



The role of religious community in recycling: Empirical insights from Malaysia

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ARTICLE INFO

Article history:

Received 1 July 2011

Received in revised form

26 September 2011

Accepted 27 September 2011

Keywords:

Recycling

Religious communities

Malaysia

Motivations for recycling

Diffusion of recycling behaviour

Recycling policy

ABSTRACT

Optimism in the power of religion to create large-scale and deep-seated ecological transformation plus the strong religious socio-demographics of the country has encouraged policy ideas in enhancing the role of religious communities in the adoption of environmental practices in Malaysia. However, these are mostly discussed at the theoretical and conceptual level with little systematic empirical observation on the ground. Moreover, discussion on the role of religious communities in municipal solid waste management (MSWM) is extremely limited in the mainstream literature, with only a few exceptions. This paper is aimed at reducing this gap by providing early empirical evidence on the potential role of religious communities in enhancing public adoption of recycling as a form of environmental practice. From a set of successful cases in Malaysia, it was observed that the advantages such communities possess can be viewed in several ways: the systematic way in which they operate, their ability to conduct long-term recycling programmes, the advantages of using their institutional structure as a conducive platform for recycling activities, their multiple motivational drivers for recycling and their collective potential to expand their programmes to the broader community. Hence, the findings have shown that the potential role of religious communities in environmental practices, such as recycling, has to go beyond general idealism on the positive influence of religious values/ethics on environmental protection – but due emphasis also needs to be given to the characteristics of each religious community, and how these can be useful in supporting different aspects of a recycling programme.

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1. Introduction

There is a growing acknowledgement in the literature that religion can play an effective role in protecting the world's ecological system (Foltz et al., 2003; Tucker and Williams, 1997; Chappel and Tucker, 2000; Hessel and Ruether, 2000). Religious belief in its most ideal form is seen as a powerful force to create purposive transformations by transmitting ecologically positive habit of practice and attitudes of mind to succeeding generations that share similar religious beliefs (Foltz et al., 2003). The idea is much more powerful when one considers that more than half of the world's population embraces some sort of religious beliefs to guide their everyday lives. Asia, and specifically Malaysia, is a particularly interesting policy context for this kind of argument since almost all of its citizens formally embrace some kind of religious belief. According to 2007

statistics (Table 1), approximately 61% of the population in Malaysia practice Islam; 19% Buddhism; 9% Christianity and 6% Hinduism. The remainder is accounted for by other faiths, including Animism, Sikhism, and the Baha'i Faith. Those with no religion cover less than 1% of the Malaysian population.

Optimism on the power of religion to create large-scale and deep-seated ecological transformation, plus the strong religious socio-demographics of the country has encouraged ideas on the ability of religious communities to enhance environmental consciousness in Malaysia and hence, their latent potential to play an active role in encouraging the adoption of environmental practices in the country (Sharifah Zaleha and Hezri, 2009). However, within the academic circles these are mostly discussed at the theoretical and conceptual level with little systematic empirical observation on the ground. Even if empirical evidence is being reported, most of the literature is quite general or anecdotal in nature, and based on historical cases (particularly on past civilisational traditions) rather than contemporary ones. This limits the practicality of such arguments, particularly when they have to be applied in the context of contemporary modern society. Nonetheless, from a general observation, such optimism is not without grounds. In the context

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Table 1
Percentage of religious adherents in Malaysia and the world.

Religious Adherents	Malaysia	World
Muslim	60.4%	21.01%
Buddhism	19.2%	5.84%
Christian	9.1%	33.32%
Hindu	6.3%	13.26%
Others	3.1%	12.25%
None (including Atheists)	0.8%	14.09%
Jews	0%	0.23%

Source: figures obtained from The World Factbook (accessed on 17.09.2010).

of the environmental issue of municipal solid waste management (MSWM) for example, one could increasingly observe the proactive role of Muslim (NST, 2010a), Hindu (Komunitikini, 2011), Buddhist (The STAR, 2010) and Christian (NST, 2010b) communities in organising successful recycling programmes in the country and influencing good recycling practices, particularly in the urban areas. Interestingly, even without systematic empirical justification, the strategy of using the role of religious communities to increase recycling rate is currently being experimented upon by local policy makers. Beginning from May 2010, a recycling programme that is specifically designed for the religious communities has been launched by the National Solid Waste Management Department for a few selected municipalities in the country (Berita Harian, 2011). The impact and success of this programme, however, has yet to be reported.

This paper aims to reduce this gap by systematically capturing empirical evidence on the contribution of religious communities in the adoption of recycling activities in Malaysia. This is achieved by conducting an exploratory case study on the following research question: To what extent can religious communities successfully play their role in the adoption of recycling activities in Malaysia, and what are the bases of their success? It is hopeful the findings from this paper could provide more tangible evidence on the actual potential of religious communities to play a role in recycling. The paper is also a follow-up to our editorial article entitled “Religion and Waste” published recently in the Journal on Waste Management (JWM) (Zeeda et al., 2011). The editorial is rather brief and only highlighted some empirical examples on the recycling activities conducted by religious communities in Malaysia. The objective was mainly to introduce the unconventional topic of religion to the audience of JWM, and to encourage further research on the topic. However, this paper is more scientific with an aim to provide a more comprehensive presentation of the empirical evidence, and to frame it within a clear analytical framework and related theoretical, conceptual and empirical insights from the literature.

