were interviewed appreciated the 'Rice is Culture' section best. This preference was also observed by the museum guides: visitors spent more time on the 'Rice is Art' section of the museum. As Richards and Robertson point out, 'the land in which we live both shapes us and we shape it, by means of cultivation and building, and imaginatively by projecting onto it our aspirations and fantasies of wealth, refuge, well-being, awe, danger and consolation' (Richards and Robertson 2003, p. 18). This conception of landscape enables us to further probe ways of life and

their association with the objects they use to improve rice landscapes. Visitors use their regular experiences to figure out how a particular display functions.

One example is the intergenerational discussion about some of the objects. Visitors recalled that some objects had been used by their grandparents or even great-grandparents. For the rice storage container displayed during the *Loveline with Rice* exhibition, one of the visitors commented: 'We used to have one similar to this one. My grandfather would use it for rice storage, but when he died, no one used it until it got completely broken.' At the *Bountiful Harvest* exhibition, a visitor recalled how the thresher was used in their province: 'We still have something like this in our area. This is where you have to dry the harvested rice before threshing.' Traditional tools that once were commonplace objects have been replaced by new technology. Some visitors expressed nostalgia for these rural communities, especially those who went into rural exodus.



Fig. 3. Visitors appreciate rice better after learning about its growth stages through the *Lovelifewith Rice* exhibition displays. © Philippine Rice Research Institute. Courtesy of the Rice Science Museum

This interaction with objects allows visitors, especially those who grew up in rice-farming communities, to reminisce about the past together, evoking the practice and experiences related to the objects displayed. This recollection process is a prerequisite to ensure learning is effective (Schunk 2012). The opportunity to share memories enabled the visitors to compare their experience with that of others. Rather than being ‘frozen in the moment of their most emblematic values’ (Crane 2006), the objects on display take on a symbolic power, insofar as they are remembered through their use and purpose of old, summoning, as a consequence, subjective experience. Anderson, Shimizu and Campbell (2016) thus argue that museums provide many opportunities that trigger significant memories, including long-term memories. Museums thus serve as mediators that invoke people’s past and subjective identities.

On the other hand, collective memory is only stirred up when group members have similar references such as location and experiences in the rice-farming communities (Halbwachs 1980). This form of collective remembrance often occurred when visitors in the same group eventually found out they came from the same place. When reminiscing and subsequent conversations take place, learning may well ensue. According to Gammon (2003), this process is a strong indicator of cognitive learning in museums. The visitors discuss the contents of the exhibition or activity using arguments or evidence to support their claims. At the same time, they can make analogies between the contents of their previous quotidian experiences or their relatives’ own experience and thus build up personal and shared meaning (Jakobsson and Davidsson 2012; Shaby *et al.* 2015; Serrell *et al.* 2013). In addition, a medium indicator of spontaneous learning evidences an increased sense of belonging with other people, communities, places, or periods. One example of particular interest was when a visitor saw the *hampasan* (bamboo thresher) and asked someone: ‘We still have one like this, right? Because it is difficult to use the combine harvester in narrow rice fields.’

The same situation is true of students. Those who grew up in the countryside and had direct experience with rice-scapes were able to talk about the displays to their peers who were less familiar with rice production. They usually took the initiative to show how some exhibits worked, in which case interaction among the visitor group would take place. A common scenario among student visitors is how they discuss the growth stages of rice and the steps required for every stage. For the *Lovelifewith Rice* exhibition, two commonly discussed objects among students were the *lusong* and the *al-o* (wooden mortar and pestle) where they used the replica and discussed the proper use of mortar and pestle in de-husking rice grains among themselves (Fig. 3).



Fig. 4. An integrated appreciation of all other plant and animal species in the rice fields is necessary for deeper appreciation of rice as a landscape. © Philippine Rice Research Institute. Courtesy of the Rice Science Museum

Visitor-Display interaction

The interactivity of the displays depends on how new or how interesting the objects appear to the visitors. Visitors who are greatly interested in the collections displayed in museum exhibitions are defined by Gammon (2003) as a medium indicator of learning in a museum. Visitors are allowed to touch some of the displays. Visitor-display interaction corresponds to the moment in which visitors engage with the objects on their own. Thus, it differs when they interact with other visitors. This also depends on their purposes for visiting the museum. As he stood before the rice hull stove, one farmer mused, '[t]his is useful for the house. I want to buy one.'

Equally important and interesting to note is that farmers were able to process information and draw their own conclusions. For instance, farmers were able to compare modern machines with the evolution of farming tools in the 'Material Culture' section of the museum (Fig. 4). In the 'Machines and Seeds' section, several farmers paid close attention to the machines and seeds displayed, moving from one exhibit to the other. They also asked questions, only to later reflect on possible courses of action. Commonly asked questions were about new machines and seed varieties developed. Some have shown interest in traditional rice varieties planted in the uplands, while others would comment on the panicles or seeds on display and compare them with the varieties they plant.