2. Past literature

Generally, investigation on the role of religion in MSWM is extremely limited in the literature¹. Even for cases where religion is explicitly recognised as an important factor to influence behaviour in waste management, investigations were restricted to minor inclusion in survey questions, particularly for socio-demographic characterisation and with no or limited analysis. In most cases, religion as a part of socio-demographic data is only included for countries with strong religious background such as Palestine (Al-Khatib, 2009), India (Lakshmikantha, 2006), Bangladesh (Afroz et al., 2010; Sujauddin et al., 2008) Southern Thailand (Schouw and Tjell, 2002; Schouw et al., 2003) and Malaysia (Wahid and

Chamhuri, 2007). In other contexts, religious factors are not mentioned at all.

However, there are a few exceptions. Investigations on the role of religion in sustainable waste management have been conducted by Arafat (2010) and to some degree by Al-Khatib (2009) and Al-Khatib et al. (2009) for the specific case of Palestine and Islam. In his study, Arafat (2010) conducted a structured survey with 50 *imams*² and 1000 adult residents and children above 12 years who were residents of Nablus district. His findings revealed that a significant statistical correlation existed between Islamic religious conviction and public perception of the littering problem. Religious individuals were shown to be more inclined to ensure street cleanliness, more were willing to participate in road-cleaning campaigns and were less likely to litter. However, his survey with the 50 *imams* presented contrasting results, whereby a significant fraction of them were found to be reluctant to tackle the staggering littering issue in Palestine in their weekly sermons – while the ones who are inclined did so rarely and sporadically. Therefore, the author concluded that the role of religion in promoting environmental awareness in Palestine, although of high potential, tends to be under-utilised. Two other papers on Palestine (Al-Khatib, 2009; Al-Khatib et al., 2009) also highlighted the significant influence of religion in shaping positive behaviour in dealing with waste. From his interview with 240 children in a similar area, ‘moral and religious convictions’ had the highest agreement as the most effective technique to prevent children from throwing glasses on the streets. In fact, popular methods for awareness campaign such as TV and media outlet seem to be the least effective strategy. The papers also found that people who identified themselves as “strongly religious” were found to litter less than those who have weak or no religious convictions.

On the contrary a study conducted by Wahid and Chamhuri (2007) in Malaysia does not provide a very clear picture on the role of religion as in the Palestinian case. In their study on the recycling practices of the urban poor in Kuala Lumpur, the most common reason for household recycling was financial returns, while the most common reasons for households not recycling were related to the lack of infrastructure. From what can be seen from their data (see Table 2) – the role of religion although recognised, has little overall significance in driving recycling activities, and was not even elaborated in the authors’ analysis. However, when looked at more deeply, the data can actually show an interesting pattern. Even though the overall results were not very significant in highlighting the role of religion, the specific mean score for “My religion tells us to use resources carefully” for one of the cases (Datuk Keramat) was quite high at 3.8 compared to Jinjang Utara and Sentul, with lower scores at 1.07 and 1.43, respectively. This shows variation in the findings, and may demonstrate that the role of religion may differ according to location.

Another interesting dimension that can be gleaned from the role of religious community in recycling is the way in which this role can be categorised, and how such a role can be connected to other types of social organisations that are involved in MSWM. In this regard, we propose that the religious community can be broadly categorised as a part of the ‘informal sector’ (Wilson et al., 2006). The term ‘informal sector’ refers to activities which have the following characteristics: non-permanence and casualness, outside the scope of existing company law and government regulations, and are carried out on a small scale by less capitalised establishments mostly relying on household labour. Their activities exist and operate because of market forces or other socio-economic factors (Salahuddin and Shahmim, 1992; Ali, 1999; quoted in Ahmed and Ali, 2004, p. 469). Overall, the informal sector can be grouped

¹ This is based on the search of all articles with the keyword “religion” and “religious” published by two key journals in the area of solid waste management: “Waste Management” and “Waste Management and Research”.

² The person who leads religious prayers and deliver religious sermons during Friday congregational prayer.

Table 2

Reasons why households collect and recycle waste materials in Malaysia (selected areas of urban poor).

Possible reasons	Jinjang Utara	Sentul	Datuk Keramat	Total
Protect the environment	1.62	2.00	3.70	1.88***
Protect human health	1.82	1.57	3.70	1.92***
Avoid waste	2.33	2.50	3.30	2.45 NS
Improve appearance of the area	1.75	1.43	3.50	1.82***
I feel good because I have done something to improve my community/the environment	1.63	1.43	2.90	1.69**
Save resources	3.36	1.71	2.00	2.86***
Reduce total amount of waste that has to be burned or placed in dumpsites	2.30	3.07	3.50	2.58**
My religion tells us to use resources carefully	1.07	1.43	3.80	1.39***
Encouragement from family members	2.22	1.32	1.90	1.98**
Reduce costs of waste collection and disposal	1.70	1.79	2.60	1.80NS
Social pressure from family members	1.58	1.18	1.70	1.50NS
Receive payment for materials recycled	4.89	4.25	4.10	4.67**
Social pressure from neighbours	1.14	1.11	1.40	1.15 NS
Encouragement from neighbours	1.14	1.11	1.40	1.15 NS

Source: Wahid and Chamhuri (2007, p. 8).

NS indicates not significant at 0.10 level.

^aIndicates that no respondent reported any 'other reasons' for which he/she collects and recycles waste materials.^bIndicates mean scores of relative importance, where 1: not very important; 2: not important; 3: medium important; 4: important; 5: very important.

**Significant difference among means at 0.05 level.

***Significant difference among means at 0.01 level.

under several sub-categories as suggested by Ahmed and Ali (2004) (Table 3).

Due to the lack of empirical studies on the activities of religious communities, currently it is not clear where they can be positioned within the different categories of informal sector as presented in Table 3. Generally most religious community, at least in the context of Malaysia, operate under a formal organisation with well recognised activities that are highly supported and encouraged by the government, private sector and the public (Sharifah Zaleha, 1999). But on the other hand, in the case of recycling, their activities are small-scale, labour-intensive, unregulated/unregistered and use low-technology. Hence, the religious community seems to have a unique position within the informal sector.

Even with the lack of systematic research in investigating the issue of religion and the role of religious communities in MSWM, the authors of this paper consider that there is a need to conduct such research in the specific context of Malaysia – not only due to the country's unique religious socio-demographics, but also, as mentioned earlier, to act as a response to popular academic assertions and recent policy rationale that strong religious beliefs and foundation in Malaysia can be used to encourage the adoption of positive environmental practices in the country. However, how much of these ideals regarding the role of religion in the adoption of environmental practices can be translated on the ground? Is there any empirical evidence of successful activities by the religious community that can be used to support such an argument? Responding to these questions is quite pertinent for improving recycling practices in Malaysia, for two reasons. First, because religious communities are visibly seen to be conducting recycling activities in this country (Komunitikini, 2011; NST, 2010a,b; STAR, 2008) and second, because of the need for local policy makers to seek creative and localised solutions to address the country's low recycling rate. In Malaysia, the national recycling campaign has been launched as early as in 1993 and again re-launched in December 2003. The government has even declared 11th November as the National Recycling Day (Latifah Abd Manaf et al., 2009). Despite significant efforts, however, the recycling rate

in the country remains low. By 2006, about 13 years after the first recycling campaign was launched – a mere 5.5% of recycling rate was achieved in the country (Agamuthu et al., 2009) and very little improvement has been shown since then. Moreover, this rate is still off the mark compared to the 22% goal by 2020 set by the Malaysian Government way back in the 1990s (Mohd Razman Salim et al., 1994). Hence creative solutions to address this issue need to be in place, and this paper attempts to investigate whether any evidence exists to show that religious communities in Malaysia can be a significant part of the solution. Evidence from this research can also offer useful insights for other countries with significant presence of religious communities in their socio-cultural landscape.

3. Methodology and empirical evidence

This paper employs an exploratory multiple case study of 'successful' recycling programmes conducted by selected religious communities in Malaysia as its methodological approach. The term 'successful' here means that each of the community programmes have reached the confirmation stage of their recycling activities, a stage characterised by the religious community having gone through all the relevant stages that are required for successful adoption of recycling as a form of innovation. 'Religious community' in this context refers to a group of individuals with common religious interest, while innovation refers to an idea, practice or object that is perceived as new by the community. This qualification is based on Everett Rogers's Five Level Innovation-Decision Model (Rogers, 1995, p. 169).

This model is derived from the "diffusion of innovation" literature, where the interest is to describe how, why, and at what rate new ideas and technology can spread through communities or cultures. Through his classic book "Diffusion of Innovation", Everett Rogers is considered by many to be the father of this body of research (McGrath and Zell, 2001, p. 386). This Five Level Innovation-Decision Model is one of his most important works, and has been used widely to describe processes of innovation diffusion in various sectors (Dooley, 1999; Gladwin et al., 2003; Kaplan, 1999; Reed, 2007). A brief explanation on the key stages of this

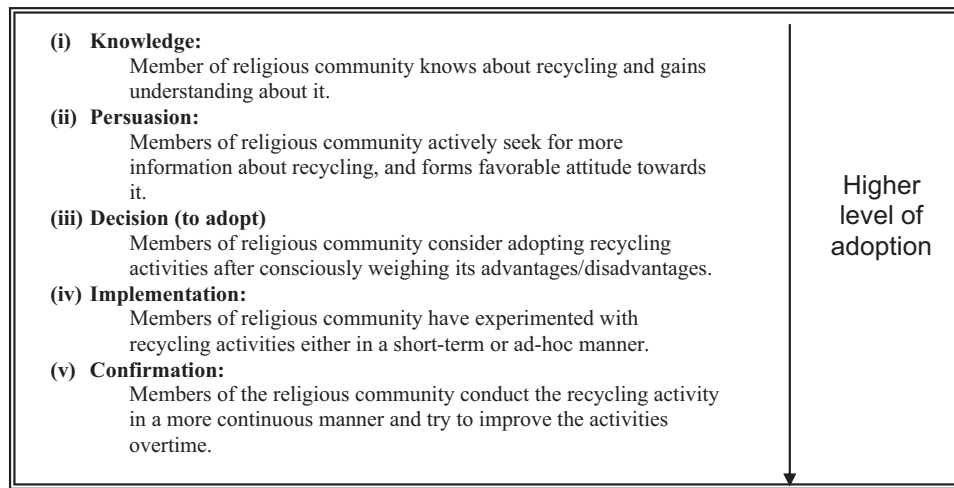


Fig. 1. "Adoption of Recycling Activity" Framework employed in the study.