Another common observation is that visitors tend, whether during or after their visit, to compare the seeds in terms of shape, panicle length, etc. A visitor remarked that '[t]his variety [on display] seems to be hybrid. It has a lot of seeds per panicle. I think this can be good for planting.' Having been through the 'Rice Seed' section, a visitor observed that 'we should be planting a different variety for our consumption. Something with a good eating quality. We have a lot of options.' This suggests that museum visitors take the time to think about the displays and potential developments in rice production. Farmers base their reflections on prior knowledge or experience, and eventually come up with new ideas on how to proceed.

The objects on display take on a symbolic power, insofar as they are remembered through their use and purpose of old, summoning, as a consequence, subjective experience.

Students find the sections containing games or computer-assisted displays more compelling. This response indicates that they found the museum experience entertaining but does not correspond to a proper learning experience because they tend to avoid asking questions and prefer investigating the displays on their own. This said, it should be pointed out that some students also take photos (of both exhibits and labels) as they go about the museum, but this keenness can be an impediment to an effective rice-learning experience. Instead of reading the explanations provided to better understand the story of the objects on display, the students would photograph them and then move to the next exhibit.

Students from an urban background are more likely to be unfamiliar with the subject, and tend to stay longer in each section. Their interest was especially focused on the objects on display in the 'Material Culture' and 'Biodiversity' sections. The reason for this may be that they are discovering something utterly new to them. This goes along with the idea that museums provide learning spaces for visitors and students allowing them to find common ground between the displays and their own interest, which would encourage them to delve further into the topic (Bell *et al.* 2009). Serrell, Sikora and Adams (2013) likewise observe that museum visitors make meaning through discovery. In the 'Rice Seed' section for instance, one Manila-based university student observed: 'I just realised that there are a lot of things to be done in rice production. I thought producing rice was fast and easy; it undergoes a lot of processes and there are a lot of things to consider, so I think its price, though expensive, is just right.'

Agriculture extension workers were interested in rice statistics and biodiversity. Their favourite section was the 'Statistics' section as it was directly relevant to their work. Since 'Rice Statistics' presents the amount of area harvested and the amount of yield per region in the country, they tend to speculate about why one region produces more than another. In addition, their interest for videos documenting beneficial insects explains the prolonged duration of their stay. In this section, one technician commented the difficulties faced in explaining to farmers the difference between beneficial insects and rice pests. One technician asked: 'Where can we get a copy of that video? I think this video would be very helpful to farmers when talking about pest management.'

A deeper understanding of farming tools and rice biodiversity enabled visitors to reflect on how the rice fields should be properly preserved using good rice farming practices. Understanding the processes employed in rice production and farming practices has enabled visitors to reflect on economic and environmental impacts linked to the preservation of rice landscapes.

Visitor-Guide interaction

In their discussion of science museum visitors, Davidsson and Jakobsson (2012) highlighted the need to support museum visitors in recognising museum objects as catalysts for progress. This will enable them to understand the applications of these tools in different contexts. A strong indicator of learning (Gammon 2003) is curiosity about objects on display. However, these interaction dynamics (question-from-visitor and answer-from-guide) is quite ineffective for large groups because questions asked are not necessarily of interest to all. For instance, in the 'Machinery' section of the museum, most farmers asked questions about the micromill (a small rice-milling machine, see Fig. 5), such as: (1) How is the machine used? (2) When and where is it used? (3) Is it available in the market and at what price? and (4) How was it developed?

By contrast, visitors from the city and unfamiliar with agriculture were interested in the growth stages of rice or in the traditional tools used in rice production and post-harvest processing. Visitors were also keen to suggest technologies that should be developed so as to improve rice production in the Philippines. These are based on their needs or what they think farmers need. This interest implies an understanding of the current situation of Filipino rice and ricescapes.