Source: own, adapted from Rogers (1995).

model is provided in the following and this has been adapted to the analytical framework presented in Fig. 1.

- Knowledge occurs when individuals are exposed to an innovation existence and gain understanding of how it functions.
- Persuasion occurs when individuals form a favourable or an unfavourable attitude towards the innovation.
- Decision occurs when individuals engage in activities that lead to a choice to adopt or reject an innovation.
- Implementation occurs when individuals put a new idea into new use.
- Confirmation occurs when individuals seek reinforcement of an innovation-decision already made.

All of the case studies were located in the state of Selangor, Malaysia and concentrated in high and middle income suburban areas. Selangor has been selected as the geographical boundary for two reasons: (i) it has the highest amount of MSW generation among all states in the country (Nagendran, 2009); (ii) compared to many other states in country, it has been at the forefront in conducting campaigns, setting-up policies and providing related facilities on recycling (Hassan et al., 2000; Agamuthu, 2001, p. 59). Key features of recycling activities conducted by each religious community were explored for each case, and this exploration was analysed qualitatively using data collected from semi-structured interviews, documentation and direct observations.

Under close supervision by the authors, preliminary investigations on several recycling programmes by religious communities in Selangor were first conducted in mid-2009 by research assistants who belong to each of the respective religious traditions. This is to enable easy access, deeper communication and higher involvement in the community during the initial data collection process. Individual reports were then submitted to the researchers in order to provide a general picture of the phenomena. Subsequently, at the end of 2010, follow-up interviews and direct observations were undertaken by the researchers on one successful case from the Buddhist, Christian, Hindu and Islamic case studies, respectively. This consists of the Buddhist community of the Tzu Chi Association, the Christian Community of the Beautiful Gates Centre, the Hindu Community of Batu Caves Temple and the Islamic Community of Surau al-Husna:

Buddhist community of the Tzu Chi Association: Tzu Chi Merit Association is a Taiwan-based Buddhist non-profit charitable

organisation with eight key missions: charity, medicine, education, culture, bone marrow donation, international relief, environmental protection and community volunteerism. Tzu Chi came to Malaysia in 1989 and at present it has over 30 liaison offices in different parts of Malaysia. Tzu Chi's recycling ideas began in Taiwan in 1990, after the Grand Tzu Chi Master Cheng Yen started her environmental protection mission – with the popular motto of “using your clapping hands to do recycling”. She also urged all Tzu Chi volunteers to practice recycling in their daily lives with a loving heart. Since then, 4500 recycling points have been established in Taiwan with more than 60,000 volunteers being involved in this mission. In Malaysia, the recycling mission started in 1995. Currently there are more than 600 recycling points spread all over the country (with about 150 points located in the state of Selangor and Kuala Lumpur alone) with an estimated 10,000 Tzu Chi volunteers actively involved in the mission. The success of the Tzu Chi recycling programmes has been officially recognised when the association was presented with the “Award of Honour for Supporting the National Conservation Programme” in conjunction with Malaysia's Environment Day celebration on 9 November 2003.

Christian community of Beautiful Gate: The Beautiful Gates Centre is one of the establishments under the Malaysian Chinese Methodist Church. It was first established in 1993 and was recognised by the government as a full-fledged foundation for the disabled in 2003. The main objective of the centre is to provide support for people with disabilities. The Beautiful Gates Foundation started their recycling program in Petaling Jaya, Selangor in 2004. This was in line with the local government's efforts at that time to implement Local Agenda 21 – with recycling being promoted as one of the core programmes. Recycling was also seen as a suitable environmental activity for the centre as it could also provide working opportunities, skills development and an extra source of income for the disabled. Initially, the activities by the Beautiful Gates recycling program was mainly to set-up and manage a recycling point at one specific location in Selangor on every first Sunday of the month, but it has since expanded, with more recycling points and recycling bins in other parts of Selangor and more frequent and systematic collection of recyclables.

Hindu community of Batu Caves Temple: The Batu Caves Temple is located on a limestone hill dedicated to Lord Muruga. It is one of the Hindu religion's major sacred areas in Malaysia and is located in Gombak district of Selangor. As it is located in a natural limestone cave, the temple has a very close relationship with its

Table 3
Categories of informal sector in MSWM.

Categories	Description
1. Waste pickers	Individuals who support themselves and families by directly or indirectly participating in waste collection and recycling. Waste pickers can be divided into waste picking from dumps, street waste picking and municipal waste collection crew
2. Itinerant/stationary waste buyers	Individuals who walk around town to buy any waste material that they can sell for a profit. They are also stationary buyers who operate in small-scale operations to buy waste brought to them by others including waste pickers
3. Micro-enterprises	Small enterprises that charge services to cover the gaps in existing SWM service delivery. For example, they may find a demand for house-to-house garbage collection (primary collection) that the municipality cannot provide, and seize the opportunity by providing the service in a neighbourhood for small charges to the household
4. Small scale recycling industry	Small businesses that purchase recyclable items and use these as raw materials to manufacture saleable products. Their suppliers may be waste pickers, itinerant and stationary waste buyers, and even micro-enterprises. They are self-sustaining for-profit operations that remain in existence as long as demand for their product remains
5. Large scale recycling industry	Large factories are industrial establishments that buy suitable waste material in bulk to use in their manufacturing process. Compared to small industries they buy waste in large quantities. Their suppliers may be itinerant/stationary waste buyers or any operators who can store waste until a saleable quantity is reached. These are profit-oriented operations whose sustainability depends on market forces
6. Community-based organisations (CBOs)	CBOs are informal institutions that are formed by members of the community to address local societal needs such as initiating SWM operations (mainly primary collection and street cleaning) as a response to deplorable environmental conditions in their locality. Providing a social service is usually the primary move in such operations – and breaking even is sought rather than making a profit. Sustainability of this type of initiative depends on the activists of the project to attract financing and remain accountable
7. Non-governmental organisations (NGOs)	NGOs may enter SWM related activities for a number of motives – social concerns for waste pickers, introducing new technologies (e.g. composting, recycling), extending micro credits, concerns for the poor environment that their beneficiaries live, or simply they are contracted by other agencies to implement the project. They are driven mainly by their goals, and not to make a profit. NGOs traditionally work closely with communities and there is usually good cooperation from the community members. Sustainability of NGO related operations depends on the length of their 'interest' in the project or on external source of funding. However, sometimes the initiatives may be picked up by entrepreneurs and developed into self-sustaining enterprises

Source: adapted from Ahmed and Ali (2004), pp. 469–471.

environment. Recycling activities at the temple started about 12 years ago, as a response to the launching of the national recycling day – and this recycling activity has been on-going ever since. In addition, every year the temple also faces increased waste management challenges during the Hindu celebration of Thaipusam, with thousands of people gathering around Batu Caves to celebrate the festival. In the past 2 years, the temple has worked closely with other partners to organise a large recycling campaign during Thaipusam, involving young volunteers from all walks of life. This is the first ever initiative to conduct a massive recycling operation for a Hindu festival in the country.

Islamic community of Surau al-Husna: Surau Al-Husna is a small mosque that has been established for the residential community of Section 20, Shah Alam in the state of Selangor. The surau has been built to provide a place for the Muslim community in the neighbourhood to conduct prayers and other religious rituals, share religious knowledge and to gather for religious activities. Surau Al-Husna started its recycling programme since July 2005, and this has become a permanent feature in the surau ever since. The recycling programme enjoys strong support from its religious leader and other members of the surau committee. Over a period of time, Surau Al-Husna has increased the amount of collection by expanding its recycling operations to a nearby all-purpose community hall and diversifying its recycling activities through the collection of used cooking oil.

A more comprehensive description of these successful cases has been described in our editorial article published recently in the *Journal of Waste Management* (Zeeda et al., 2011).

4. Key findings and discussion

Empirical evidence from this research has demonstrated the various ways in which selected religious communities are playing their role in the adoption of recycling practices. The main features of their activities are summarised in Table 4. However, how can this empirical evidence provide answers to the potential role of religious communities to enhance the adoption of recycling in Malaysia? This paper will provide some insights based on key themes that have emerged from the empirical data.

4.1. Systematic operation of recycling programmes

One clear potential is the fact that the recycling programmes by the religious communities are quite systematic and tend to cater to the specific needs of their community. In the majority of the cases, the religious communities mainly employ the “communal collection system” for their recycling programme. Basically, this system transfer material from households to the collection points where the collectors will collect the waste from the communal storage (Agamuthu, 2001, p. 41). In this way, the religious communities act as waste pickers of the informal sector (Table 3). The collection points/communal storage will either be the religious building itself or dedicated recycling centre/area/large bins that have been set-up by the religious community for this purpose. The above process characterises recycling programmes that are aimed to cater to a residential area or neighbourhood, as in the case of Surau Al-Husna, Beautiful Gates Centre and Buddhist Tzu-Chi Association. In this type of system, the rate of collection will increase once members of the neighbourhood are familiar with the location of the recycling points and therefore able to routinely send their recyclables. In the case of the Batu Caves temple, the objective of the program is slightly different. Its main purpose is to manage recyclables for temple operations, especially waste generated by the large number of visitors (including tourists) to the temple. This is a bit complicated,

Table 4
Features of recycling activities conducted by selected religious communities in Malaysia.