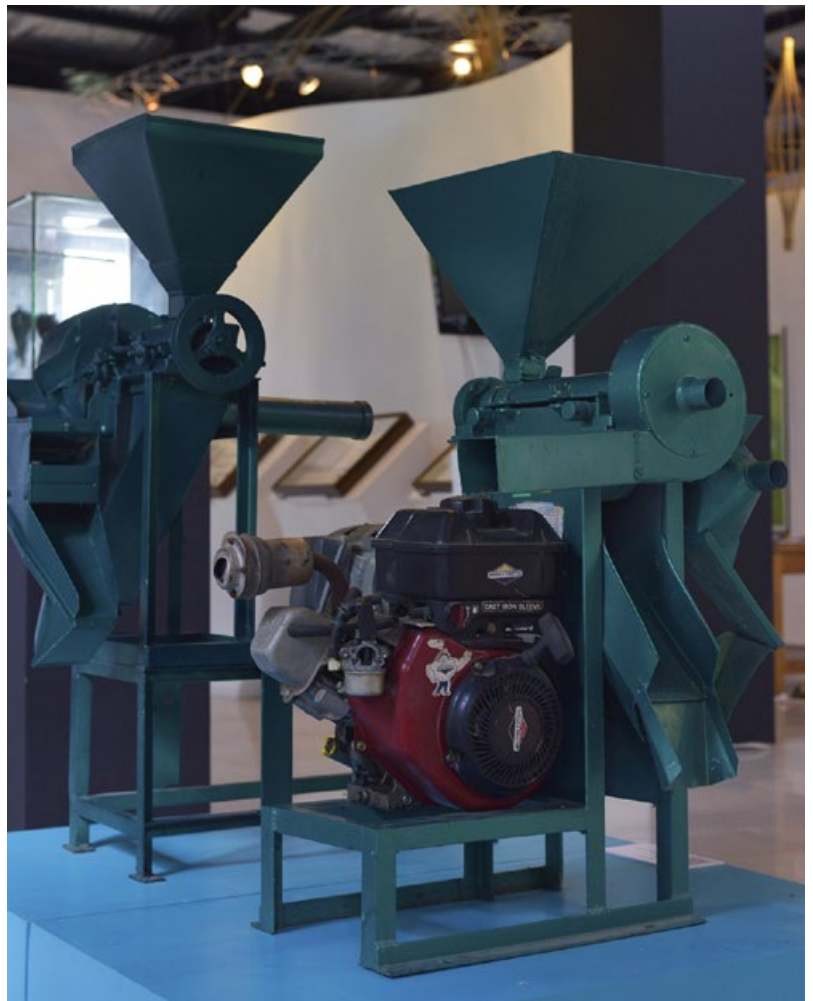
Promotion and conservation of ricescape

Rice cultivation is currently undergoing continuous change with the mechanisation of both production techniques and farming practices. As a consequence, ricescape dynamics have become more fluid and farmers can now cope with these changes. The museum, through its exhibitions, narrates the transitions in rice farming and provides a space for Filipinos to collectively recall the history of rice farming. Ricescapes are conserved not only through memory but also through the preservation of artefacts that hold special patrimonial value. Wallach (2005) asserts that culture ranges from science and technology to belief and values that guide human behaviour. This corresponds to our interpretation of the uses of material culture as these serve as our lens in understanding various situations, whether social or individual behaviour (Prown 1982). The use of objects is necessary because objects define people's daily activities and their socio-economic conditions.

In light of the observations on visitor learning behaviours at the Rice Science Museum, the conservation and preservation of ricescapes should be presented according to museum visitors' socio-cultural, economic, and environmental background, insofar as these considerations may trigger dialogue between visitors as well as visitor interaction with museum guides or the exhibited objects. Wu (2010) likewise argues that stronger emphasis on culture leads to a better understanding of sustainability in landscape ecology. This means that presenting the traditional tools alone will not necessarily enable visitors to better understand modern-day ricescapes, for visitors only have in mind traditional rice farming in the Philippines, itself regarded within rice-farming communities as a slow and labour-intensive but relationship-based production. Despite this drawback, deeper appreciation of 'rural life' and 'old practices' was made possible through their museum experience.

An integration of these aspects leads to a better understanding of how sustainability works and can be achieved. As Paladino and Simonelli (2013) explain, sustainability requires a long-term vision, where individuals decide to preserve land resources and ecosystems. This also requires that individuals increase their knowledge on resilience and adaptation, which would allow rice farmers and other individuals and communities to continuously nurture rice fields and their connected entities.

Fig. 5. A micromill is the smaller version of the rice milling machine. Museum visitors often consider this display as something they want to have or something they want to learn about.
© Philippine Rice Research Institute. Courtesy of the Rice Science Museum



Based on the above discussions, the museum was able to deliver a learning experience to visitors derived from observed behaviour. There were medium to strong indicators of cognitive, affective, social and personal learning through interaction with 'traditional' objects. The presentation of modern rice machineries highlighted the developments or improvements in rice production in order to complement the understanding of rural life and traditional practices. People tend to look at the difference between the traditional rice farming tools and their evolution into modern machines, and relate it to the understanding of why these technologies make rice-farming efficient. The conservation of rice biodiversity contributes to the preservation of ricescapes. We have argued throughout that a keener understanding of the history and culture of rice in the Philippines is possible when supported by discoveries and innovations in rice science and technology. As has been demonstrated in this article, the Rice Science Museum plays a fundamental role in providing the public with an effective learning experience in Filipino rice culture. Yet, it faces the challenge of presenting its diversity. The Philippines has several ethno-linguistic groups and rice plays an important role in the rituals and practices in most of these groups, insofar as communities observe various practices and beliefs in terms of rice production. A participative cultural mapping activity would also provide a means for rice farmers to become part of museum activities and planning. This study is currently undertaken in several rice farming communities, in partnership with agricultural workers and farmers, thus allowing rice farmers to identify significant rice-related cultural resources within their communities or understand how rice has influenced their daily lives. The Rice Science Museum can then serve as a bond between the rice farming community, scientific and cultural institutions and members of the public willing to learn more about rice history, culture and rice-related science and technology issues.

NOTES

¹ Further information on the *Lovelif* *with Rice* and *Bountiful Harvest* exhibitions is available on the museum website: <http://www.philrice.gov.ph/rice-science-museum-re-launched/> and <http://www.philrice.gov.ph/science-community-mark-good-harvest/> [accessed 20 July 2017].

² Extension work in the Philippines involves the intensive promotion of modern practices and technologies on agriculture. This requires the agriculturists to visit and teach the farmers in their villages.

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