Features	Batu Caves Temple (Hinduism)	Surau Al-Husna (Islam)	Beautiful Gates (Christianity)	Tzu Chi Association (Buddhism)
Period of recycling programme	10 years (2000)	5 years (2005)	6 years (2004)	15 years (1995)
Waste collection and segregation facilities	A few sets of recycling bins	2 recycling points; 1 set of recycling bins	1 recycling point (every month); 1 set of large recycling bins at Beautiful Gates building; 50 sets of recycling bins; 1 recycling centre; 3 lorries	150 recycling points every month, 7 recycling centres
Type of recyclables collected	Paper, plastic containers, glass, aluminium cans; cardboard	Paper, plastic containers, glass, aluminium cans; electronic devices; iron; used cooking oil	Paper, plastic containers, glass; aluminium cans; clothes, furniture; electronic devices	Paper, plastic containers; glass, aluminium cans, clothes, metal items, electronic devices
Final sales/handling of recyclables	Handled by the municipality	Sold to private recyclers	Buyers visit centre to buy recyclables; Sent and sold to private recyclers; Sold in a thrift shop and flea market	Sold to small and large private recyclers
Motivation to recycle	Environmental protection	Environmental protection; Charity	Environmental protection; Charity	Environmental protection; Charity; Cultivation of spiritual lifestyle
Use of proceeds from the sales of recyclables	Not relevant (activity is totally non-profit)	As a source of funds for the maintenance and repair work of the surau and other religious activities.	As a source of income for disabled workers and as additional funds to maintain activities in the Beautiful Gates centre.	As a source of funds for charity and relief work under the Tzu-Chi association.
Human resource	Temple supervisor, temple cleaners and volunteers.	Surau committee and volunteers.	Disabled staff members of Beautiful Gates, with some assistance by volunteers	Volunteers – with some support from the association
Organisational structure	Temple management	Surau management (small mosque)	Christian centre for the disabled	Movement of volunteers – with support from Tzu Chi Association liaison office
Leadership (and role model)	No information	Initiated by Mr Hamzah, a surau committee member. Good support from Imam and surau committee	Initiated by Pastor Sia Siew Chin, founder of Beautiful Gates	Initiated by Grand Master Cheng Yen in Taiwan. This inspired many Tzu Chi volunteers in Malaysia to set up their own programmes in various neighbourhoods
Continuous improvement	Organising large scale volunteer-led recycling campaign for days with high generation of waste	Deployment of recycling bins and recycling points; more long-term arrangement with recyclers to collect and buy recyclables; recycling of used-cooking oil	Deployment of recycling bins and recycling points; placement of recycling bins nearer to household; setting up more permanent recycling centres; more long-term arrangement with recyclers to collect and buy recyclables;	Deployment of recycling bins and recycling points; placement of recycling bins nearer to household; setting up of more permanent recycling centres; more long-term arrangement with recyclers to collect and buy recyclables
Support from other organisations	Local municipality Private sector NGOs	Local municipality Local politicians	Local municipality; Foreign foundation; Churches; Embassy of Japan	Local municipality Resident association
Community outreach	Visitors to the temple	One neighbourhood in Selangor	Some neighbourhoods around Petaling Jaya and recently expanding in other parts of Selangor	Various neighbourhoods around Selangor

Source: Various.

as visitors come and go, and unlike the permanent characteristics of a neighbourhood, it is much more difficult to establish a routine in this type of community. Therefore, their modus operandi is much more dependent on the collection of recyclables by cleaners at different parts of the temple. During big events such as Thai-pusam, the temple also requires support from volunteers to help them with this laborious collection process.

Other than systematic collection, all of the religious communities ensure that the wastes are being segregated into the right categories. How this is done depends on the facilities and sometimes the routines already well-embedded in each religious community. For instance, in Surau Al-Husna, the monthly communal practice of *gotong-royong*³ has also included waste segregation as a part of its activity. Similarly, Tzu Chi Association has also used

³ The local term *gotong-royong* refers the routine of carrying out an activity in a collective manner by members of the community.

the waste segregation activity (which is done immediately on the day when the recycling points are set up) as a part of its routine religious activity. This is to encourage young and old volunteers from all walks of life to get together in conducting meaningful action for the greater good of the community. In the case of Beautiful Gates, segregation activities are mainly conducted by the disabled staff in the centre who were already well trained for the task and in the Batu Caves Temple, this is carried out by the cleaners.

Once the recyclables are collected, all of the religious communities tend to use the services of private recyclers to deal with their recyclables, either by sending the recyclables to the recyclers and/or by making arrangements for the recyclers to collect the recyclables at their premises. However, in the case of Batu Caves temple, most of their recyclables are collected by the local municipality as they do not expect any monetary returns from the recycling activities. This non-profit and non-residential characteristic of the Batu Caves temple recycling programme also affected the type of recyclables that are eventually collected. Compared to the other

religious communities, the temple limits their collection to paper, cardboard, plastic containers and aluminium cans – while the other communities would also include broader categories of recyclables such as clothes, electronic devices, furniture, iron and used cooking oil for their higher monetary value.

4.2. Long-term execution, with continuous improvement

Another interesting potential of religious communities to play their role to enhance the adoption of recycling activities is in terms of their ability to sustain their recycling programme over a prolonged period of time. All of the cases have shown that the religious communities' recycling programmes have not only been operating for more than 5 years, but over time, these programmes are also strengthened through continuous improvement and diversification of their recycling operations. For instance, in most cases the communities began their recycling programme with one recycling point or one set of recycling bins in a particular area, but over time this has graduated into bigger initiatives and/or much more permanent facilities. This includes increased deployment of recycling bins and recycling points in more areas around Selangor, placement of recycling bins at locations nearer to households, setting-up of more permanent recycling centres, organising large scale recycling campaigns for events with high generation of waste and more long-term arrangements with recyclers to collect and buy recyclables. In some cases, the communities have also conducted additional activities that are much specific or unique to the needs/objectives of their community like the recycling of used-cooking oil by Surau Al-Husna, the recycling of coconuts and *malai* (flower garlands) used in religious ceremonies by the Batu Caves temple, the search for more avenues to sell recyclables in order to increase income for the disabled by Beautiful Gates, and the widespread expansion of recycling points in more and more neighbourhoods by the Tzu Chi volunteers in their efforts to increase awareness about the spirit of recycling.

4.3. Conducive and unique institutional structure for recycling

One of the possible reasons the religious communities are able to ensure the sustainability of their programmes is partly due to the established institutional structure in which they operate. Religious communities, be it Hinduism, Islam, Christianity and Buddhism, in their own unique way, have different forms of formalised establishments and deeply ingrained rituals, which in turn could be used to strengthen their recycling programmes. For instance, the role of houses of worship such as mosques, temples and churches are very central to a religious life. This is the place where worshippers of each religion congregate and where many community-based religious activities are conducted, be it in terms of religious worship, education and acts of social service. In this study, one could see the use of such platform, particularly in the case of Surau Al-Husna and the Batu Caves temple. Both the surau and the temple have their own management structure and this provides a strong platform for managing the recycling programmes systematically. In Batu Caves temple, the temple supervisor has the authority to instruct the cleaners to collect the recyclables and to set-up suitable facilities for their operation. While in Surau Al-Husna, the initiator of the programme enjoys good support from the imam and he is also a member of the surau's management committee. From such position, it is easier to include recycling as a part of the surau's activity.

Other than houses of worship, religious communities also have other forms of organisational structure. For instance, the Beautiful Gates Centre is a small centre under the umbrella management of the Malaysian Chinese Methodist Church, and it was established for the specific purpose of helping those with disabilities. The centre

has its own management structure and its activities have been developed in such a way that the centre can assist the disabled to be more independent in their lives. It is under this overarching objective of helping the disabled that the Beautiful Gates recycling programme has been designed and managed. On the other hand, in the case of the Tzu Chi Association the recycling programme is governed by a hybrid organisational structure – combining both centralised and decentralised style of management. The decentralised part is the bottom-up approach of using Tzu Chi volunteers to set-up independent recycling programmes in their own neighbourhood. Each of these programmes is unique and is based on the activity of a group of Tzu Chi volunteers in a particular area. However, these scattered voluntary groupings are also supported by the centralised Tzu Chi administration, especially in terms of the provision of general resources, information, socialisation and training. Other than this, the Tzu Chi volunteers are also able to gain ideas, lessons and inspirations from other Tzu Chi volunteers conducting recycling initiatives in other parts of the world. This is possible because the Tzu Chi association offers very comprehensive communication channels to its volunteers, be it through local and overseas training, websites, television programmes (Tzu Chi Da-Ai TV channel), books, monthly magazines, blogs, and newsletter, among others. However, it is important to note that this type of arrangement is unique to the Tzu Chi Association and quite atypical compared to other religious communities, even among Buddhist groups. In fact, the Taiwan based association is a relatively new religious grouping and was only founded in 1966. It originated as a breakaway from traditional Buddhism, in the sense that it emphasises action and social practices more actively than other groups (Ting, n.d.). In fact, from this action-oriented emphasis of their religious philosophy the act of recycling itself is considered as a deep spiritual practice and each Tzu Chi volunteer is required to practice recycling as a way of life if being true to the teaching and example of the Tzu Chi Master.

4.4. Multiple drivers for recycling in the value system of each religion

As a social group, the activities by religious communities are typically driven by ethical, communal and spiritual motivations and even for the case of recycling, such motivation can be observed in all the cases. As a whole, all of the religious communities included in this research started with the initial premise that recycling is an environmentally responsible action and therefore it should be adopted and encouraged by the community. In fact, each religious community has its own worldview on the relationship between human beings and the natural environment, and the important role of their community in environmental conservation. Islam and Christianity emphasise the role of human beings as vicegerent or stewards of nature, Buddhism stresses on the oneness and co-existence with nature; while both Hinduism and Buddhism believe in the idea of Karma, where an act of goodness towards nature will sow goodness in return. In the following are examples of specific sayings that reflect the core environmental ethics of each religious tradition:

Buddhism: as a bee gathering nectar does not harm or disturb the colour and fragrance of the flower; so do the wise move through the world (Dhammapada: Flowers, verse 49).

Christianity: so God created man in his own image, in the image of God he created him; male and female. God blessed them and said to them. Be fruitful and increase in numbers; fill the earth and subdue it. Rule over the fish of the sea and the birds of air and over the tiny creature that moves on the ground (The Old Testament; Genesis 1:26–28).

Hinduism: living bodies subsist on food grains, which are produced from rains. Rains are produced from performance of yajna [sacrifice], and yajna is born of prescribed duties [. . .]. My dear Arjuna, one who does not follow in human life the cycle of sacrifice thus established by the Vedas certainly lives a life full of sin. Living only for the satisfaction of the senses, such a person lives in vain (Bhagavad Gita 3:14–16).

Islam: the world is beautiful and verdant, and Verily God the exalted, has made you His stewards in it, and He sees how you acquit yourselves (The Holy Quran, Verse)

Nonetheless, beyond this ethical similarity, the unique socio-religious features of each religious community can also provide some diversity on what drives them to conduct the recycling programme. In addition to environmental conservation, another religious driver connected to recycling is the act of charity. In three of the cases, proceeds from the recycling are being used for the purpose of charity in some way or another. In Surau Al-Husna proceeds are being used to improve the surau as a community area, in Beautiful Gates proceeds are used to help the disabled while in Tzu Chi, proceeds are being used to fund relief efforts in different parts of the world. Therefore, even though recyclable items are sold to generate revenue, these are not used for individual profits, but for the greater good of the community. However, in the case of Batu Caves Temple, their activities are totally non-monetary.

In addition to the two drivers, the Tzu Chi Buddhist community has gone a step further by taking recycling as a part of a spiritual lifestyle that needs to be taken seriously by its volunteers. In this, cultivating discipline to recycle (in addition to reduce and reuse of waste) as a part of everyday life is considered as a noble spiritual practice for its adherents. Perhaps, this deep motivation for spiritual growth is the main reason why the recycling programme conducted by the Tzu Chi volunteers has grown much faster than any other initiative in the country. It might also explain the high level of dedication and proactiveness of their volunteers to set up and manage their own recycling programmes in their respective neighbourhoods, even with limited administrative support.

4.5. Community outreach

Finally, in terms of public outreach, the religious community has also demonstrated that collectively they have the potential ability to encourage broad public participation in recycling. This can be seen at various levels – be it at the level of a community associated to a house of worship (Batu Caves Temple) and nearby neighbourhood (Surau Al-Husna); or to communities in various areas within a municipality (Beautiful Gates Centre) or even to communities in a large number of neighbourhoods in various areas around the state and country (Tzu Chi Association). Furthermore, even though the management of their recycling programme are very specific to the members of their religious community, each programme accepts recyclables from all members of the general public, regardless of creed. Social service and community outreach such as this is rather similar to the activities by to other categories of the informal sector (Table 3), namely the community-based organisations (CBOs) and non-governmental organisation.

It is also worth highlighting here that the higher level of public outreach by the Tzu Chi Buddhist community is, in this instance, due to the strength of both their values system and their institutional foundation. As previously elaborated, the Tzu Chi tradition has incorporated recycling as an important ritual in the lifestyle of Tzu volunteers, while being supported by both centralised and decentralised institutional foundation to manage and sustain their activities. This includes a comprehensive strategy of communication channels that not only incorporate the operational or technical aspects of recycling (this include reporting of recycling activities

by other Tzu Chi volunteers around the world), but also the spiritual sayings and inspiring examples of recycling practices by the Tzu Chi Master and other Tzu Chi volunteers around the globe. In comparison, the other religious communities were relatively less sophisticated in incorporating recycling as part of their value system and institutions.

5. Conclusion

This paper has provided early empirical evidence on the potential role of religious communities in enhancing public adoption of recycling as a form of environmental practice. From the successful cases observed in Malaysia, we can conclude that religious communities have the potential to play their role in recycling for several key reasons: the systematic way in which they operate, their ability to conduct long-term recycling programmes, the advantages of their institutional structure as an established platform for recycling activities, their multiple motivational drivers for recycling and their collective potential to expand their programmes to various parts of the broader community. The findings have also shown that the potential role of religious communities in recycling goes beyond general idealisms on the positive influence of religious values/ethics on the environment in that unique institutional element of each community can be exploited to support different aspects of the recycling programme. In other words, even though recycling activities by religious communities might be motivated initially by their ethical concerns on the environment, it is the institutional aspects that can provide more concrete explanations as to why religious ideals can be translated effectively into practical actions on the ground. From the research findings, one could begin to see that different institutional settings within each religion could provide different types of support and orientation to a recycling programme.

It is important to note, however, that the findings in this paper are based on a very limited number of cases, within the particular context of an urban community in Malaysia. Hence, the evidence in this research only provides early insights on the role of religious communities in recycling. In order to ascertain whether this idea has policy potentials, more investigation needs to be done in other contexts, covering more cases involving diverse institutional structures within each religion, be its houses of worship, NGOs, associations, foundations and even schools. It is also pertinent for future research to compare and critically analyse the potential role of religious communities alongside other social groups in the informal sector that has overlapping activities and motivations such as waste pickers, CBOs and NGOs. Nonetheless, even with this limitation, the authors of this paper envisage that the evidence presented in this paper could provide useful empirical evidence for decision makers to begin thinking more tangibly about the role of religious communities in supporting their recycling programmes, particularly in countries where religion has strong influence in the social-cultural landscape and day-to-day activities of public life.

Acknowledgements

Our sincere appreciation to our research assistants, Miss Siti Maisarah (Islam), Miss Pei Sang (Buddhism), Miss Jing Xuan (Christianity) and Miss Nagaletchumy (Hinduism) for conducting preliminary work for this study and to the University of Malaya for providing the required financial assistance.

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